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Geography

Keith Kelly




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Introduction

About this book

If you study geography through the medium of English and you have trouble remembering specific geography words, this book is for you. *Geography* is the second volume in the *Macmillan Vocabulary Practice Series*. The series is designed with students in mind whose first language is not English to help them practise their vocabulary, but native speakers of English may find it useful too. The book contains 18 key geography topics with word lists and activities and can be used alongside your regular geography book.

Here is how you can use it:

- each topic starts off with a word list in which you can look up the words. Choose the topic you are focusing on in class and study the words that you need: each word has a definition in English, but there is also space for you to write down a translation in your own language. Some words also have an example sentence to make their meaning even clearer.
- once you feel comfortable with the words, you can practise them by doing the activities which follow on from the word list. There are word activities in the **Working with words** sections to practise individual words. Try to write them down as well as pronounce them – the pronunciation of each word is in the word list as well. The following section is called **Working with sentences** and these activities are designed to help you use the words in the correct context. When you feel you are very familiar with the words you can attempt the activities under **Working with texts** which allow you to practise your knowledge of the words in larger contexts.
- at the back of the book is an index in which you can find all the words from the word lists in the book. If you come across an unfamiliar word which is not on your topic word list, look in the index to see where else in the book you can find it. If it is not in the book, the *Macmillan School Dictionary* or the *Macmillan English Dictionary* are very useful resources as well.
- if your book also contains an answer key, you can look up the answers to all activities at the back of the book in the Answer key section.
- the book can also be used as a quick reference tool to help look up the words you are struggling with in your regular textbook. All the definitions are written in clear, simple English.

If you have the CD-ROM as well as the book, you have even more opportunities to practise your vocabulary. The CD-ROM has searchable word lists which include an audio file with the pronunciation of each word. There are interactive activities per topic and many topics also contain animations and diagrams. Last but not least, there is a word map tool in each topic which allows you to make and save your own word maps to help you revise and remember your geography words.

Studying your school subjects in English can be challenging as well as fun. This book will help make the language learning easier so you can concentrate on learning about geography!

1 The restless Earth

Word	Definition	Example	Translation
accumulate /ə'kjʊ:mju:leɪt/	1 to get more and more of something over a period of time. verb [transitive] 2 to increase in quantity over a period of time. verb [intransitive]		
active /'æktɪv/	an active volcano is likely to erupt (=explode and pour out fire) at any time. When a volcano no longer does this, it is extinct. adjective		
Antarctic /æn'tɑ:(r)ktɪk/	the extremely cold region that is the most southern part of the world. The most northern region is the Arctic . noun		
anticlinal /ˌæntɪ'klaɪn(ə)l/	having the form of an anticline. adjective	<i>anticlinal folds</i>	
anticline /'æntɪklaɪn/	a bend in a layer of underground rock that curves upwards. It has the oldest rock at its core. noun [count]		
area /'eəriə/	a place on the surface of something such as a part of your body. noun [count]		
ash /æʃ/	the grey powder that remains after something has burned. noun [count/uncount]	<i>All that remained of the fire was a pile of ashes.</i>	
atoll /'ætol/	an island in the form of a ring, made of coral. noun [count]		
basalt /'bæsɔ:lt/	a dark-green or black rock formed when hot liquid rock from a volcano becomes solid. noun [uncount]		
blast /blɑ:st/	1 an explosion, especially one caused by a bomb. noun [count] 2 a strong current of air, wind, heat etc. noun [count]	<i>Ten people were injured in the blast. blast of: A blast of cold air hit them as they opened the door.</i>	
bound /baʊnd/	if an area is bounded by a fence, trees, a river etc, this is what is around its edge. verb [intransitive]		
buckle /'bʌk(ə)l/	1 to bend, or to make something bend under great pressure. verb [intransitive/transitive] 1a to suddenly become weak and bend. verb [intransitive]	<i>The pillars began to buckle under the strain. I could see his knees buckle after that last punch.</i>	
caldera /kæl'deərə/	a large hole in a volcano, sometimes containing a lake, caused by the walls that form the top of the volcano falling in after an eruption happens. noun [count]		
Cambrian, the /'kæmbriən/	the period of geological time, 595 million to 495 million years ago, when invertebrate animals appeared and algae developed in the sea. noun [uncount]		
chain /tʃeɪn/	a series of things of the same type that form a connected line. noun [count]	<i>In 1910 there was a proposal for a chain of telegraph stations to link up the empire.</i>	
chasm /'kæz(ə)m/	a very deep crack in rock or ice. noun [count]		
circular /'sɜ:(r)kjʊlə(r)/	1 in the shape of a circle. adjective 2 involving movement in a circle. adjective	<i>a circular tray a circular tour of the main islands</i>	
collapse /'kɒlæps/	if a building or other structure collapses, it suddenly falls down. verb [intransitive]	<i>There were fears that the roof would collapse.</i>	
collide /'kɒlaɪd/	if people or things collide, they crash into each other. When two things collide, they have a collision . verb [intransitive]	<i>The two trains collided about a mile outside the city.</i>	
compression /kəm'preʃ(ə)n/	the process of pressing or squeezing something so that it becomes smaller. noun [uncount]		

Word	Definition	Example	Translation
cone /kəʊn/	an object with a circular base that rises to a point. Something in the shape of a cone is conical . noun [count]	<i>a large building shaped like a cone</i>	
constant /'kɒnstənt/	continuous or regular over a long period of time. adjective	<i>a constant flow of traffic on the motorway</i>	
continent /'kɒntɪnənt/	one of the very large areas of land on Earth that are usually divided into several countries. noun [count]	<i>the North American continent the continent of Africa</i>	
continental crust /ˌkɒntɪ'nent(ə)l kɹʌst/	the part of the outer shell of the Earth that includes the land masses and the solid rocks underneath them. It is about 35 km thick in most areas and has sedimentary rocks near the surface and metamorphic rocks lower down. noun [uncount]		
continental drift /ˌkɒntɪ'nent(ə)l 'drɪft/	the very gradual movement of continents across the Earth's surface as a result of the movement of the plates that they lie on. noun [uncount]		
continental plate /ˌkɒntɪ'nent(ə)l pleɪt/	one of the large pieces into which the surface of the Earth is divided. These plates can move, and volcanoes and earthquakes are found at the places where they meet. noun [count]		
convection current /kən'vekʃ(ə)n 'kʌrənt/	a current (= strong movement in one direction) caused by the expansion of a liquid, solid, or gas as its temperature rises. noun [uncount]	<i>Convection currents in the Earth's mantle cause the continental plates to move slowly.</i>	
cool /ku:l/	cool or cool down to become cooler, or to make something cooler. verb [intransitive/transitive]	<i>The molten rock cools quickly when it meets cold ocean water.</i>	
core /kɔ:(r)/	the central part of a planet: the Earth's core . noun [count]		
crack /kræk/	1 if something cracks, a line or long narrow hole appears on its surface, but it does not break into pieces. verb [intransitive] 1a a line on a surface where something is beginning to break apart. noun [count] hairline crack (=an extremely thin crack). 2 a narrow opening between two things or parts of things. noun [count]	<i>The ice was starting to crack at the edges.</i> <i>Many old buildings have cracks in their walls.</i>	
crater /'kreɪtə/	the round hole at the top of a volcano. noun [count]		
crater lake /'kreɪtə leɪk/	a round lake that forms in the large hole in the top of a volcano after it erupts. noun [count]		
crust (oceanic) /kɹʌst/	the outer layer of rock on the Earth or on another planet. noun [count/uncount]		
crustal /'kɹʌst(ə)l/	relating to the outer layer of rock on the Earth. adjective	<i>crustal plate movement</i>	
cylindrical /sɪ'lɪndrɪk(ə)l/	shaped like a cylinder. adjective		
damage /'dæmɪdʒ/	1 physical harm caused to something so that it is broken, spoiled, or injured. noun [uncount] 2 negative effects on someone or something. noun [uncount] 3 to harm something physically so that it is broken, spoiled, or injured. verb [transitive]	<i>Mr Charlton surveyed the damage caused by the bulldozer.</i> <i>Many buildings and cars had been damaged in the blast.</i>	
debris /'debrɪ:/	the broken pieces that are left when something large has been destroyed, especially by an explosion, fire, or accident. noun [uncount]		
deep /di:p/	1 going a long way down from the top or the surface. 1a used for saying or asking the distance from the top or surface of something. 2 metres deep/6 feet deep etc	<i>The river is quite deep here.</i> <i>How deep is the snow?</i>	
delta /'delta/	an area where a river divides into several smaller rivers that flow into the sea. noun [count]		
density /'densəti/	1 the amount of something in a place. noun [uncount] 2 the degree to which something is heavy or thick. noun [uncount] 3 a measurement of how much space a particular amount of a substance takes up. It is found by dividing its mass by its volume. noun [uncount]	<i>the density of vegetation in the area</i>	

Word	Definition	Example	Translation
destroy /dɪ'strɔɪ/	to damage something so severely that it no longer exists or can never return to its normal state. verb [transitive]	<i>An earthquake destroyed the town, killing about 20,000 people.</i>	
devastate /dɪ'veɪstet/	to seriously damage or completely destroy something. verb [transitive] [usually passive]	<i>Western India was devastated by a huge earthquake.</i>	
direction /daɪ'rekʃ(ə)n/	the path that someone or something moves along when going towards a place. noun [count]	<i>Are you sure we're going in the right direction?</i>	
dormant /'dɔː(r)mənt/	something that is dormant is not active or developing now, but it may become active or develop in the future. lie dormant (=remain dormant): <i>The virus can lie dormant for up to ten years.</i> adjective	<i>a dormant volcano</i>	
downfold /'daʊn,fəʊld/	see: syncline		
drag (along, apart) /dræg/	to pull something or someone along with difficulty, for example because they are heavy. verb [transitive]	<i>Rocks are dragged along the surface by the weight of the ice.</i>	
earthquake /'ɜː(r)θ,kweɪk/	a sudden movement of the ground, often causing a lot of damage to buildings etc. Earthquakes usually take place along geological faults or in volcanic areas. The strength of earthquakes is measured on the Richter scale. noun [count]		
earthquake-proof /'ɜː(r)θ,kweɪk pruːf/	not affected by earthquakes. adjective		
elastic /'elæstɪk/	something that is elastic can be stretched easily and can then return to its original shape quickly. adjective	<i>The elastic behaviour of some materials depends on the temperature and duration of the stress applied.</i>	
epeirogenic movement /ɪ,paiərəʊ:dʒenɪk 'muːvmənt/	movement of tectonic plates that raises or lowers the Earth's surface and causes continents to form. noun [count/uncount]		
epicentre /'epɪ,sentə(r)/	the area of land directly over the centre of an earthquake. noun [count]		
erupt /'ɪrʌpt/	if a volcano erupts, it explodes inside and flames, rocks, and lava come out of the top. verb [intransitive]	<i>Vesuvius hasn't erupted since 1944.</i>	
eruption /'ɪrʌpʃ(ə)n/	the explosion of a volcano. noun [count]		
Eurasian /jʊə'reɪz(ə)n/	relating to both Europe and Asia. adjective	<i>the Eurasian landmass</i>	
extinct /'ɪk'stɪŋkt/	an extinct volcano is no longer active and no longer erupts. adjective	<i>Mount Kilimanjaro in Tanzania is an extinct volcano.</i>	
faultline /'fɔːlt,ləɪn/	a feature on the Earth's surface in which layers of rock that have become separated from the main layer of rock appear through the surface of the Earth. noun [count]		
fissure /'fɪʃə(r)/	a long deep crack in something, especially the ground. noun [count]		
float /fləʊt/	to rest or move slowly on the surface of a liquid and not sink. verb [intransitive]	<i>Their raft would not float.</i>	
flow /fləʊ/	the continuous movement of a liquid in one direction. noun [count/uncount]	<i>Leaves in the ditch were blocking the flow of water.</i>	
fluid /'fluːɪd/	1 a liquid. noun [count/uncount] 2 a liquid or gas. noun [count/uncount]	<i>Drink lots of fluids during exercise. cleaning fluid</i>	
focus /'fəʊkəs/	the place below the Earth's surface where an earthquake begins. (plural: foci) noun [count]	<i>shallow/deep focus</i>	
fold mountain /'fəʊld maʊntɪn/	a mountain formed from the folding of the Earth's crust when two plates move together. noun [count]		
folding /'fəʊldɪŋ/	when plate boundaries collide and compression causes parts of the Earth's crust to become raised and buckled into mountains. noun [uncount]		
foothills /'fʊt,hɪlz/	the low hills next to high mountains. noun [plural]	<i>the foothills of the Himalayas</i>	

Word	Definition	Example	Translation
force /fɔː(r)s/	1 physical strength, or violence. noun [uncount] 2 the power or energy produced by one thing hitting another noun [uncount]	<i>The office block took the full force of the blast.</i>	
form /fɔː(r)m/	to make something exist or develop. verb [intransitive/transitive]	<i>The valley was formed by erosion.</i>	
formation /fɔː(r)'meɪʃ(ə)n/	1 the process during which something develops or is created. noun [uncount] 2 the particular shape of something. noun [count]	<i>the formation of volcanic mountains</i> <i>rock/cloud formations</i>	
friction /'frɪkʃ(ə)n/	the physical force that makes it difficult for one surface to move over another. noun [uncount]		
gas /ɡæs/	a substance such as air that is neither a solid nor a liquid. noun [count/uncount]	<i>regulations to cut the emissions of gases such as carbon dioxide</i>	
geothermal energy /ˌdʒiːəʊ'θɜː(r)m(ə)l 'enə(r)dʒi/	energy in the form of heat obtained from hot moving groundwater. It is found in areas of volcanic activity such as New Zealand. noun [uncount]		
geyser /'giːzə(r)/	a place where hot water and steam move very quickly and suddenly up out of the Earth. noun [count]		
Gondwanaland /ɡɒnd'wɑːnə ˌlænd/	an ancient area of land that is believed to have existed in the southern hemisphere in ancient times, and to have been formed when Pangaea broke up. It consisted of South America, Africa, part of South Asia, Australia, and Antarctica and began to break up about 200 million years ago.		
granite /'grænit/	a type of very hard stone, used especially for building. noun [uncount]		
harden /'hɑː(r)d(ə)n/	to become hard or firm, or to make something hard or firm. verb [intransitive/transitive]	<i>This additive hardens the cement in an hour.</i>	
hot spring /ˌhɒt 'sprɪŋ/	a place where hot water comes up out of the ground and forms a pool. noun [count]		
hurl (into the air) /'hɜː(r)l/	to throw something using a lot of force. verb [transitive]	<i>Children were hurling snowballs at one another.</i>	
hydrosphere /'haɪdrə'sfɪə(r)/	the part of the Earth's surface that is water, including the seas and water in the atmosphere. noun [singular]		
identify /aɪ'dentɪfaɪ/	to recognize something and understand exactly what it is. verb [intransitive]	<i>Several key problems have already been identified.</i>	
ignite /ɪɡnaɪt/	1 to make something start to burn. verb [transitive] 1b to start to burn. verb [intransitive]	<i>The fire was ignited by a spark from an electrical fault.</i> <i>In the end, the rocket's engines failed to ignite.</i>	
inactive /ɪn'æktɪv/	an inactive volcano is not dangerous because it is no longer capable of erupting. adjective		
intense /ɪn'tens/	very great or extreme. adjective	<i>the intense heat of the Earth's mantle</i>	
intensity /ɪn'tensɪti/	strength low/moderate/medium/high intensity noun [count/uncount]	<i>intensity of: A warmer sea will change the distribution, frequency, and intensity of hurricanes.</i>	
iron /'aɪən/	a hard heavy metal that is a common element. It is used for making steel and is also used in many types of machine and building structures. noun [uncount]		
isthmus /'ɪsməs/	a narrow piece of land that joins two larger areas and has water on both sides. noun [count]		
jelly-like /'dʒelɪlaɪk/	a jelly-like substance is between a liquid and a solid. adjective	<i>jelly-like rock</i>	
knoll /nɒl/	a low round hill: a grassy knoll. noun [count]		
landform /'lænd,fɔː(r)m/	a feature on the Earth's surface such as a mountain or a valley. noun [count]		
landslide /'lændslaɪd/	a heavy fall of earth and rocks down the side of a mountain or steep slope. noun [count]		

Word	Definition	Example	Translation
lava /'lɑ:və/	1 rock in the form of extremely hot liquid that flows from a volcano. noun [uncount] 2 the solid rock that forms when liquid lava becomes cold. noun [uncount]		
layer /'leɪə(r)/	an amount or sheet of a substance that covers a surface or lies between two things or two other substances. noun [count]	<i>There was a thin layer of ice on the sidewalk.</i>	
liquid rock /'lɪkwɪd rɒk/	see: lava		
lithosphere /'lɪθə'sfɪə(r)/	the solid outer layer of the Earth, consisting of the crust and the upper mantle. noun [singular]		
magma /'mægmə/	hot liquid rock inside the Earth. When magma becomes cool it forms igneous rock . noun [uncount]		
magnitude /'mægnɪtju:d/	1 size, either great or small. noun [uncount] 2 the strength of an earthquake, measured with numbers from 1 to 10, where 10 is the most powerful. noun [count]	<i>The earthquake had a magnitude of 8.5 on the Richter Scale.</i>	
mantle /'mænt(ə)l/	the part of the Earth that is deep below the surface and surrounds the core. noun [singular]		
measure /'meʒə(r)/	1 an amount of a particular quality that is neither large nor small. noun [count] 2 a unit in a system of measurement. noun [count] 3 to find the exact size, amount, speed etc of something using a special tool or special equipment. verb [intransitive/transitive]	<i>The system gives people a measure of protection against pollution. standard measures of the metric system such as the litre The satellite measures atmospheric gases responsible for ozone destruction.</i>	
mineral /'mɪn(ə)rəl/	a natural substance in the Earth, for example coal, salt, gold, or diamonds. noun [count]		
molten /'mɔ:ltən/	molten rock, metal, or glass has become liquid because it is very hot. adjective		
monocline /'mɒnəʊ,klaɪn/	a rock structure in which all the layers slope in one direction. noun [count]		
movement /'mu:vmənt/	the process of moving things from one place to another. noun [count/uncount]	<i>the movement of the Earth's plates</i>	
mud-flow/ mudslide /'mʌd,fləʊ, 'mʌd,slaɪd/	a large amount of wet earth that falls down a hill. noun [count]		
nickel /'nɪk(ə)l/	a hard silver metal. noun [uncount]		
occur /'ɔ:kɜ:(r)/	to exist or be found somewhere. verb [intransitive]	<i>These are just some of the elements that occur on our planet.</i>	
oceanographic /əʊj(ə)nə'græfɪk/	relating to the study of the oceans. adjective		
ooze /u:z/	if a thick liquid oozes from something, or if something oozes a liquid, a small amount of it flows out slowly. verb [intransitive/transitive]	<i>The cut on her arm was oozing blood. ooze from/out of: Juice oozed from the grapes.</i>	
orogenic movement /ɔ:rəʊ'dʒenɪk mu:vmənt/	movement of tectonic plates that causes mountains to form. noun [uncount]		
overthrust /'əʊvə,θrʌst/	a rock structure caused by pressure pushing the layers of rock up until one side folds over onto the second side. This causes younger rock layers to be under older layers. noun [count]		
overturned fold /əʊvə'tɜ:nd fəʊld/	a bend in an underground layer of rock in which both sides of the bend are nearly parallel. noun [count]		
Pangaea /pæn'dʒi:ə/	a continent that existed between 200 and 300 million years ago, that was later to break up into two parts and then into the continents that exist now.		

Word	Definition	Example	Translation
peak /pi:k/	1 the time when something is at its highest or greatest level. noun [count] 2 the top of a mountain. noun [count] 2a a mountain. noun [count]	<i>snow-covered peaks</i> <i>one of the hardest peaks in Europe for climbers</i>	
physical geography /'fɪzɪk(ə)l dʒi:'bɒgrəfi/	the type of geography that deals with the physical features of the world such as mountains and rivers. noun [uncount]		
piggyback /'pɪɡi,bæk/	formed on top of or carried by something. adjective	<i>a piggyback basin</i>	
plain /pleɪn/	a large flat area of land. noun [count]	<i>the plains of North America</i>	
plateau /'plætəʊ/	a large flat area of land that is higher than the land around it. noun [count]		
plate tectonics /ˌpleɪt tek'tɒnɪks/	the study of the large layers of rock under the surface of the Earth, and how they were formed and move. noun [uncount]		
pour /pɔ:(r)/	to flow continuously and in large amounts pour from/in/down/through verb [intransitive]	<i>The village was evacuated as lava poured from the volcano.</i>	
pressure /'preʃə(r)/	a force pressing on something. noun [count/uncount]	<i>These rocks are formed by great pressure.</i>	
protrude /prə'tru:d/	to be further forward than the rest of something. verb [intransitive]		
push /pʊʃ/	to move someone or something away from you, or from their previous position, using part of your body, especially your hands. verb [intransitive/transitive]		
quake /kweɪk/	1 if something such as a building quakes, it shakes violently. verb [transitive] 2 see: earthquake		
rapidly /'ræpɪdli/	happening, moving, or acting quickly. adverb		
ravine /rə'vi:n/	a very deep narrow valley with steep sides. noun [count]		
red-hot /red'hot/	1 shining red with heat. adjective 1a extremely hot. adjective	<i>red-hot coal</i> <i>Be careful – the iron is red-hot.</i>	
reinforce /ri:'ɪn'fɔ:(r)s/	1 to make a situation, process, or type of behaviour stronger and more likely to continue. verb [transitive] 2 to make a building, structure, or object stronger. verb [transitive]	<i>Crews started work today to reinforce the seriously damaged bridge.</i>	
restless /'restləs/	never still, or motionless. adjective	<i>the restless Earth</i>	
Richter scale, the /'rɪktə(r) ,skel/	a scale from 1 to 10 which is used for measuring the strength of earthquakes according to how much energy is released. A higher number represents a stronger force.		
ridge /rɪdʒ/	the long narrow top of a mountain or group of mountains. noun [count]		
rift /rɪft/	a crack or long narrow space that forms in a large mass of something such as rock. noun [count]		
rift valley /rɪft ,væli/	a valley with steep sides, produced when the land between two parallel cracks in the ground sinks. noun [count]		
rim /rɪm/	1 the edge of an open container or circular object. noun [count] 2 to form a rim that goes around the edge of something. verb [transitive]	<i>They were standing on the rim of the volcano.</i> <i>Hills rimmed the horizon.</i>	
ring of fire /rɪŋ əv faɪə/	an area of frequent earthquakes and volcanic eruptions around the Pacific Ocean. noun [singular]	<i>the Pacific Ring of Fire</i>	

Word	Definition	Example	Translation
ripple /ˈrɪp(ə)l/	1 a small wave or series of waves on the surface of a liquid. noun [count] 1a something that looks like a wave. noun [count] 2 if a liquid ripples, or if something ripples it, it moves gently in small waves. verb [intransitive/transitive] 2a to move like waves, or to make something move like waves. verb [intransitive/transitive]	<i>Joe threw a stone and watched the ripples spread out across the pond. There were ripples in the sand. A slight wind rippled the lake's surface. A light breeze rippled the trees.</i>	
rise /raɪz/	1 rise or rise up to move upwards or to a higher position. verb [intransitive] 1a if land rises, it slopes upwards and becomes higher. verb [intransitive] 1b to come up through the surface of the Earth or water. verb [intransitive]	<i>The aircraft rose slowly into the air. They were heading westwards to where the land rose more steeply.</i>	
rock /rɒk/	1 if an explosion or earthquake rocks something, it makes it shake violently. verb [transitive] 1a if something rocks, it shakes violently as a result of an explosion or an earthquake. verb [intransitive] 2 the hard solid substance that forms part of the Earth's surface. noun [uncount] 3 a large piece of stone that rises up from the ground or from under the sea. noun [count]	<i>The blast rocked the houses in the street. The solid ground rocked beneath us.</i>	
rocky /rɒki/	covered with rocks, or made of rock. adjective	<i>a rocky coastline</i>	
rolling /ˈrɒlɪŋ/	rolling land has gentle slopes continuing for a long distance. adjective [only before noun]	<i>the rolling hills of England</i>	
rotation /ˈrəʊt(ə)ʃ(ə)n/	movement in a circle around an axis, especially the movement of the Earth around its axis once every 24 hours. noun [count/uncount]		
rush /rʌʃ/	a sudden strong movement of liquid or air. noun [singular]	<i>He opened the door and felt a rush of cold night air.</i>	
sea floor /ˈsiːflɔː/	the ground at the bottom of the sea. noun [singular]		
seismic /saɪzˈmɪk/	relating to earthquakes. adjective	<i>seismic activity; a seismic wave</i>	
seismograph /saɪzˈmɒɡrɑːf/	an instrument used for measuring and recording the strength of earthquakes. noun [count]		
seismology /saɪzˈmɒlədʒi/	the scientific study of earthquakes. noun [uncount]		
semi-molten /ˌsemiˈmɔʊltən/	semi-molten rock has almost become liquid because it is so hot. adjective		
separate /ˈsepəreɪt/	to move apart and stop being connected to something. verb [intransitive]	<i>Some plates separate from each other.</i>	
shake /ʃeɪk/	to make lots of quick small movements up and down, or from side to side, or to make someone or something do this. verb [intransitive/transitive]	<i>The houses shook during the earthquake.</i>	
shock wave /ʃɒk weɪv/	the force of an explosion or earthquake, especially when it affects places far away. noun [count]		
shudder /ˈʃʌdə(r)/	1 if something shudders, it shakes violently several times. verb [intransitive] 2 a quick uncontrolled shaking movement. noun [count]		
sink /sɪŋk/	1 to disappear below the surface of the water. verb [intransitive] 1a to go below the surface of a soft substance. verb [intransitive]	<i>The ship sank off the coast of Newfoundland during a storm.</i>	
slide /slaɪd/	to move smoothly and quickly across a surface. verb [intransitive]		
span /spæn/	1 to last for a particular period of time, especially a long period. verb [transitive] 2 to include the whole of an area. verb [transitive]	<i>His career spanned half a century. Our business spans the globe.</i>	
spur /spɜː(r)/	a long piece of high land that sticks out into a valley. It is a result of glaciation. noun [count]		

Word	Definition	Example	Translation
stretch /stretʃ/	an area of land or water. noun [count]	<i>The village lay across a narrow stretch of water.</i>	
structure /'strʌktʃə(r)/	the way in which the parts of something are organized or arranged into a whole. noun [count/uncount]		
surface /'sɜː(r)fɪs/	the top layer of water or land. noun	<i>the surface of Mars</i>	
sway /sweɪ/	to move or swing gently from side to side. verb [intransitive]	<i>The ladder swayed precariously.</i>	
swirl /'swɜː(r)l/	to move quickly in circles, or to make something move in this way. verb [intransitive/transitive]	<i>Snowflakes were swirling all around us.</i>	
synclinal /'sɪŋklɪn(ə)l/	in the form of a syncline. adjective		
syncline /'sɪŋklaɪn/	a bend in a layer of underground rock that curves downwards. It has the youngest rocks at its core. noun [count]		
system /'sɪstəm/	a set of connected things that work together for a particular purpose. noun [count]		
tectonic /'tek'tɒnɪk/	relating to the structure and movement of the surface of the Earth. adjective		
terrain /'tɛrɪn/	an area of land, usually one that has a particular physical feature. noun [uncount]	<i>familiar/hilly/mountainous terrain</i>	
tertiary /'tɜː(r)ʃəri/	1 in the place or position counted as number three. adjective 2 less important. adjective		
thickness /'θɪk'nəs/	1 the measurement of how thick something is. noun [count/uncount] 2 a layer of something. noun [count]	<i>Cooking time depends on the thickness of the steak.</i> <i>She couldn't feel much through the three thicknesses she was wearing.</i>	
tidal wave /'taɪdl 'weɪv/	1 a large wave or mass of water in the sea that is sometimes produced at high tide. noun [count] 2 a tsunami. noun [count]		
tremble /'tremb(ə)l/	to shake slightly. verb [intransitive]	<i>The windows tremble when trucks drive past our house.</i>	
tremor /'tremə(r)/	a small earthquake. noun [count]		
tsunami /'tsu:'nɑːmi/	a very large wave in the sea that is caused by an earthquake under the sea or by the eruption of a volcano. Tsunamis usually cause severe damage on land. noun [count]		
tumble /'tʌmb(ə)l/	tumble or tumble down if a building or other structure tumbles, it falls to the ground. verb [intransitive]	<i>It seemed that the walls had tumbled from the inside.</i>	
upfold /'ʌp'fəʊld/	see: anticline		
upland /'ʌplənd/	relating to an area of high land. adjective		
uplands /'ʌpləndz/	areas of high land. noun [plural]		
upthrust /'ʌp'θreɪst/	a large piece of rock that has moved upwards in a crack in the Earth's surface. noun [count/uncount]		
upwards /'ʌpwə(r)dz/	towards a higher position. adverb	<i>She glanced upwards at the screen.</i>	
vent /vent/	a hole in the Earth's surface through which lava or gas comes out. noun [count]		
violent /'vaɪələnt/	a violent wind, storm, or explosion happens with great force and causes serious damage and destruction. adjective		
volcanic /'vɒl'kæɪnɪk/	coming from, or relating to, a volcano. adjective	<i>a layer of volcanic ash</i>	
volcanism /'vɒlkə,nɪzəm/	the processes involved in the formation of volcanoes, and in the movement of magma from inside the Earth to its surface. noun [uncount]		

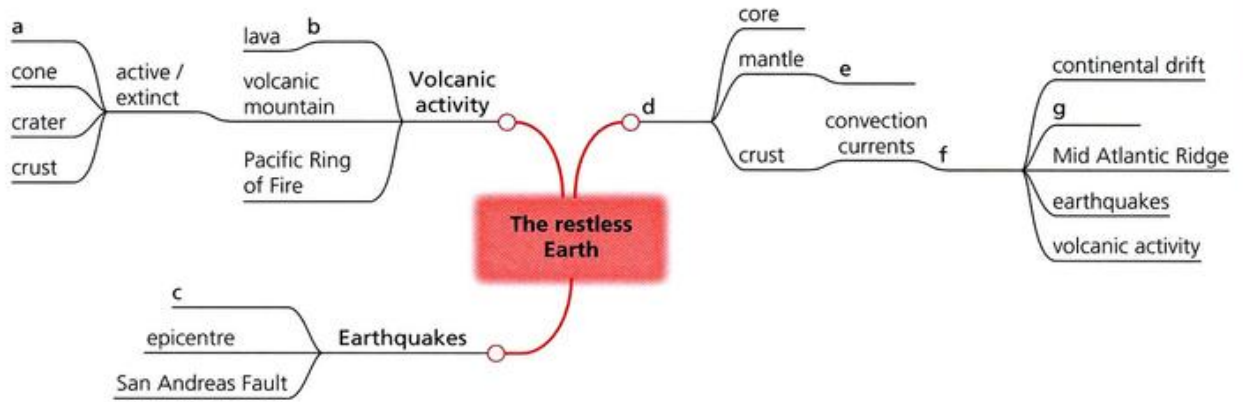
Word	Definition	Example	Translation
volcano /vɒl'keɪnəʊ/	a mountain that forces gas, rocks, ash, and lava into the air through a hole at the top. noun [count]	<i>a composite/shield/strato volcano</i>	
well up /ˌwel 'ʌp/	if a liquid wells or wells up, it comes to the surface and is about to flow. verb [intransitive]		
winding /'waɪndɪŋ/	a winding road, river etc has a lot of bends in it. adjective		
wobble /'wɒb(ə)l/	1 to rock slightly from side to side, or to make something do this. verb [intransitive/transitive] 2 a slight movement from side to side. noun [count]		
zone /zəʊn/	an area where a particular thing happens. noun [count]	<i>an earthquake zone</i>	

A Working with words

1 The restless Earth word map

Write these words in the correct place on the word map.

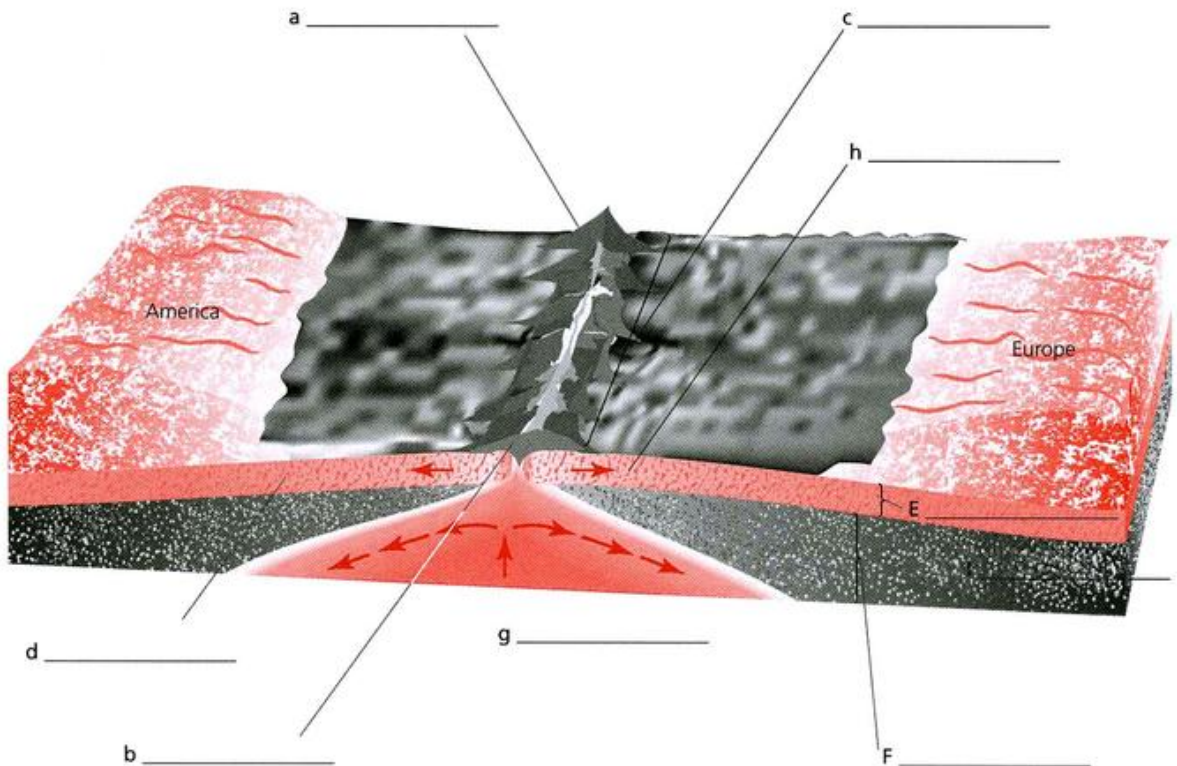
folding magma vent structure plates semi-molten focus



2 How the Mid Atlantic Ridge was formed

Label the diagram with these words. There is one word you don't need to use.

semi-molten rock convection currents North American Plate crack Eurasian Plate mantle crust Mid Atlantic Ridge volcanic island



3 Fold mountains and volcanoes

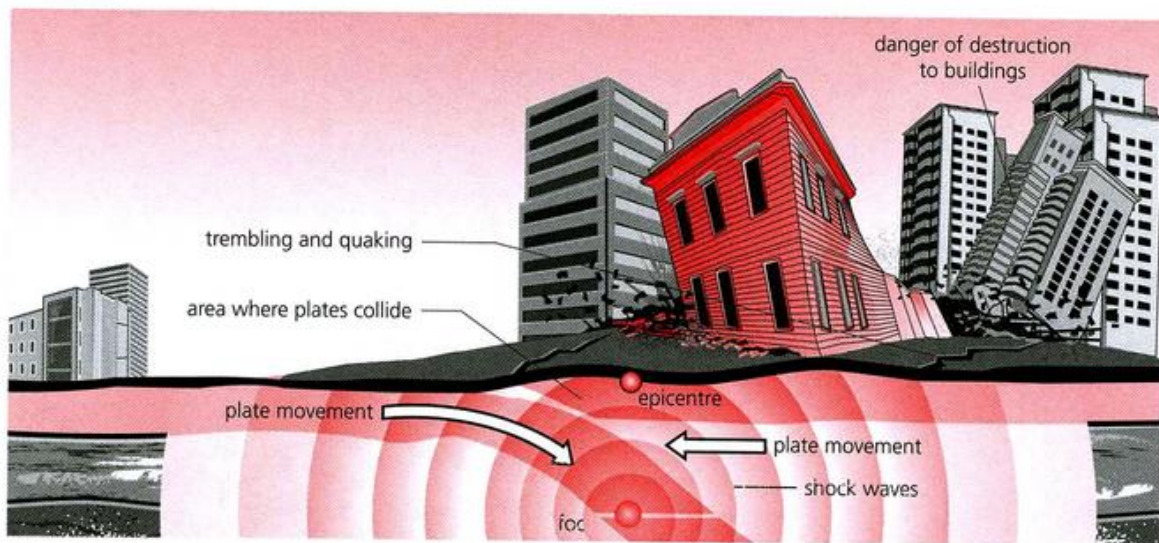
Complete the sentences with these words.

pressure buckle eruption folded colliding wells up sinks collisions surface crust melts

- The Earth's plates are frequently _____ with each other.
- The collision of the Earth's plates leads to intense _____ along their zones of contact.
- The pressure from plate _____ causes the rock layers of the _____ to fold.
- When rock layers _____, this forces them upwards to create fold mountain chains.
- When one plate is forced under another plate it _____ down into the intensely hot mantle and _____.
- Melted rock is lighter than solid rock, so some of it will rise upwards to the _____ through the buckled and _____ rock layers.
- The melted rock _____ to erupt violently at the surface, creating some of the most dangerous volcanoes on Earth.
- An example of such an _____ was at Mount St Helens in the Rocky Mountains in 1980 which killed 57 people.

B Working with sentences

4 Earthquakes



Put the sentences in the correct order. Use the picture to help you.

- Buildings may sway and eventually collapse if the force is strong enough.
- Earthquakes tend to happen where plates collide or slide past each other.
- The colliding or sliding plates cause such a great compression below the surface that rocks bend and then crack suddenly.
- The shock waves may cause the Earth's surface to tremble or 'quake' for several seconds.
- The earthquake is usually strongest at the epicentre, which is the surface area directly above the focus.
- This is the place where the cracks occur.
- When this happens, shock waves spread out from the focus.

1 2 3 4 5 6 7

5 The restless Earth

Match these words with the correct paragraphs.

plates continental drift folding earthquakes mid ocean ridges
volcanic mountains the Pacific Ring of Fire

- 1 _____ These can occur where plates collide or slide past each other and compression and cracking of rock causes shock waves to spread from the focus. When these waves reach the surface, the ground trembles, causing great damage to life and property.
- 2 _____ This phenomenon can occur where plate boundaries collide and compression causes parts of the Earth's crust to become raised and buckled into mountains.
- 3 _____ These are formed where plates collide and magma reaches the surface violently through a vent. Layers of ash and lava gradually form a volcanic cone, which will have a crater at its summit.
- 4 _____ These can be formed where plate boundaries separate beneath the oceans. Magma makes its way to the surface along long cracks to form raised formations. Some higher parts may protrude above the surface of the ocean in the form of volcanic islands.
- 5 _____ The layers on the surface of the Earth's crust which make up our continents and the floors of our oceans.
- 6 _____ This is the world's largest earthquake and volcanic zone.
- 7 _____ The process by which convection currents in the mantle below the Earth's surface cause the plates to move slowly and also cause the boundaries of plates to collide with and separate from each other.

6 Advantages and disadvantages of volcanoes

Match the beginnings and endings of the sentences.

Beginnings

- 1 New land is
- 2 Coffee beans are
- 3 Hot springs called geysers, heated by magma near the Earth's surface, are
- 4 Dormant and extinct volcanoes are
- 5 Villages and towns are often
- 6 Giant tidal waves called tsunamis can be

Endings

- a created by erupting volcanoes on the sea floor. They can kill thousands of people, especially in low-lying places such as deltas, e.g. in Bangladesh.
- b created for farming and living space, e.g. in Iceland.
- c devastated by landslides and mud-flows when snow-capped volcanic mountains erupt.
- d grown in the mineral rich lava soils around volcanoes, e.g. in Colombia in the Andes mountains in South America.
- e used to heat glasshouses for food production in Iceland.
- f visited by thousands of people each year, e.g. Mount Vesuvius near Naples in Italy.

1 2 3 4 5 6

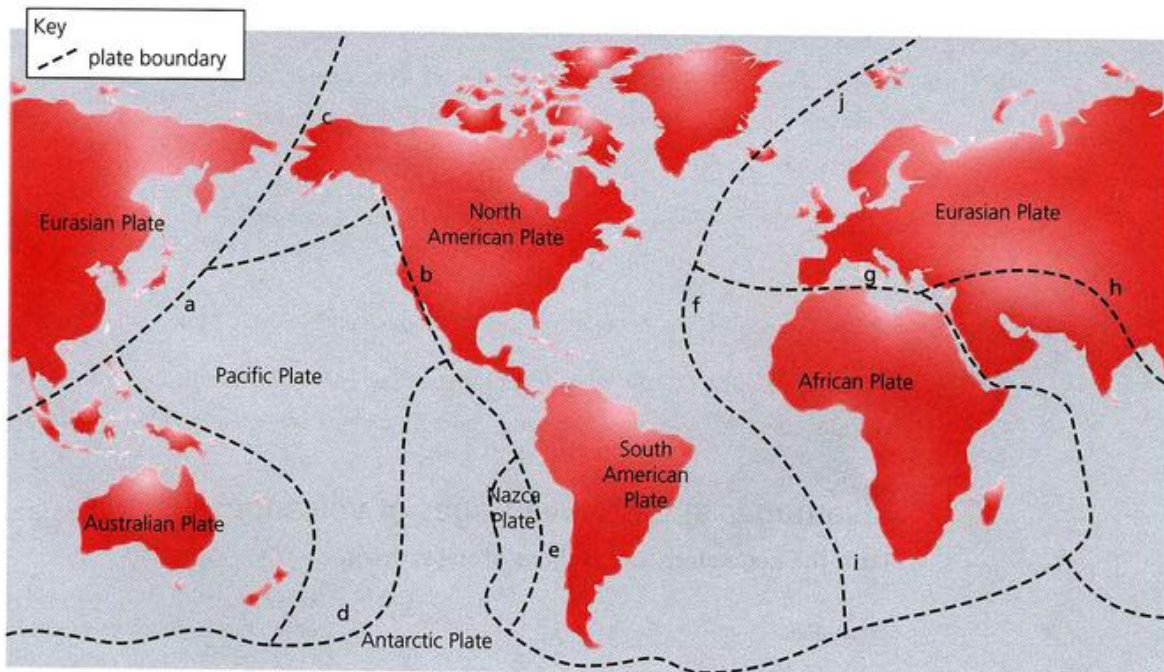
C Working with texts

7 Plate movements around the world

Read the text, look at the map and write *collide*, *separate* or *slide* next to each letter below.

The Earth's plates are always moving. Plates collide, some separate and others slide along each other. Plates which separate from each other include the Antarctic Plate from the Pacific Plate. Another is the section of the Eurasian Plate north of India which separates from the Australian Plate. Other plates which move away from each other are in the Atlantic Ocean where the African and the South American Plates meet, where the African and the North American Plates meet and where the Eurasian and North American Plates meet.

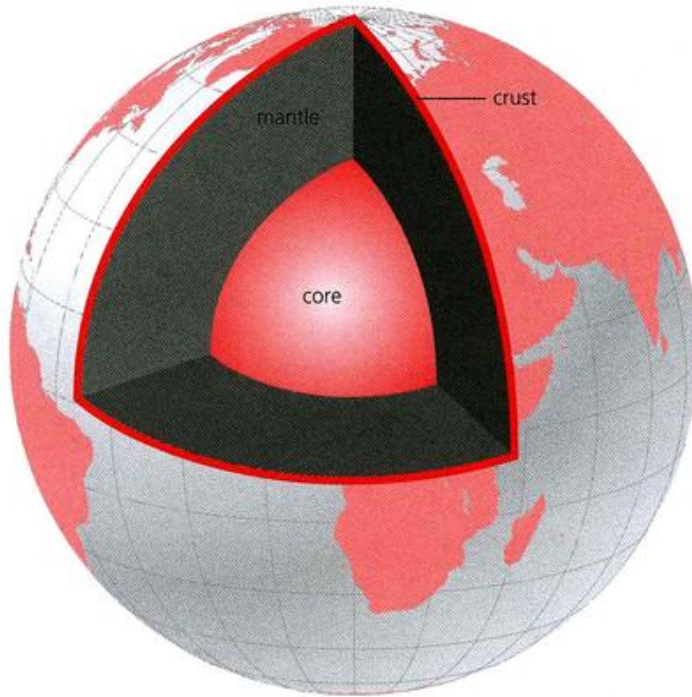
While all this is happening, other plates collide or slide against each other. For example, at the meeting point of the North American Plate with the Pacific Plate, the movement is in opposite directions, but the Pacific Plate moves north whereas the North American Plate moves south. Examples of colliding plates can be seen where the Pacific and the Eurasian Plates meet and where the Nazca and the South American Plates meet. Yet another example of plate collision is where the Eurasian and the African Plates meet.



- a _____
- b _____
- c _____
- d _____
- e _____
- f _____
- g _____
- h _____
- i _____

What is the Earth made of?

Look at the picture. Then read the sentences and sort them into the correct section.



- 1 It can be as thin as 3 km under the oceans.
- 2 It is the hottest part of the Earth.
- 3 It may be 70 km in thickness under the continents.
- 4 It moves about as fast as fingernails grow.
- 5 It travels in currents, called convection currents.
- 6 Temperatures are greater than 4,000°C.
- 7 The outer part of this layer consists of solid rock, mostly basalt and granite.
- 8 The rock here is so hot (up to 4,000°C) that it is in a plastic state.
- 9 This jelly-like rock is called magma.
- 10 This part is made up of iron and nickel.

A Crust	B Mantle	C Core

2 Rocks

Word	Definition	Example	Translation
action /ˈækʃ(ə)n/	the movement of an object as it works or makes progress, especially a particular kind of movement. noun [singular/uncount]	<i>the erosive action of a great glacier</i> <i>frost/freeze-thaw action</i>	
agent /ˈeɪdʒ(ə)nt/	1 chemical or other substance that has a particular effect. noun [count] 2 something that causes change. noun [count]	<i>oxidizing agents</i> <i>Soil erosion is a major agent of environmental change.</i>	
alpine /ˈælpain/	relating to high mountains, especially the mountains of the European Alps. adjective	<i>an alpine resort</i>	
ammonite /ˈæmənaɪt/	an extinct sea animal with a flat spiral shell, which is often found as a fossil. noun [count]		
anthracite /ˈænθrəsaɪt/	a type of very hard coal. noun [count]		
aquifer /ˈækwɪfə/	a layer of earth or rock that contains water, or that water can pass through. noun [count]		
avalanche /ˈævələntʃ/	a large amount of snow that suddenly falls down a mountain. noun [count]	<i>The avalanche destroyed all the trees and buildings in its path down the mountain.</i>	
basalt /ˈbæsɔːlt/	a dark-green or black rock formed when hot liquid rock from a volcano becomes solid. It is a type of igneous rock. noun [uncount]		
bauxite /ˈbɔːksaɪt/	an ore from which aluminium is obtained. Bauxite is found in many parts of Africa, South America, and the Caribbean. noun [uncount]		
bedrock /ˈbed,rɒk/	the solid rock under the ground that supports the soil above it. noun [singular]		
bogburst /ˈbɒg,bɜːst/	the mass movement of saturated peat downslope. noun [count]		
bore /bɔː(r)/	to make a deep hole in something hard. bore into/through verb [intransitive/transitive]	<i>insects that bore through wood</i>	
calcite /ˈkælsaɪt/	a colourless or white mineral that is a form of calcium carbonate. noun [uncount]		
calcium carbonate /ˈkælsiəm ˈkɑː(r)bəneɪt/	a white solid chemical compound that is found as chalk, limestone, or marble, and in animal shells and bone. noun [uncount]		
carbonic acid /kɑːˈbɒnɪk ˌæsɪd/	a weak acid or a solution of carbon dioxide in water. noun [singular]		
carboniferous /ˈkɑːbəˈnɪfərəs/	containing or producing coal or carbon. adjective		
Carboniferous, the /ˈkɑːbəˈnɪfərəs/	the period of geological time, 354 million to 290 million years ago, when true reptiles first appeared and much of the Earth's surface was covered by forests. noun [singular]		
cause /kɔːz/	to make something happen, usually something bad. verb [transitive] cause damage/problems/trouble	<i>The fire was caused by an electrical fault.</i> <i>The storm caused widespread damage.</i>	
causeway /ˈkɔːz,weɪ/	a raised road or path across ground that is wet or is sometimes covered by water. noun [count]	<i>The island was linked to the mainland by a narrow causeway.</i>	
cave /keɪv/	a large hole in the side of a hill or under the ground. noun [count]		
caver /ˈkeɪv(ə)r/	someone who goes into caves to study them, or as a sport. noun [count]		

Word	Definition	Example	Translation
cavern /'kævə(r)n/	a large cave. noun [count]		
cement /sə'ment/	1 a grey powder used in building that becomes very hard when you mix it with sand and water. noun [uncount] 2 cement or cement over to cover a surface with cement. verb [transitive]		
chalk /tʃɔ:k/	a type of soft white stone. noun [uncount]		
chamber /'tʃembə(r)/	an enclosed space, especially one inside a machine, a plant, or someone's body. noun [count]		
chemical /'kemik(ə)/	involving chemistry or produced by a method used in chemistry. adjective	<i>You must wear gloves when handling any of these chemicals. the chemical composition of the atmosphere</i>	
chippings /'tʃɪpɪŋz/	small pieces of stone used as a surface for roads and paths. noun [plural]		
chunk /tʃʌŋk/	1 a large thick piece of something. noun [count] 2 a large amount or part of something. noun [count]		
clay /kleɪ/	a type of heavy wet soil that becomes hard when it is baked in a kiln (=oven), used for making cups, plates, and other objects. noun [uncount]		
cliff /klɪf/	the steep side of an area of high land. noun [count]	<i>They pushed the car over the edge of the cliff.</i>	
clint /klɪnt/	one of the flat blocks of limestone in a limestone pavement. noun [count]		
coal /kəʊl/	a hard black substance consisting mainly of carbon that is dug from the ground and burned as fuel. It is made from fossilized plants and is a type of fossil fuel. noun [count]	<i>a lump of coal</i>	
coarse /kɔ:(r)s/	1 a coarse substance or surface feels rough and hard. adjective 2 consisting of large or thick pieces. adjective	<i>the coarse outer leaves of the cabbage. coarse sand</i>	
collect /kə'lekt/	1 if a substance collects somewhere, it gradually goes there. verb [intransitive] 2 if a surface collects a substance, the substance gradually covers the surface. verb [transitive]	<i>With flat roofs, you often find that rain collects in the corners.</i>	
compressed /kəm'prest/	pressed or squeezed together. adjective	<i>Coal consists entirely of compressed plant remains.</i>	
coral /'kɔrəl/	1 a very small sea creature that lives in large groups that look like plants, in places where the water is warm. noun [count/uncount] 2 a hard substance formed from coral. It is often pink or red and was used in the past to make jewellery. noun [uncount]		
Cretaceous, the /kri'teɪʃəs/	the period from about 144 to 65 million years ago when rock containing chalk was formed. noun [singular]		
crumble /'krʌmb(ə)/	1 to break something into very small pieces, or to be broken into very small pieces. verb [intransitive/transitive] 1a crumble or crumble away if something hard such as stone or a brick crumbles or crumbles away, parts of it fall off because it is very old or damaged. verb [intransitive]	<i>The soft earth of the riverbank crumbled under his feet. Part of the roof had rotted away and the exposed plaster was beginning to crumble.</i>	
crush /krʌʃ/	to hit or press something so hard that you damage it severely or destroy it, especially by making its shape flatter. verb [transitive]	<i>The front of the car was completely crushed in the accident.</i>	
crystal /'krɪst(ə)/	1 a piece of a substance that has a regular shape with many sides and is formed when the substance becomes solid. noun [count] 2 a clear rock that looks like glass, especially quartz. noun [count/uncount]	<i>ice/salt/sugar/snow crystals</i>	
crystalline /'krɪstə,laɪn/	consisting of crystals or looking like crystals. adjective		

Word	Definition	Example	Translation
decay /di'keɪ/	<p>1 to be gradually destroyed as a result of a natural process of change. verb [transitive/intransitive]</p> <p>2 if a building or an area decays, its state gradually gets worse because it has not been looked after. verb [intransitive]</p> <p>3 the gradual destruction of something as a result of a natural process of change. noun [uncount]</p> <p>4 the part of something that has gradually been destroyed. noun [uncount]</p>	<p><i>As dead plants decay, they release mineral salts into the soil.</i></p> <p><i>Bacteria cause the decay of dead plants and animals.</i></p>	
decompose /di:kəm'pəʊz/	<p>1 to decay by a slow natural process, especially through the action of particular bacteria or fungi. verb [intransitive]</p> <p>2 if a chemical compound decomposes, it separates into the smaller parts that it consists of. verb [intransitive]</p>		
deforestation /di:fɒrɪ'steɪʃ(ə)n/	the process of removing the trees from an area of land. noun [uncount]		
denuded /di'nju:di:d/	something that is denuded has had the thing that normally covers it removed. adjective	<i>large areas of denuded land</i>	
deposit /di'pɒzɪt/	<p>1 a layer of something that is formed by natural or chemical processes. noun [count]</p> <p>2 if a substance is deposited in the soil or in rock, it gradually gathers there and forms a layer. verb [transitive]</p>	<p><i>rich mineral deposits</i></p> <p><i>These sediments were deposited by floods thousands of years ago.</i></p>	
deposition /depə'zɪʃ(ə)n/	a process in which layers of a substance form gradually over a period of time. noun [uncount]		
downslope /daʊn'sləʊp/	moving down a slope. adjective, adverb	<i>a downslope wind</i>	
erosion /ɪ'rəʊʒ(ə)n/	the process by which the surface of land or rock is gradually damaged by the action of water, the wind, the sea, or glaciers. noun [uncount]	<i>coastal erosion</i>	
extraction /ɪk'strækʃ(ə)n/	the process or action of removing something from a particular place. verb [transitive]	<i>coal extraction methods</i>	
field /fi:ld/	an area where gas, coal, oil, or other useful substances are found. noun [count]		
flint /flɪnt/	a hard grey stone that was used in the past for making tools. It is a type of sedimentary rock. noun [uncount]		
flood /flʌd/	<p>1 if water floods a place, it covers it. verb [transitive]</p> <p>1a to become covered or filled with water. verb [intransitive]</p> <p>1b if a river floods, water rises up over its edges and covers the land around it. verb [intransitive]</p> <p>1c if water floods somewhere, it flows there quickly and in large amounts. verb [intransitive]</p> <p>2 a large amount of water that covers an area that was dry before. noun [count/uncount]</p>	<p><i>Water burst through the dam and flooded local villages.</i></p> <p><i>Ten years ago the valley flooded.</i></p> <p><i>Water was flooding in through the back door.</i></p> <p><i>The southwest of England has been badly hit by floods.</i></p>	
fossil /'fɒs(ə)l/	an animal or plant that lived hundreds of thousands of years ago and has been preserved in rock or in the form of rock. Common fossils include trilobites and ammonites, sea animals that no longer exist. Someone who studies fossils is called a palaeontologist. noun [count]		
fossilized /'fɒsəlaɪzɪd/	preserved in rock. adjective		
fragment /'frægmənt/ /'fræɡ'ment/	<p>1 a small piece of a larger object that has broken, often into a lot of pieces. noun [count]</p> <p>1a a small part of something that remains when the rest has been lost or destroyed. noun [count]</p> <p>1b a small part of something larger. noun [count]</p> <p>2 if something fragments or is fragmented, it breaks into a lot of separate pieces or parts. verb [intransitive/transitive]</p>	<p><i>architectural fragments from Mayan sites</i></p> <p><i>The plane fragmented on impact.</i></p>	
freeze /fri:z/	<p>1 if water freezes, or if something freezes it, it gets very cold and changes into ice. verb [intransitive/transitive]</p> <p>1a if a liquid freezes or something freezes it, it becomes solid because it has reached a low temperature. verb [intransitive/transitive]</p>	<p><i>The lake freezes in winter.</i></p> <p><i>Liquid nitrogen freezes at minus 209 degrees Celsius.</i></p>	
freeze-thaw /'fri:zθɔ:/	a form of physical weathering, common in mountains and glacial environments, caused by the expansion of water as it freezes. noun [uncount]		

Word	Definition	Example	Translation
frost /frɒst/	a thin white layer of ice that looks like powder and forms on things outside when the weather is very cold. noun [uncount]	<i>bushes covered with frost</i>	
frozen /'frəʊz(ə)n/	1 frozen water or snow is covered with a layer of ice. adjective 1a frozen ground has become very hard because the weather is very cold. adjective		
geological /dʒi:ə'lɒdʒɪk(ə)l/	relating to geology, or to the features of the Earth's surface. adjective	<i>a geological survey</i> <i>a geological period</i>	
geology /dʒɪ'ɒlədʒi/	the scientific study of the structure of the Earth. noun [count]		
glacier /'glæsiə(r)/	a very large mass of ice that moves very slowly. noun [count]		
gravel /'græv(ə)l/	small pieces of stone used for making paths and roads. noun [uncount]		
grike /graɪk/	a long deep crack in a bare limestone rock surface. noun [count]		
gritty /'grɪti/	containing or covered with grit (=very small pieces of stone or sand). adjective		
groove /gru:v/	a line cut into a surface. noun [count]		
heap /hi:p/	a large pile of something, especially an untidy pile. noun [count]	<i>a rubbish heap</i>	
hollow /'hɒləʊ/	1 empty inside. adjective 2 a small area in the ground that is lower than the ground around it. noun [count]	<i>The tree trunk was completely hollow.</i>	
horizon /hə'raɪz(ə)n/	a layer of soil or minerals in the ground that is different from the layer above or below it. noun		
hydrocarbon /ˌhaɪdrəʊ'kɑ:(r)bən/	a chemical substance that contains only hydrogen and carbon, for example methane. noun [count]		
ice /aɪs/	water that has frozen and become solid. noun [uncount]	<i>Ice covered most of the lake.</i>	
Ice Age, the /'aɪs ,eɪdʒ/	a period of time thousands of years ago when large areas of the Earth were covered in ice. noun [count]		
igneous rock /'ɪɡniəs rɒk/	igneous rocks, for example granite and basalt, are formed from volcanic lava or magma that has cooled down and become solid. The other types of rock are metamorphic rock and sedimentary rock. noun [count]		
ignite /'ɪɡnaɪt/	1 to make something start to burn. verb [transitive] 1a to start to burn. verb [intransitive]	<i>The fire was ignited by a spark from an electrical fault.</i> <i>In the end, the rocket's engines failed to ignite.</i>	
impervious /ɪm'pɜ:(r)viəs/	something that is impervious to a substance does not let the substance pass through it. adjective	<i>the surface was completely impervious to water</i>	
infiltrate /'ɪnfɪl'treɪt/	to become a feature of something gradually, without anyone noticing. verb [intransitive/transitive]		
infiltration /ˌɪnfɪl'treɪʃ(ə)n/	the passing of water into the soil or into a drainage system. noun [uncount]		
iron ore /ˌaɪən 'ɔ:(r)/	rock that contains iron. noun [uncount]		
Jurassic, the /dʒʊ'reɪsɪk/	the period of geological time from 205 million years to 142 million years ago, when dinosaurs lived and the first birds and mammals developed. noun [singular]		
kaoline /'keɪəlɪn/	a white clay used for making porcelain (=a hard white substance used for making plates, cups etc). noun [uncount]		
karst /kɑ:st/	a large area of limestone that has caves, deep cracks, and underground streams. noun [count]		
landscape /'lændʃkeɪp/	an area of land that is beautiful to look at or that has a particular type of appearance. noun [count]	<i>a green, rural landscape</i>	

Word	Definition	Example	Translation
laterite /ˈlætəˌraɪt/	a red clay containing iron and aluminium that forms a layer on the top of the soil in some tropical regions. noun [uncount]		
limestone /ˈlaɪmˌstəʊn/	a type of white or grey stone that consists mainly of calcium carbonate and is formed from the skeletons and shells of sea animals. Limestone is a sedimentary rock. noun [uncount]		
loess /ˈləʊs/	deposits of silt that have been laid down by wind action. noun [singular]		
lowland /ˈləʊlənd/	the part of a country that is fairly low and flat. adjective		
low-lying /ˈləʊˈlaɪɪŋ/	a position which is close to the level of the sea or the ground. adjective	<i>low-lying areas</i>	
marble /ˈmɑːb(ə)l/	a hard smooth metamorphic rock that is used for building and making statues. It is a type of limestone and is usually white or grey with marks of another colour in it. noun [uncount]		
matrix /ˈmeɪtrɪks/	the rock in which hard stones or jewels form. noun [count]		
mechanical /mɪˈkænɪk(ə)l/	relating to or produced by physical forces. adjective	<i>mechanical weathering</i>	
metamorphic rock /ˌmetaˈmɔːfɪk rɒk/	metamorphic rock, for example slate and marble, is formed by heat or pressure. The other types of rock are igneous rock and sedimentary rock. noun [count]		
mine /maɪn/	1 a large hole or tunnel in the ground from which people take coal, gold etc. noun [count] 2 to dig a large hole or tunnel in the ground in order to get coal, gold etc, or to take coal, gold etc from such a hole or tunnel. verb [intransitive/transitive]		
mineralogy /ˌmɪnərəˈrɒlədʒi/	the study of minerals. Someone who studies minerals is called a mineralogist. noun [uncount]		
mud /mʌd/	very soft wet earth. noun [uncount]		
mudslide /ˈmʌdˌslaɪd/	a large amount of wet earth that falls down a hill. noun [count]	<i>A huge mudslide caused a lot of damage in the area.</i>	
natural gas /ˈnætʃ(ə)rəl ɡæs/	a fossil fuel, consisting mostly of methane, found in oilfields and in coal beds. noun [singular]		
ore /ɔː/	rock or earth from which metal can be obtained. noun [count/uncount]		
Palaeolithic /ˌpælɪəˈlɪθɪk/	relating to the time when humans first started to make tools out of stone. adjective		
palaeontology /ˌpeɪlɪənˈtɒlədʒi/	the study of fossils. noun [uncount]		
Palaeozoic /ˌpeɪlɪəʊˈzəʊɪk/	the era of geological time, about 570 million to 248 million years ago, during which fish, insects, amphibians, reptiles, and land plants first appeared. noun [singular]		
particle /ˈpɑː(r)tɪk(ə)l/	1 an extremely small piece or amount of something. noun [count] 2 an extremely small piece of matter that is part of an atom, for example an electron, proton, or neutron. noun [count]	<i>dust particles</i>	
passage /ˈpæsɪdʒ/	a long narrow area with walls on each side that leads from one place to another. noun [count]	<i>an underground passage</i>	
pattern /ˈpætə(r)n/	a series of actions or events that together show how things normally happen or are done. noun [count]	<i>There is a growing pattern to the recent landslides.</i>	
peat /pi:t/	a type of soil consisting of decaying plants that can also be used as fuel. noun [uncount]		
permeable /ˈpɜːmiəb(ə)l/	a permeable substance or material is one that a liquid or gas can pass through. adjective	<i>The surface is quite permeable.</i>	
physical /ˈfɪzɪk(ə)l/	1 able to be seen, touched, or felt. adjective 2 relating to the way that someone or something looks: physical appearance/characteristics adjective	<i>the physical universe</i>	

Word	Definition	Example	Translation
pillar /'pɪlə/	a tall thin piece of rock that stretches from the ground to the ceiling of a cave or to a higher rock structure. noun [count]		
pinnacle /'pɪnəkl/	a tall thin pointed piece of stone or rock. noun [count]		
plateau /'plætəʊ/	a large flat area of land that is higher than the land around it. noun [count]		
Pleistocene, the /'plaɪstəʃiːn/	the era of geological time, about 1.8 million to 10,000 years ago, in which glaciers formed in the northern half of the world and humans first appeared. noun [singular]		
Pliocene, the /'plaɪəʊʃiːn/	the era of geological time, 5.3 million to 1.8 million years ago. Modern humans and other mammals first appeared during this time. noun [singular]		
porous /'pɔːrəs/	a porous substance has a lot of very small holes in it so that air and water can pass through it. adjective	<i>porous rock</i>	
pothole /'pɒt,həʊl/	a large natural hole in a mountain or under the ground. noun [count]		
Precambrian, the /'pri:kæmbriən/	the era of geological time, from 4,650 to 700 million years ago, during which the Earth's crust formed and simple forms of life first appeared. noun [singular]		
precipitation /'pri:ʃɪpɪteɪʃ(ə)n/	1 rain, snow, hail etc. noun [count] 2 the process by which a solid substance separates, or is separated from, a liquid it is in. noun [uncount]		
quarry /'kwɒrɪ/	a place where stone is dug out of the ground. A place where coal or minerals are dug out of the ground is called a mine. noun [count]	<i>a slate/limestone quarry</i>	
quartz /'kwɔːts/	a hard transparent mineral that forms inside rocks such as sandstone. It is often used inside electronic equipment and watches. noun [uncount]		
quartzite /'kwɔːtsaɪt/	a rock, made mainly of quartz, that is formed by the action of heat and pressure on sandstone. noun [uncount]		
regolith /'regəlɪθ/	the layer of loose rock particles that covers the solid rock under the ground of most land on the Earth and the Moon. noun [count]		
rock /'rɒk/	the hard solid substance that forms part of the Earth's surface, or a piece of this substance on the ground. The three main types of rock are igneous (=formed from volcanic lava), sedimentary (=formed from sand or mud at the bottom of ancient seas and rivers), and metamorphic (=formed by the action of extreme heat or pressure on the other forms of rock). noun [count/uncount]	<i>a layer of rock</i> <i>a castle built on a rock</i> <i>The waves crashed against the rocks.</i>	
rock cycle, the /'rɒk ˌsaɪkl/	the process over millions of years by which different types of rock get broken down into small pieces by processes such as erosion, and are then carried by water and wind to the sea. There they form sedimentary rock, which, if it is heated by the Earth's core, forms metamorphic rock. All the different types of rock then get eroded again, and the process continues. noun [singular]		
rock-ore /'rɒk ɔː/	rock containing a substance such as a mineral that can be dug out of the ground. noun [uncount]		
sand /'sænd/	a pale brown substance that forms a beach or covers a desert, formed from very small pieces of rock. noun [uncount]	<i>The children were playing in the sand.</i> <i>a grain of sand</i>	
sandstone /'sændstəʊn/	a type of stone that is made mainly of grains of quartz and other minerals. It is a type of sedimentary rock, and can be red, yellow, grey, or brown. noun [uncount]		
saturated /'sætʃə'reɪtɪd/	1 very wet. adjective 2 a chemical solution that is saturated has as much of a solid substance as possible mixed in it as part of the liquid. adjective	<i>After a night in the rain the clothes were saturated.</i>	
scarp /'ska:p/	a steep slope or cliff. noun [count]		

Word	Definition	Example	Translation
scree /skri:/	small loose pieces of broken rock at the bottom of a cliff or along the slopes of a mountain. noun [uncount]		
sea-cliff /si:klɪf/	a steep or vertical side of a rock that has been formed by the action of the waves. noun [count]		
sediment /sedɪmənt/	a layer of sand, stones, dirt etc that becomes a layer of rock. noun [count/uncount]		
sedimentary rock /sedɪ'mentəri rok/	sedimentary rock, for example limestone and sandstone, is a type of rock that is formed from substances that have been left by water, wind, or ice and have become pressed together through time. The other types of rock are igneous rock and metamorphic rock. noun [count]		
seep /si:p/	to flow into or out of something through small holes, usually when this should not happen. verb [intransitive]	<i>Poisonous chemicals from the factory are seeping into our soil.</i>	
shaft /ʃɑ:ft/	a long narrow passage that goes down through a building or down through the ground. noun [count]	<i>a mine shaft</i>	
shale /ʃeɪl/	a type of smooth dark rock that breaks easily into thin layers. It is a type of sedimentary rock, formed from layers of clay, silt, or mud that have become hard. noun [uncount]		
silt /sɪlt/	small particles of rock that are smaller than sand particles and bigger than clay. It is often found at the bottom of rivers, lakes etc, where it settles. noun [uncount]		
slate /sleɪt/	a type of dark grey rock that breaks easily into flat thin pieces. It is a type of metamorphic rock that is formed from shale. noun [uncount]		
soil /sɔɪl/	the top layer on the surface of the Earth in which plants grow. Soil consists of extremely small pieces of rock, decayed organic matter, air, water, and minerals. noun [count/uncount]	<i>The dry rocky soil is suitable for planting vines.</i>	
soil creep /sɔɪl,kri:p/	the very slow movement of soil down a hill, caused by gravity. noun [uncount]		
soluble /sɒljʊb(ə)l/	able to dissolve in a liquid and become part of the liquid. adjective		
split /splɪt/	1 to divide or break something into several parts, or to be divided or broken into several parts. verb [intransitive/transitive] 2 a cut or break in something. noun [count]	<i>The lower section splits into three parts.</i> <i>a small split in the fabric</i>	
stalactite /'stælək,tat/	a long pointed piece of rock that hangs down from the roof of a cave. It is formed over many years by chemicals in water drops. noun [count]		
stalagmite /'stæləg,mat/	a long pointed piece of rock that rises up from the floor of a cave. It is formed over many years by chemicals in water drops that have fallen from the roof. noun [count]		
stone /stəʊn/	the hard substance that rocks are made of, or a small piece of rock. noun [count/uncount]	<i>the house is made of stone</i>	
stratified /'strætɪfaɪd/	formed into layers of a particular type of rock. adjective		
stratum /'strɑ:təm/	a layer of a particular type of rock (plural: strata). noun [count]		
swallow hole /'swɒləʊ, hɔʊl/	a sinkhole (=a circular hole in the ground, formed when a rock such as limestone dissolves). noun [count]		
terrace /'terəs/	a slope with a flat top and steep sides beside a river. It is formed from mud left behind when the river floods. noun [count]		
terracette /'terəsət/	a narrow raised line on a hill, formed when soil particles that are full of moisture become dry and move slowly downhill. noun [count]		
thaw /θɔ:/	1 thaw or thaw out if ice or snow thaws, or if something thaws it, it becomes warmer and changes into liquid. verb [intransitive/transitive] 1a if the weather thaws, it becomes warmer and causes ice or snow to change into liquid. verb [intransitive/transitive]	<i>It has finally started to thaw.</i>	

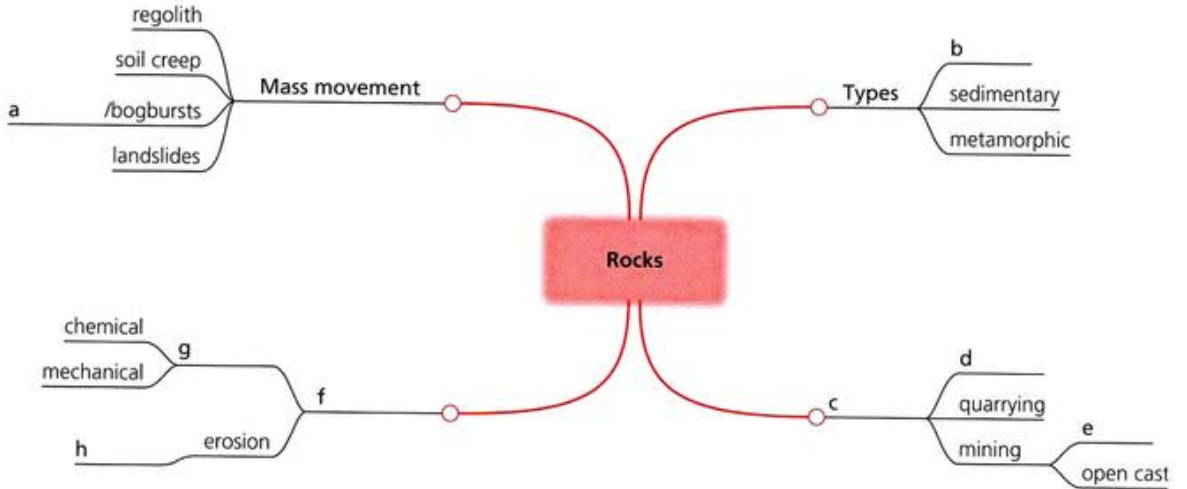
Word	Definition	Example	Translation
transportation /ˌtrænsˈpɔː(r)ˈteɪʃn/	the activity of moving people or things from one place to another, or the system used for doing this. noun [uncount]		
Triassic, the /traɪˈæsiːk/	the period of geological time from 248 million to 205 million years ago, when reptiles lived and the first dinosaurs developed. noun [singular]		
trilobite /ˈtraɪləˌbaɪt/	an arthropod that lived in the sea during the Palaeozoic period of geological time. Its exoskeleton (=hard cover of its body) was divided into three parts. noun [count]		
underground /ˌʌndə(r)ˈgraʊnd/ /ˌʌndə(r)ˈgraʊnd/	1 below the surface of the ground. adjective 2 below the surface of the ground. adverb	<i>an underground passage/tunnel/cable</i> <i>Many species of beetle live underground.</i>	
uniform /ˈjuːnɪfɔː(r)m/	the same everywhere. adjective	<i>The rock layers are of a uniform thickness.</i>	
unstable /ʌnˈsteɪb(ə)l/	1 not firm or fixed; may move easily. adjective 2 an unstable substance reacts very easily with other chemical substances and can be dangerous. adjective	<i>The soil in this region is very unstable and landslides occur quite frequently.</i>	
upslope /ˈʌpsləʊp/	a slope considered to be at an upward angle. noun [count]		
uranium /juˈreɪniəm/	a chemical element that is a metal and is used for producing nuclear energy because it is radioactive. noun [uncount]		
vein /veɪn/	a thin layer of a metal or other substance inside the Earth. noun [count]	<i>There is a vein of gold running through this rock.</i>	
weather /ˈweðə/	if rocks and minerals weather, or if they are weathered, they are broken into very small pieces by the action of rain, snow, frost, water etc. verb [intransitive/transitive]		
weathering /ˈweðərɪŋ/	the process by which rocks and minerals are broken into very small pieces by the action of rain, snow, frost, water etc. noun [uncount]		
zinc /zɪŋk/	a chemical element that is a blue-white metal. noun [uncount]		

A Working with words

1 Rocks word map

Write these words in the correct place on the word map.

denudation shaft water / wind drilling
weathering igneous extraction mudflows



2 Extraction

Label the picture with these words.

oil well platform shaft mine sea floor
open cast mining oil rig drilling shaft



3 Rocks overview

Underline the correct option in each sentence.

- 1 Igneous rock is formed when magma (climbs / calms / cools) down.
- 2 Granite, which contains crystals, is formed (simply / slowly / sharply) beneath the surface of the Earth.
- 3 Basalt contains no crystals and is formed rapidly (on the Earth's surface / in the Earth's core / over the Earth's mantle).
- 4 Sedimentary rock is formed from the compressed remains of animals, plants or other (rocks / trees / material).
- 5 Sandstone is formed from compressed (grounds / grinds / grains) of sand.
- 6 Limestone is formed from the compressed remains of (sea creatures / seaweed / sea forests).
- 7 Metamorphic rocks are formed when other rocks change as a result of great heat or (pebbles / pressure / populations).
- 8 Limestone is a sedimentary rock which changes to (granite / basalt / marble).
- 9 Sandstone is a sedimentary rock which changes to (limestone / quartzite / basalt).

B Working with sentences

4 Soil creep

Underline the incorrect word in each sentence. Write the correct word next to the sentence. There is one word you don't need to use.

lean gentle slowest depth terracettes
downslope bulge surface preserve bend

- 1 Soil creep is the quickest type of mass movement. _____
- 2 Soil creep can occur even on very steep slopes. _____
- 3 Soil creep happens so slowly that it might not be noticed at all, except for the effect that it has on upper objects such as walls and fences. _____
- 4 Soil creep is greatest near the surface and decreases with height. _____
- 5 Anything that loosens the soil, including freeze-thaw action or the burrowing of animals, assists the movement of soil underneath. _____
- 6 Soil piles up behind walls, causing them to thaw and break. _____
- 7 Tree trunks and fences crack in the direction of soil creep. _____
- 8 Poles may deposit in the direction of soil creep. _____
- 9 Soil sometimes accumulates in a series of small ridges called plateaux. _____

5 How frost can weather rocks

Put the phrases and sentences in the correct order.

- a As it does so, it expands by about 10 percent.
- b By day,
- c By night,
- d Eventually,
- e freezing and thawing occur so frequently that the rock is gradually split and broken up.
- f This widens the cracks and puts a strain on the rock.
- g water collects in cracks in rocks.
- h when temperatures drop to 0°C, the water freezes and turns to ice.

1 2 3 4 5 6 7 8

6 Extraction of resources and their uses

Read the text. Then match the words for resources with their uses to make sentences in the table. Resources can have more than one use and vice versa.

There are a number of ways of extracting rocks, ore and other resources from the ground. Shaft mining and open cast mining are used to remove coal and rock-ore such as zinc. Coal is used widely as a fuel in homes and as a source of energy to produce electricity. Iron is mined as an ore and is used in its raw form to make iron and steel. Peat is also 'mined' to produce fuel for burning. Quarrying is generally used to remove rock such as limestone for building roads and for making concrete blocks and readymix concrete. Clay is also quarried to make bricks for construction and for making cement. Drilling is used for removing oil and natural gas from wells as a fuel for domestic and industrial uses.

limestone
coal
natural gas
oil
peat
iron ore
clay

is used as a fuel in homes
is used as a raw material to make iron and steel
is used as a source of energy to generate electricity
is used to make building bricks
is used to make cement
is used to make concrete blocks

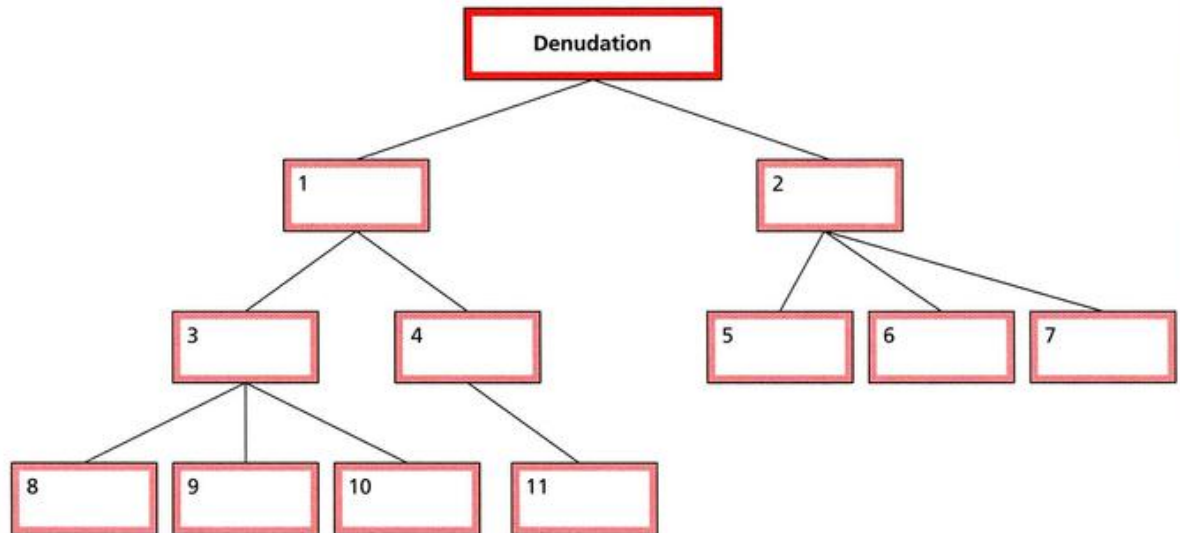
Resources	Uses

7 Denudation

Read the text and put the words in the correct place on the diagram.

chemical erosion frost mechanical moving air moving ice moving water
plants and animals rain temperature change weathering

Rocks at the Earth's surface are constantly being worn away or denuded by the forces of weathering and erosion. Denudation takes place in two ways. Firstly, weathering is the simple breaking down of rocks which lie exposed to the weather. There are two types of weathering: mechanical and chemical. The process of mechanical weathering breaks up rocks into smaller pieces. The main agents or causes of this process are frost, sudden changes in temperature and plants and animals. Chemical weathering causes rocks to dissolve or otherwise decompose. Its main agent is rain. Secondly, erosion is the process which involves the breaking down of rock and the transportation or carrying away of rock particles. Erosion is caused by moving water such as seas and rivers, moving ice and moving air or wind. The materials that are carried away by the forces of erosion are eventually dropped or deposited in other low-lying areas.



Some igneous rocks

Read the text and sort the sentences into the correct columns.

If you hold a chunk of granite and a chunk of basalt in your hands, you will notice a number of differences. The basalt is smooth because it has very small crystals which are invisible to the naked eye. Granite, on the other hand, is rough in comparison because it has large crystals. These are from the minerals; mica, feldspar and quartz. The crystals are large because they are formed from magma cooled very slowly in the Earth's crust. Basalt formed on the Earth's surface as lava cooled and in some places the basalt has formed tall columns which can be seen above ground. Another difference is colour. Granite can be a mixture of many colours and basalt is a dark rock which may have tiny holes created by gases released while cooling.

- 1 This is a dark rock.
- 2 Some is black and white, other types may range from pink to grey.
- 3 It may have tiny holes from which gases escaped when it cooled.
- 4 It has tiny crystals because it cooled quickly.
- 5 It formed from magma which cooled slowly deep in the Earth's crust.
- 6 It can form tall, uniform, five- or six-sided columns.
- 7 It has large crystals.
- 8 It can vary in colour.
- 9 It formed when lava cooled quickly on the Earth's surface.
- 10 It is composed of crystals of three minerals: mica, feldspar and quartz.
- 11 Its tiny crystals cannot be seen unless they are examined under a microscope because they are so small.

Granite	Basalt

3 Rivers

Word	Definition	Example	Translation
abrasion /ə'breɪʒ(ə)n/	the action of rubbing a surface hard enough to damage it. noun [uncount]		
acid /'æsɪd/	a chemical substance with a pH value, a measure used in chemistry, of less than 7. noun [count/uncount]	<i>hydrochloric acid</i>	
alluvial /ə'lʊ:vɪəl/	made of earth and sand left by rivers or floods. adjective		
alluvium /ə'lʊ:vɪəm/	soil containing earth and sand left by rivers or floods. noun [count/uncount]		
artificial /ɑ:(r)tɪ'fɪj(ə)l/	1 made by people and used instead of something natural. adjective 2 caused or created as a result of human influence or action. adjective	<i>The growers use both natural and artificial light.</i>	
attrition /ə'trɪʃ(ə)n/	the wearing down of rock particles by friction. noun [uncount]		
bank /bæŋk/	1 a raised area of land along the side of a river. noun [count] 2 a long area of land with sloping sides. noun [count]	<i>A man was fishing on the opposite bank.</i> <i>There was a steep bank looking onto the football ground.</i>	
barrow /'bærəʊ/	a large pile of earth over an ancient grave where one or more people are buried. noun [count]		
base /beɪs/	the bottom part, edge, or surface of something. noun [count]	<i>a tall cliff, with a narrow footpath at its base</i>	
basin /'beɪs(ə)n/	1 a large area of land from which water flows into a particular river or lake. 2 a large area of the Earth's surface that is lower than the surrounding area. noun [count]	<i>the Lake Turkana basin</i>	
bed /bed/	1 the ground at the bottom of a sea or river. noun [count] 2 an area in a river, lake, or sea where there are a lot of plants or animals of a particular kind. noun [count]	<i>fish that live close to the sea bed</i> <i>reed beds</i>	
bend /bend/	if a road, river etc bends, it changes direction in the shape of a curve. verb [intransitive]	<i>The path bends sharply just before you enter the wood.</i>	
boulder /'bouldə(r)/	a very large rock or piece of stone. noun [count]		
bounce /baʊns/	if a ball or other object bounces, or if you bounce it, it hits a surface then immediately moves away from it. verb [intransitive/transitive]	<i>Hailstones were bouncing off the roof.</i>	
break off /'breɪk ɒf/	1 if you break a piece off something, you remove it from the main part. verb [transitive] 2 if a part of something breaks off, it becomes separated from the main part. verb [intransitive]		
break up /'breɪk ʌp/	1 to break something to make smaller pieces. verb [transitive] 2 if something breaks up, it breaks into smaller pieces. verb [intransitive]		
bridge /brɪdʒ/	a road, railway, or path that goes over a river, over another road etc, and the structure that supports it. noun [count]	<i>We walked across a wooden bridge.</i>	
burst /bɜ:(r)st/	1 if something filled with air or water bursts, or if you burst it, it breaks suddenly because there is too much pressure inside it or against it. verb [intransitive/transitive] 2 if a river bursts its banks, water rises above its sides and spreads over the surrounding area. verb [transitive]	<i>A dam burst, causing severe flooding.</i>	
canyon /'kænjən/	a long valley with steep sides made of rock. noun [count]		

Word	Definition	Example	Translation
cascade /kæ'skeɪd/	1 a small waterfall. noun [count] 2 to flow down or hang down in large amounts. verb [intransitive]	<i>The water cascaded down the walls.</i>	
combine /kəm'baɪn/	if you combine things, or if they combine, you use, do, or put them together. verb [intransitive/transitive]		
confluence /'kɒnfluəns/	a place where two rivers join. noun [singular]		
course /kɔ:(r)s/	the direction in which a river flows. noun [count]	<i>Several villages along the course of the river were flooded.</i>	
creek /kri:k/	1 a long narrow area of sea that stretches into the land. noun [count] 2 a narrow stream. noun [count]		
creep /kri:p/	1 if something such as fire, the sun, or fog creeps somewhere, it moves slowly. verb [intransitive] 2 a slow and gradual change or movement. noun [uncount]	<i>I watched the sunlight creep across the window.</i>	
crop /krop/	a plant grown for food, usually on a farm. noun [count]	<i>That year, crop failure led to widespread famine.</i>	
cross-section /'krɒs ,sekʃ(ə)n/	the inside of an object that you can see by cutting through the middle of it from top to bottom. noun [count/uncount]		
curve /kɜ:(r)v/	a bend in a road or river. noun [count]		
cut-off /'kʌtɒf/	cut-offs occur when rivers in flood cut through the neck of land in a meander. When river deposits have sealed up the cut-off from the river, they become ox-bow lakes. noun [count]		
dam /dæm/	a wall built across a river to stop the water from flowing, especially in order to create a lake or to help to produce electric power. noun [count]	<i>They built a dam across the valley to create a new reservoir.</i>	
deciduous /dɪ'sɪdʒjuəs/	deciduous trees lose all their leaves each autumn. Trees that keep their leaves all year round are called evergreen. adjective		
deep /di:p/	going a long way down from the top or the surface. adjective	<i>The river is quite deep here.</i>	
dissolve /dɪ'zɒlv/	1 if a solid substance dissolves in a liquid, it is mixed into the liquid so that it becomes included in it. verb [intransitive] 1a to mix a solid substance into a liquid so that it becomes included in it. verb [transitive]	<i>Dissolve the sugar in one tablespoon of water over a low heat.</i>	
distributary /dɪ'strɪbjʊt(ə)rɪ/	a stream that comes from, and flows away from, a main body of water. noun [count]		
divide /dɪ'vaɪd/	divide or divide up to separate people or things into smaller groups or parts. verb [transitive]		
downhill /daʊn'hɪl/	1 towards the bottom of a hill or slope. adverb 2 going towards the bottom of a hill or slope. adjective	<i>The car started to roll downhill.</i>	
downstream /daʊn'stri:m/	in the direction that a river or stream is flowing. adverb		
drain /dren/	if liquid drains, or if someone drains it, it flows away from something. verb [intransitive/transitive]	<i>The rainwater is drained off the roof and collected.</i>	
drainage basin /'dreɪnɪdʒ ,beɪsn/	an area of country from which rain water flows into a particular river system. noun [count]		
drainage ditch /'dreɪnɪdʒ ,dɪtʃ/	a long narrow hole dug along the side of a road or field so that water can run into it. noun [count]		
drown /draʊn/	1 to sink under water and die. verb [intransitive] 1a to kill someone by pushing them under water. verb [transitive] 2 to cover something completely with a liquid, especially in a way that spoils it. verb [transitive]	<i>He fell overboard and nearly drowned.</i>	
erode /ɪ'rəʊd/	to gradually damage the surface of rock or land so that it begins to disappear, or to be gradually damaged in this way. verb [intransitive/transitive]		
estuary /'estjuəri/	the part of a large river where it becomes wide and flows into the sea. noun [count]		

Word	Definition	Example	Translation
fall /fɔ:l/	1 to move quickly downwards from a higher position. verb [intransitive] 2 an occasion when something falls to the ground from the sky or from a high place. noun [count]	<i>a heavy fall of snow</i>	
falls /fɔ:ls/	a waterfall. noun [plural]		
fast-flowing /fɑ:st 'fləʊɪŋ/	flowing very quickly. adjective	<i>a fast-flowing river</i>	
feature /'fi:tʃə(r)/	an important part or aspect of something. noun [count]	<i>Each room has its own distinctive features.</i>	
fertile /'fɜ:(r)taɪl/	fertile land is able to produce good crops or plants. adjective		
fertility /'fɜ:(r)'tɪləti/	the ability of the soil to produce a lot of good crops or plants. noun [uncount]	<i>measures to improve the fertility of the soil</i>	
fine /faɪn/	a fine substance is made up of very small pieces. adjective		
flood plain /'flʌd ,pleɪn/	a flat area of land near a river that often floods when the water level rises. noun [count]		
floodwater /'flʌd'wɔ:tə/	water that is carried over the banks of rivers and streams during a flood and covers previously dry land. noun [uncount]		
fluvial /'flu:viəl/	relating to rivers. adjective	<i>fluvial deposits</i>	
generate /'dʒenəreɪt/	to produce power. verb [transitive]		
gentle /'dʒent(ə)l/	gentle movement does not use or need a lot of force or effort. adjective	<i>a gentle riverside stroll</i>	
gorge /'gɔ:(r)dʒ/	a deep valley with high straight sides. noun [count]		
gradual /'grædʒuəl/	1 gradual processes and changes happen slowly and by small amounts. adjective 2 a gradual slope is not steep. adjective	<i>a gradual change in the climate</i> <i>a gradual ascent to the top of the hill</i>	
groundwater /'graʊnd'wɔ:tə/	water that flows or collects under the ground. noun [uncount]		
gully /'gʌli/	1 a long narrow valley with steep sides. noun [count] 2 a long narrow hole in the surface of rock or earth, usually made by the action of flowing water. noun [count]		
hard /'hɑ:(r)d/	1 stiff, firm, and not easy to bend or break. adjective 2 hard water does not mix easily with soap because it contains a lot of minerals. adjective	<i>hard wooden benches</i>	
highlands /'haɪləndz/	an area of land that consists of hills and mountains. noun [plural]	<i>the Scottish Highlands</i>	
hydraulic /'haɪ'drɔ:lɪk/	a hydraulic machine uses the pressure of water or oil to make it work. adjective	<i>a hydraulic pump</i>	
hydroelectric /'haɪdrəʊ'ɪlektɪk/	using water power to produce electricity. adjective	<i>a hydroelectric power station</i>	
infill /'ɪnfɪl/	when a gap or space in a geographical feature is filled with a layer of sand, stone, or dirt. verb [intransitive]		
interlocking spur /,'ɪntə(r)'lɒkɪŋ spɜ:/	overlapping edges of high ground which interlock in a v-shaped valley and prevent a clear view of a river's channel. They project from both sides of a valley. noun [count]		
irrigation /,'ɪrɪ'geɪʃ(ə)n/	the bringing of water to land through a system of pipes, ditches etc in order to make plants grow. noun [uncount]		
jut /dʒʌt/	jut or jut out to be further forward than other things or than normal. verb [intransitive]	<i>The rock juts out from the edge of the cliff.</i>	
lake /leɪk/	a large area of water surrounded by land. noun [count]		

Word	Definition	Example	Translation
lateral /læt(ə)rəl/	on the side of something, or moving sideways. adjective		
lay down /leɪ 'daʊn/	if a substance is laid down, it is deposited there and gradually gathers and forms a layer. verb [transitive]	<i>The sediments were laid down thousands of years ago.</i>	
levee /levi/	a wall of soil built along the side of a river to help to prevent it from causing a flood. noun [count]		
level /lev(ə)/	flat, not sloping up or down. adjective	<i>We found a nice level spot for a picnic under some pine trees.</i>	
lie /laɪ/	1 to be on a particular surface or in a particular place. verb [intransitive] 2 used for saying where a place is. verb [intransitive]	<i>The village lies in a valley.</i>	
loop /lu:p/	a part of a river where it has eroded a wide curved path in the shape of the letter S (=meander). noun [uncount]		
mature /mə,tʃʊə(r)/	fully developed, or fully grown. adjective		
meander /mi'ændə/	1 if a river or road meanders, it has a lot of turns and curves. verb [intransitive] 2 a part of a river where it has eroded (=gradually worn away) a wide curved path in the shape of a letter S (=loop). noun [count]		
meander cliff /mi'ændə ,klɪf/	a cliff on the side of a valley that is on the outside of the curve formed by a river running through the valley. noun [count]		
Mediterranean /,medɪ'teəriən/	relating to the countries that surround the Mediterranean Sea, the people who live there, or their culture. adjective	<i>The area has a real Mediterranean feeling.</i>	
mouth /maʊθ/	the place where a river is widest and joins the sea. noun [count]		
neck /nek/	a long narrow piece of land or area of water. noun [count]		
obstacle /ɒbstəkl(ə)/	an object that you must remove or go around in order to move forward. noun [count]		
overflow /əʊvə(r)'fləʊ/	if a river or lake overflows, it floods the land next to it. verb [intransitive/transitive]	<i>The river has overflowed its banks.</i>	
overhang /əʊvə(r),hæŋ/	a part that sticks out from the edge above something. noun [count/uncount]		
overlap /əʊvə(r),læp/	if two objects overlap, or if one overlaps the other, part of one object covers part of the other. verb [intransitive/transitive]		
ox-bow (oxbow) lake /ɒksbəʊ 'leɪk/	a curved lake that is formed when a bend in a river becomes separated from the rest of the river. noun [count]		
pipe /paɪp/	a tube that carries liquid or gas from one place to another. noun [count]	<i>The pipes had frozen during the severe weather.</i>	
plunge /plʌndʒ/	1 to fall quickly from a high position. verb [intransitive] 1a to slope downwards suddenly. verb [intransitive] 2 if an amount or level plunges, it suddenly becomes much lower. verb [intransitive]	<i>Stone steps plunged down to the basement.</i> <i>The temperature is expected to plunge below zero degrees overnight.</i>	
pool /pu:l/	a small area of still liquid. noun [count]	<i>The water collected in a little pool at the bottom of the cliff.</i>	
raging /'reɪdʒɪŋ/	happening with a lot of force or violence. adjective	<i>a raging snowstorm</i>	
rainwater /'reɪn,wɔ:tə/	water that falls to the ground in the form of rain. noun [uncount]	<i>Rainwater had washed away all the topsoil.</i>	
rapid /'ræpɪd/	happening, moving, or acting quickly. adjective	<i>We are seeing a rapid growth in the use of the Internet.</i>	
rapids /'ræpɪdz/	a part of a river where the water moves extremely quickly over rocks and is usually dangerous. noun [plural]		
reaches /ri:tʃɪz/	a particular part of a river that is near to/far from where it begins. noun [uncount]	<i>the upper/lower reaches of the river</i>	

Word	Definition	Example	Translation
red-tide /red'taɪd/	a type of algal bloom that causes water to have a reddish colour. It can kill fish, birds, and other animals. noun [count]		
reservoir /reza'vwa:z/	a lake, often an artificial one, where water is stored so that it can be supplied to houses, factories etc. noun [count]		
river /'rɪvə/	a large area of water that flows towards the sea. noun [count]	<i>They were swimming in the river.</i>	
riverbank /'rɪvə(r),bæŋk/	the land at the side of a river. noun [count]		
river bed /'rɪvə(r),bed/	the ground under the water of a river. noun [count]		
riverside /'rɪvə(r),saɪd/	the land at the side of a river. noun [singular]		
roll /rɔ:l/	to move forward while turning over and over. verb [intransitive]	<i>The pencil went rolling across the floor.</i>	
run /rʌn/	1 if a liquid runs somewhere, it flows there. verb [intransitive] 2 if a river runs somewhere, it flows there. verb [intransitive]	<i>The river Thames runs into the sea at Southend.</i>	
rush /rʌʃ/	1 to flow somewhere very quickly. verb [intransitive] 2 a sudden strong movement of liquid or air. noun [uncount]		
saltation /sæl'teɪʃ(ə)n/	the carrying of particles of soil or sand in the wind or in running water. The particles rise and fall with bouncing movements. noun [uncount]		
sediment /'sedɪ,mənt/	a layer of a substance that forms at the bottom of a liquid. noun [count/uncount]		
sedimentation tank /sedɪment'eɪʃ(ə)n ,tæŋk/	a large tank that water from a river or reservoir passes through in the process of being cleaned and supplied to homes, factories etc. The solids that are present in the water settle at the bottom of the tank and the remaining water passes on to the next stage of cleaning. noun [count]		
slope /sləʊp/	1 a straight surface that has one end higher than the other. noun [count] 2 the side of a hill or a mountain. noun [count]	<i>At the end of the garden there is a steep slope.</i> <i>Vines grow on the south-facing slopes.</i>	
soft /sɒft/	1 a soft substance is easy to press or shape and is not hard or firm. adjective 2 soft water does not contain many natural minerals and is easy to use with soap. adjective		
solution /sə'lju:ʃ(ə)n/	a liquid with another substance dissolved in it, so that it has become part of the liquid. noun [count]		
source /sɔ:(r)s/	the beginning of a river or stream. noun [count]		
spring /sprɪŋ/	a place where water flows up from under the ground and forms a small stream or pool. noun [count]		
stage /steɪdʒ/	a particular point in time during a process or set of events. noun [count]	<i>the three stages of a river's course</i>	
still /stɪl/	not moving. adjective	<i>The water appeared still from a distance.</i>	
stream /'stri:m/	a small narrow river. noun [count]	<i>A path runs alongside the stream.</i>	
subside /səb'saɪd/	1 to become weaker, less violent, or less severe. verb [intransitive] 2 if the level of floodwater subsides, it becomes lower. verb [intransitive]	<i>By morning the storm had subsided.</i>	
supply /'sʌplai/	1 an amount or quantity of something that is available to use. noun [count] 2 to provide someone or something with something that they need or want. verb [transitive]	<i>The water supply has been cut off.</i>	
suspension /sə'spenʃ(ə)n/	a liquid that contains very small pieces of a solid substance. noun [count]		
sweep /swi:p/	to move or spread quickly through an area. verb [intransitive/transitive]	<i>The floodwater swept through the town causing great damage to buildings.</i>	

Word	Definition	Example	Translation
swollen /ˈswɒlən/	a swollen river or stream contains more water than normal as a result of heavy rain or snow that has melted. adjective		
torrent /ˈtɒrənt/	a fast and powerful flow of liquid, especially water. noun [count]	<i>They were swept away by the raging torrent.</i>	
tract /trækt/	a large area of land. noun [count]		
traction /ˈtrækʃ(ə)n/	the action of pulling something over a surface, or the type of power used for pulling. noun [count]		
transport /trænˈspɔ:t/	to move things from one place to another. verb [transitive]		
tributary /ˈtrɪbjʊt(ə)ri/	a small river that flows into a larger river. noun [count]		
trough /troʊf/	a low area between two high waves or hills. noun [count]		
trout /traʊt/	a fish that lives in rivers and lakes. noun [count]		
tunnel /ˈtʌnl/	a passage through a hill or under the ground. noun [count]		
turbine /ˈtɜ:(r)bain/	an engine or a machine that uses the pressure of liquid or gas on a wheel to get power. noun [count]		
twist /twɪst/	if a road or a river twists, it has a lot of bends in it. verb [intransitive]	<i>From here, a narrow road twists up to Alwinton.</i>	
upstream /ʌpˈstri:m/	in the opposite direction to the way that a river or stream flows. adverb		
valley /ˈvæli/	a low area of land between mountains or hills, often with a river flowing through it. noun [count]	<i>Their house has wonderful views across the valley.</i>	
vertical /ˈvɜ:(r)tɪk(ə)l/	standing, pointing, or moving straight up. adjective		
volume /ˈvɒljʊ:m/	1 an amount of something. noun [count/uncount] 2 the amount of space something fills, or the amount of space in a container. noun [count/uncount]	<i>The petrol tank has a volume of over 20 gallons.</i>	
water /ˈwɔ:tə(r)/	the clear liquid that falls as rain, covers two-thirds of the Earth's surface, and is used for drinking, washing, and cooking. Water is a compound of hydrogen and oxygen. It exists in frozen form as ice and in gas form as water vapour. It boils at 100°C and freezes at 0°C. Water is necessary to all living things on Earth and is necessary for most biological processes. Chemical formula: H ₂ O. noun [uncount]	<i>Wash your hands thoroughly with soap and water.</i>	
watercourse /ˈwɔ:tə(r),kɔ:(r)s/	a river, canal, or stream. noun [count]		
water cycle, the /ˈwɔ:tə(r) ,saɪkl/	the continuous process by which water in seas, rivers, soil, living things etc evaporates into the atmosphere, where it forms clouds that produce rain, snow, or hail so that it goes back into the seas, rivers, soil etc again. noun [singular]		
waterfall /ˈwɔ:tə(r),fɔ:l/	a place where water flows over the edge of a steep place onto another level below. noun [count]		
water mark /ˈwɔ:tə(r) ,mɑ:(r)k/	a mark that shows the level of the sea, a river, or a lake. noun [singular]	<i>high/low water mark</i>	
waters /ˈwɔ:tə(r)s/	an area of water that belongs to a particular place, state, country etc. noun [plural]	<i>the clear waters of the Adriatic Sea</i>	
watershed /ˈwɔ:tə(r),fed/	a high piece of land that divides the flow of water in rivers in a particular area. noun [count]		
water table /ˈwɔ:tə(r) ,teɪbl/	the level below the Earth's surface where water is found. noun [count]		
waterway /ˈwɔ:tə(r),weɪ/	a river or canal that boats use for travelling from one place to another. noun [count]	<i>The Panama Canal is an important waterway.</i>	
wear down /ˌweə ˈdaʊn/	to make something gradually disappear or become thinner by using or rubbing it. verb [transitive] [often passive]	<i>The old stone steps had been worn down by years of use.</i>	

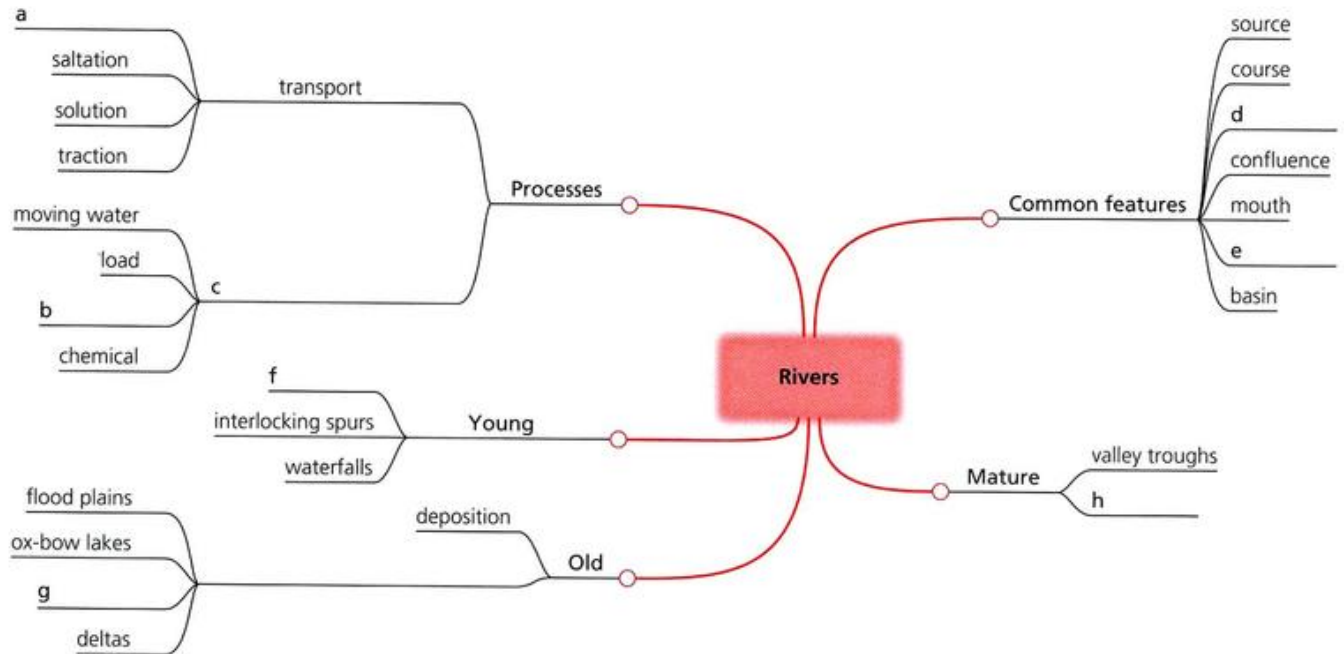
Word	Definition	Example	Translation
wetlands /ˈwetləndz/	low land that is often covered with water from the lake, river, or sea next to it. noun [plural]		
width /wɪdθ/	the distance from one side of something to the other. noun [count/uncount]		
worn /wɔː(r)n/	something that is worn looks old and damaged because it has been used a lot. adjective		
zigzag /ˈzɪgzæɡ/	<p>1 a line or movement that makes sharp angles because it suddenly changes from one direction to another. noun [count]</p> <p>2 following or making a line with sharp angles that changes suddenly from one direction to another. adjective</p>	<p><i>Here the road goes down steeply in a series of zigzags.</i></p> <p><i>a zigzag path/decoration</i></p>	

A Working with words

1 Rivers word map

Write these words in the correct place on the word map.

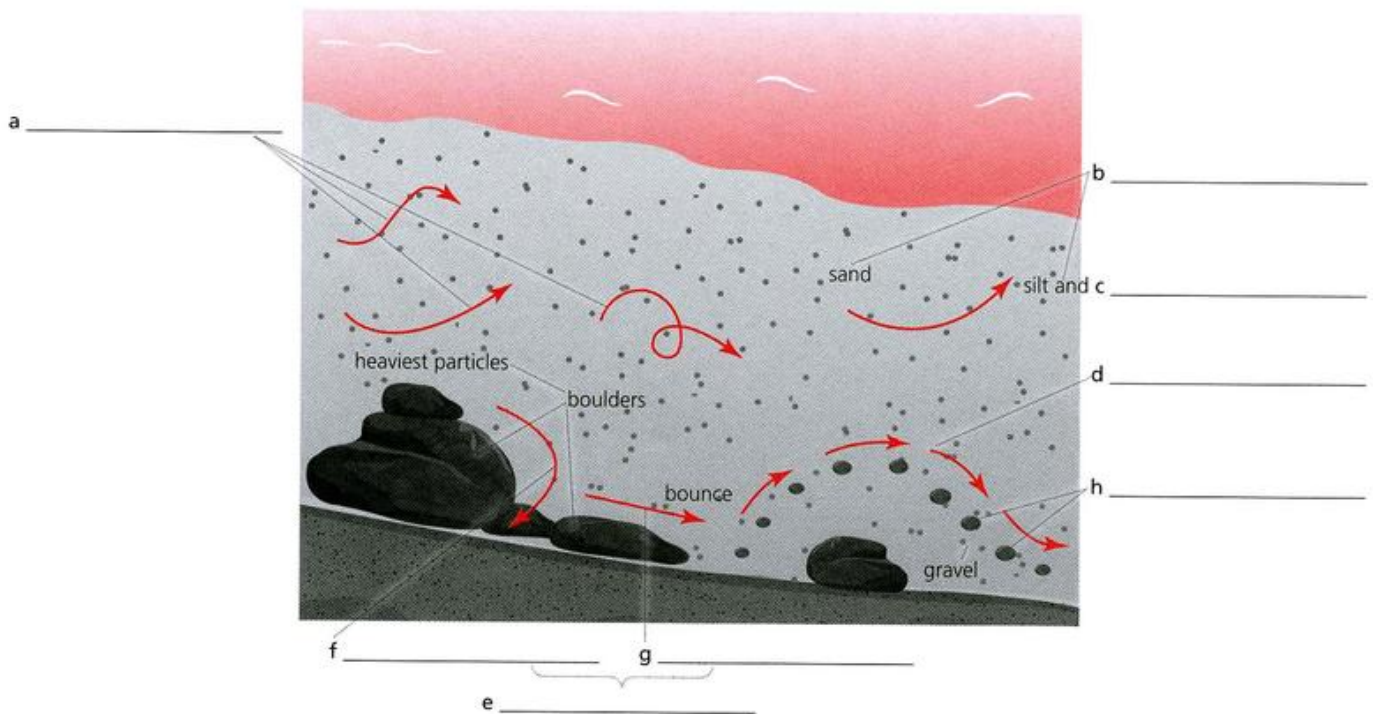
tributaries attrition v-shaped broad meanders levees suspension erosion estuary



2 Transportation of river material

Label the diagram with these words and phrases.

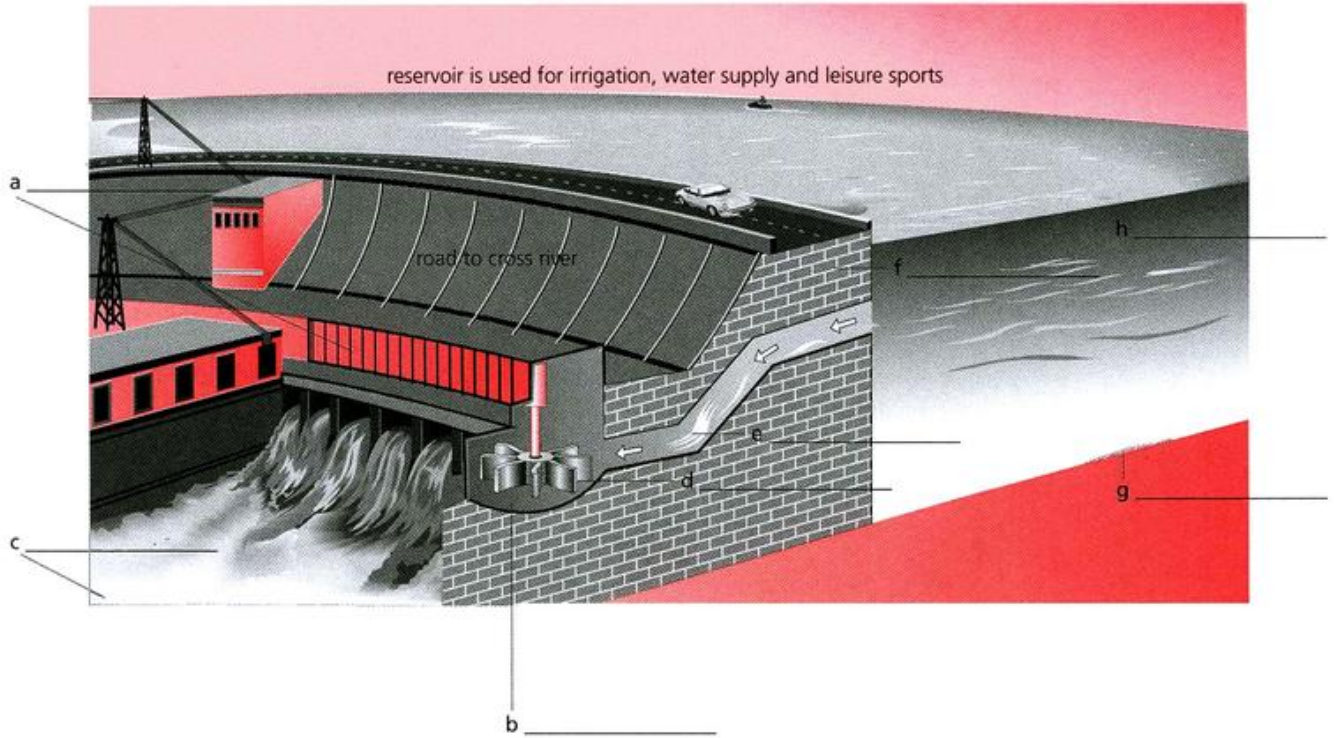
heavier particles lightest particles sliding rolling clay suspension traction saltation



3 Dams

Look at the diagram and put these labels in the correct places.

rotating turbines generate electricity downstream upstream
natural flow of water downslope is prevented by constructing a dam across the valley
power station sediment normally carried downstream is deposited in the lake
the water runs downhill through pipes the running water turns turbines



B Working with sentences

4 Erosion and deposition

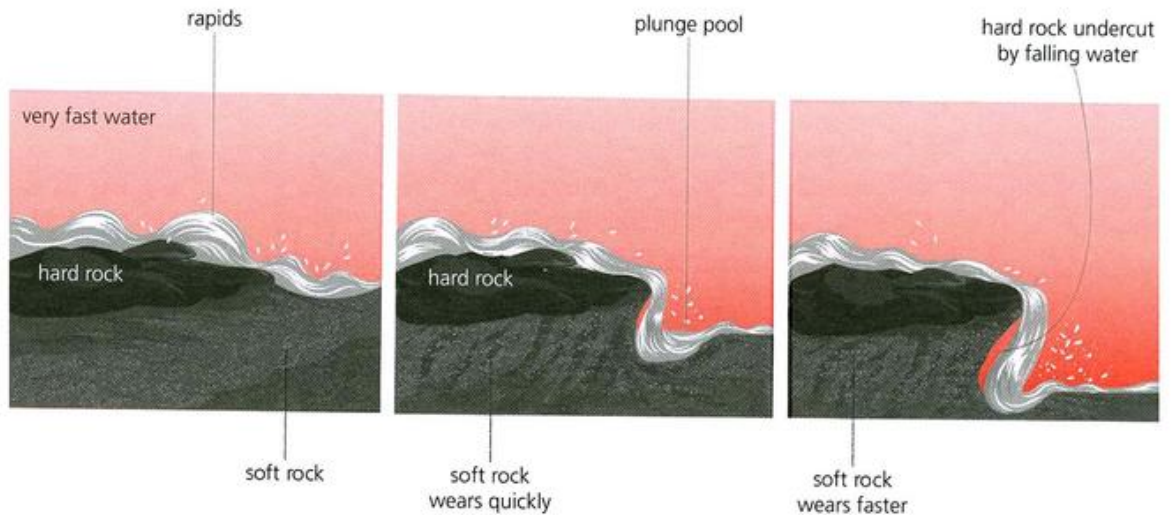
Underline the incorrect word in each sentence. Write the correct word next to the sentence.

channel cut-off deposits floodwaters horseshoe-shaped
loop sediment slows down steep-sided swing

- 1 An ox-bow lake is a v-shaped lake found on the flood plain of a river in its old stage. _____
- 2 An ox-bow lake is formed when riverflow speeds up in its lower stages. _____
- 3 This causes the river to slope from side to side and form meanders. _____
- 4 The meander forms a pool so that only a narrow neck of land separates the outer banks of the channel. _____
- 5 In heavy flood the river cuts through this neck leaving the section of river as a cut-out. _____
- 6 River depositions seal up the section from the river and an ox-bow forms. _____
- 7 A levee is a broad, low ridge of fine cement built along the bank of a river. _____
- 8 It is built along the riverbank by groundwaters over thousands of years. _____
- 9 People also create artificial levees which are narrow and triangular-shaped. _____
- 10 They are built to retain floodwaters within a narrow tunnel to prevent flooding. _____

5 Waterfalls

Put the sentences in the correct order. Use the pictures to help you.



- A waterfall begins its formation where the band of hard rock crosses the bed of the river.
- But the river erodes the band of soft rock quickly downstream from the hard rock.
- Sometimes the soft rock underneath the hard rock is worn away creating an overhang.
- The deep pool which has been created is called a plunge pool.
- The river is unable to erode this rock easily.
- The river plunges over this fall and erodes a deep pool underneath the falling water.
- This causes a sudden drop in the river's bed below the hard rock.
- Waterfalls occur when a layer of hard rock lies on top of a band of soft rock on the river bed.

1 2 3 4 5 6 7 8

6 Meanders

Match the beginnings and endings of the sentences.

Beginnings

- A meander is a winding
- It occurs because the river is flowing very slowly
- Small meanders are found
- But large, sweeping meanders are found
- Meanders are developed both
- The river flows most strongly on the outside of the bend and
- The river flows most slowly on the inside of the bend and
- Alluvium is very rich in minerals, and

Endings

- by erosion and deposition.
- erodes the bank, creating a river cliff.
- deposits fine particles of material, called alluvium, to form the slip-off slope.
- in the flood plain of a mature river.
- in the flood plain of an old river valley.
- loop or bend in a river's channel.
- on level ground and is trying to find the easiest route to the sea.
- plants need these minerals to grow.

1 2 3 4 5 6 7 8

7 Features of erosion by young rivers

Read the text and sort the information into the table.

Three examples of erosion in young rivers are v-shaped valleys, interlocking spurs and waterfalls. V-shaped valleys have steep sides and very narrow floors and their cross-sections are shaped like the letter v. Here, the river erodes downwards in what is known as vertical erosion. As the river cuts downwards its steep sides are attacked by weathering. This loosens and breaks up the rock and soil. Gravity causes the loose material to slide or creep downslope into the river. The river transports the material away. All these actions combine to form a v-shaped valley.

Interlocking spurs are areas of high ground which jut out and seem to 'lock into' each other from both sides of a young river valley. If the young river meets obstacles of hard rock, it is unable to cut through them, so it flows around them. At the same time, it continues to erode downwards. As it so develops its valley, the river leaves interlocking spurs of high ground jutting out on both sides of the valley.

In a waterfall, a river falls over a vertical slope. It happens where a sudden drop occurs in the course of a river. Waterfalls develop where a band of hard rock lies on an area of soft rock. The river erodes the soft rock more quickly than the hard rock and a vertical drop develops where the hard and soft rocks meet. The river falls over this drop into what is called a plunge pool.

both sides jutting out drop develops hard rock hard rock on soft plunge pool steep sides
 river transports material soft rock eroded sudden drop vertical erosion very narrow floors

Name	V-shaped valleys	Interlocking spurs	Waterfalls
Characteristics	1	high ground, 2	vertical slope, 3
Formation	weathering of sides; sides fall into river, 4	flow around, 5	6

8 River action

Read the text and make notes using the frame provided.

River factors involved in erosion. A river rises (begins) at its source. It flows downslope (its course) and enters the sea at its mouth (estuary). Rivers flow quickly down steep slopes. They erode the land and transport eroded material from highland to lowland areas. How quickly they erode the land depends on three things. Firstly, the hardness of rock – soft rock erodes faster than hard rock (soft chalk is used to mark hard blackboards). Secondly, the volume (amount) of water – rivers with large volumes of water, such as rivers in flood, erode faster than those with less water. Thirdly, the speed of river water – fast-flowing rivers erode more powerfully than slower-flowing rivers.

River processes involved in erosion. There are four important processes involved in river erosion. Hydraulic action describes the force with which moving water breaks off pieces of rock and soil from the bed and banks of a river's channel. This broken-off material is then carried downstream and is called the river's load. Next, attrition is when boulders and other material being carried by the water collide and break up. Then, abrasion is when the river then uses its load to wear away (erode) its bed and banks, making its channel deeper and wider. Lastly, solution is when acids, such as carbonic acid (rainwater) dissolve some rocks, such as limestone, and erode the rock, much like what happens to some tablets in a glass of water.

Transportation of eroded material. There are four ways rivers transport materials downstream. Firstly, the lighter particles are carried in suspension – they are lifted and carried along by the water. Similarly, heavier particles, such as sand and gravel, are bounced along the river bed. This is called saltation. Additionally, the heaviest particles slide or are rolled and dragged along the river bed. This is called traction. Finally, some materials are dissolved and are carried in solution.

River factors involved in erosion	River processes involved in erosion	Transportation of eroded material
1	4	8
2	5	9
3	6	10
	7	11

4 Sea action

Word	Definition	Example	Translation
accretion /ə'kri:ʃ(ə)n/	a layer of a substance that gradually forms on a rock or area of land, making it bigger. noun [count/uncount]		
acute /ə'kjʊ:t/	very serious or severe. adjective [usually before a noun]	<i>an acute shortage of medical supplies</i>	
anchor /'æŋkə(r)/	a heavy object that is dropped into the water to prevent a boat from moving. noun [count]		
arch /ɑ:(r)tʃ/	a piece of rock in the shape of an arch that sticks out into the sea. The sea has worn a hole in the rock. noun [count]		
backwash /'bæk,wɒʃ/	the movement of waves as they leave the land. noun [uncount]		
barrier reef /'bæriə ,ri:f/	a large long mass of coral in the sea, not far from land. noun [count]		
bay /beɪ/	an area of the coast where the land curves inwards. noun [count]		
beach /bi:tʃ/	an area of sand or small stones beside the sea or a lake. noun [count]	<i>a sandy beach</i>	
block /blɒk/	to stop something from moving through or along something else. verb [transitive]	<i>Something is blocking the flow of water through the pipe.</i>	
blowhole /'bləʊ,həʊl/	a hole at the inland end of a sea cave through which waves funnel up and out. noun [count]		
bluff /blʌf/	a steep cliff by the sea or by a river. noun [count]		
boat /bəʊt/	1 a small vehicle that people use for travelling on water. Boats are usually smaller than ships, and are moved by means of sails, oars, or motors. noun [count] 2 a ship, especially one that carries passengers. noun [count]	<i>a pleasure boat</i>	
bottom /'bɒtəm/	the deepest part of the sea or of a pool, lake, or river. noun [singular]	<i>Can you touch the bottom?</i>	
break /breɪk/	if waves break, they reach their highest point and start to fall. verb [intransitive]		
breakwater /'breɪk,wɔ:tə(r)/	a strong wall that protects a beach from the force of the waves. noun [count]		
breeze /'bri:z/	a light wind. noun [count]	<i>a gentle/light/slight breeze</i> <i>a fresh/stiff/strong breeze</i>	
cargo /'kɑ:gəʊ/	things that are being sent by ship, plane, train, or truck. noun [uncount]	<i>The ship and all its cargo sank.</i>	
catch /kætʃ/	1 to get a fish from a river, lake, or sea, using a fishing net or rod. verb [transitive] 2 an amount of fish that have been caught. noun [count]	<i>Drift nets are used mainly for catching tuna.</i> <i>Catches of Scottish salmon have declined significantly.</i>	
cause /kɔ:z/	1 an event, thing, or person that makes something happen. noun [count] 2 to make something happen, usually something bad. verb [transitive]	<i>The major cause of these accidents is drivers going too fast.</i> <i>The fire was caused by an electrical fault.</i>	
channel /'tʃæn(ə)l/	1 a narrow area of water joining two seas. noun [count] 2 a narrow area of deeper water in a river, port etc that ships can use. noun [count]		
coast /kəʊst/	an area of land beside a sea. noun [count]	<i>the east coast of England</i>	
coastal /'kəʊst(ə)l/	1 on land beside a sea. adjective 2 in the sea near to land. adjective [usually before noun]	<i>coastal areas/towns/roads</i> <i>coastal waters</i>	
coastline /'kəʊst,lain/	the land along a coast, especially when seen from the sea or the air. noun [count]	<i>Brittany's rugged coastline</i>	

Word	Definition	Example	Translation
composition /kɒmpə'zɪʃ(ə)n/	the way that something is formed from separate parts or people. noun [uncount]	<i>the chemical composition of stars</i>	
corrasion /kə'reɪʒən/	the eroding of a surface by pieces of rock carried by water, wind, or ice. noun [uncount]		
crag /kræg/	a very steep rough part of a cliff or mountain. noun [count]		
crash /kræʃ/	1 to hit something hard, making a loud noise and often causing damage. verb [intransitive/transitive] 2 a loud noise like the sound of two hard things hitting each other and breaking. noun [count]	<i>The wind howled and the waves crashed against the rocks. the crash of the waves against the rocks</i>	
crest /krest/	the white top of a wave. noun [count]		
curl /kɜ:(r)l/	1 to form a curved or round shape, or give something this shape. verb [intransitive/transitive] 2 to move in a curving or twisting way. verb [intransitive] 3 to curve upwards or downwards at the edges. verb [intransitive] 4 something long and thin that has a curved or circular shape. noun [count]	<i>Smoke curled from tall chimneys. The pages had begun to turn yellow and curl.</i>	
curved /kɜ:(r)vɪd/	forming a curve. adjective	<i>a bull with huge curved horns</i>	
cylindrical /sɪ'lɪndrɪkl/	shaped like a cylinder (=an object shaped like a wide tube). adjective		
decrease /di:kri:s/	1 to become less. verb [intransitive] 2 to reduce something. verb [transitive]	<i>The number of people visiting the park has decreased significantly. The new system decreases the risk to public health.</i>	
defence /dɪ'fens/	1 actions that you take to protect someone or something that is being attacked. noun [uncount] 1b the particular structures, weapons, and people that are used for protecting a place. noun [uncount] flood defences (=structures built to prevent the sea or a river from coming into a place). noun [count] [usually plural]	<i>New flood defences are being built along the river bank.</i>	
dioxide /daɪ'ɒksaɪd/	a chemical compound that has at least one oxygen atom. noun [uncount]		
drain /dreɪn/	1 to let liquid flow away from something. verb [transitive] 1a if liquid drains from something, it flows away. verb [intransitive] 2 to get rid of the water in an area of land so that it can be used for farming or building on. verb [transitive] 2a if land or soil drains, water flows out of it so that it is not too wet. verb [intransitive]	<i>Rainwater causes flooding when it can't drain away. The marshes have now been completely drained.</i>	
drainage /'dreɪnɪdʒ/	1 a system of pipes and passages that take away water or waste liquid from an area. noun [uncount] 2 the process of taking away water or waste liquid from somewhere. noun [uncount]		
dune /du:n/	a hill of sand that has been formed by the wind or sea (=sand dune). noun [count]		
dyke /daɪk/	1 a wall that prevents a river, lake, or sea from flooding the land. noun [count] 2 a narrow passage in flat land that water can pass through to prevent the land from flooding. noun [count]		
empty /'empti/	1 containing nothing. adjective 2 if a river empties into a lake or into the sea, it flows into it. verb [intransitive]		
enclose /ɪn'kləʊz/	to surround someone or something. verb [intransitive]	<i>The swimming pool was enclosed by a high fence.</i>	
enlarge /ɪn'la:(r)dʒ/	to make something bigger. verb [intransitive]	<i>I sent the photos back to the lab to be enlarged.</i>	
face /feɪs/	a side of a mountain or building that is high and very steep. noun [uncount]	<i>a cliff face</i>	
fjord (fiord) /'fɪ:(r)d/	a narrow section of sea that continues into the land between high rocks. noun [count]	<i>the fjords of Norway</i>	

Word	Definition	Example	Translation
folklore /'fɔːk,lɔː(r)/	traditional stories, sayings, and beliefs from a particular region or community. noun [uncount]	<i>the floods of Norway</i>	
gigantic /'dʒɑː'gæntɪk/	extremely large. adjective	<i>This gigantic wave came in from the sea.</i>	
groyne /'grɔɪn/	a wall built out into the sea to protect the beach from being destroyed by the water. noun [count]		
harbour /'hɑː(r)bə/	an area of water near the land where it is safe for boats to stay. A port is a harbour where passengers and goods can be taken on and off. noun [count]	<i>a splendid natural harbour</i>	
head /hed/	the beginning of a river, where the water comes from. noun [count]		
headland /'hedlənd/	a narrow piece of land that sticks out into the sea. noun [count]		
high water mark /'haɪ 'wɔːtə(r) ,mɑː(r)k/	a mark that shows the highest level that the sea, a river, or a lake has risen to. noun [singular]		
hillock /'hɪlək/	a small hill. noun [count]		
isolated /'aɪsə'leɪtɪd/	1 an isolated place is a long way from other places and is often difficult to get to. adjective 2 happening only once, or existing only in one place. adjective	<i>isolated mountain villages</i> <i>Unfortunately, this is not an isolated incident.</i>	
jetty /'dʒeti/	a long narrow structure that goes from the land out into a lake, sea, or river to provide a place for boats to stop at. noun [count]		
lagoon /'lə'ɡuːn/	an area of sea water that is separated from the sea by sand or rocks. noun [count]		
landlocked /'lænd(ɪ),lɒkt/	a landlocked country is surrounded by land. adjective	<i>Germany is landlocked and has no coastline.</i>	
landward /'lændwə(r)d/	the landward side of something is the side that faces towards the land and away from the sea. adjective [usually before a noun]		
lash /læʃ/	to hit something with a very strong force. verb [intransitive/transitive]	<i>The waves lashed the shore.</i>	
livelihood /'lɪvliːhʊd/	something such as your work that provides the money that you need to live. noun [count/uncount]	<i>a development that threatens the livelihood of local small farmers</i>	
longshore drift /'lɒŋʃɔː(r) drɪft/	a process in which loose stones, sand, dirt etc are moved along the coast by the action of the waves. noun [uncount]		
mainland /'meɪn,lænd/	a large mass of land that forms the main part of a country but does not include any islands. noun [singular]		
man-made /,'mæn 'meɪd/	something that is man-made has been made by people and does not exist naturally. Some people avoid using this word because they think it is offensive to women, and they use <i>manufactured</i> instead. adjective	<i>a man-made lake</i>	
marine /,'mɑːriːn/	1 living in or happening in the sea. adjective 1a relating to the sea and creatures that live in it. adjective 2 involving ships or the business of moving people and goods in ships. adjective [only before noun]	<i>marine life/animals</i> <i>a marine biologist</i> <i>a marine salvage company</i>	
marsh /,'mɑː(r)ʃ/	an area of soft wet land. noun [count]		
marshland /,'mɑː(r)ʃ,lænd/	an area that consists of marshes. noun [uncount]		
Mesolithic /,'mesə'liθɪk/	dating from the time of the middle of the Stone Age. adjective		
morass /,'mɔːrəs/	an area of soft wet ground that is dangerous to walk on. noun [count]		
mussel /,'mʌs(ə)l/	a small shellfish with a soft body inside a hard black or green shell, often cooked and eaten as food. noun [count]		
notch /nɒtʃ/	a small cut on the edge or surface of something, especially a cut shaped like the letter V. noun [count]		

Word	Definition	Example	Translation
ocean /'əʊf(ə)n/	one of the large areas of salt water that cover most of the Earth. noun [count]	<i>the Atlantic Ocean</i>	
ocean current /'əʊf(ə)n ,kʌrənt/	a movement of the water on the surface of an ocean, caused by wind, the temperature, or the salt in the water. noun [count]		
oceanic ridge /'əʊʃiənik 'ri:dʒ/	a section of a range of mountains under the sea. noun [count]		
offshore /'ɒfʃɔ:(r)/	1 in the sea, not on the land. This word is used especially for talking about the oil industry. [usually before a noun] 1a in the sea but near the coast. adjective 1b an offshore wind is blowing away from the land, towards the sea. adjective	<i>China has huge offshore and onshore oil reserves. an offshore oil rig Avoid offshore winds and don't sail alone.</i>	
offshore bar /'ɒfʃɔ:(r) bɑ:(r)/	a long raised area of sand below the surface of the sea near the land and parallel to it. noun [count]		
onshore /'ɒnʃɔ:(r)/	1 on land rather than on the sea. adjective 2 moving towards land from the sea. adjective	<i>onshore breezes</i>	
outgoing /'aʊt'gəʊɪŋ/	going out of or away from a place. adjective [only before noun]	<i>outgoing mail; outgoing flights</i>	
oyster /'ɔɪstə(r)/	a type of shellfish that has a rough shell and is eaten as food, often raw. Some types of oyster contain pearls (=small white jewels). noun [count]		
pebble /'peb(ə)l/	a small stone, especially one that has been made smooth by water. noun [count]		
peninsula /'pɛnɪnsjələ/	a long piece of land that is mostly surrounded by water but is joined at one end to a larger area of land. noun [count]		
pillar /'pɪlə/	a tall thin piece of rock that stretches from the ground to the ceiling of a cave or to a higher rock structure. It is formed by erosion, for example by the sea. noun [count]		
pounding /'paʊndɪŋ/	the sound of repeated hard hits or loud noise. noun [uncount]	<i>the incessant pounding of the music</i>	
promontory /'prɒmənt(ə)ri/	a narrow piece of land that sticks out into the sea. noun [count]		
rear /rɪə/	to look after a child or young animal until it is fully grown. verb [transitive]	<i>Most farmers in the area rear sheep.</i>	
reclaim /'rɪkleɪm/	to improve an area of land so that it can be used. verb [transitive]		
reclamation /'rekleɪ'meɪʃn/	the improvement of an area of land or water so that it can be used. noun [uncount]	<i>land reclamation</i>	
reef /ri:f/	a long line of rock or coral in the sea, with its top just below or just above the surface. noun [count]		
rough /rʌf/	used about the surface of a lake, river, or sea that has a lot of waves, often because the weather is bad. adjective	<i>Rough seas prevented rescuers from approaching the ship.</i>	
rounded /'raʊndɪd/	having a curved shape or surface. adjective	<i>a rounded teaspoonful of salt</i>	
sailing /'seɪlɪŋ/	the sport or activity of travelling across water in a sailing boat. noun [uncount]	<i>She's really keen on sailing.</i>	
salmon /'sæməŋ/	a silver fish with pink flesh that lives in the sea but swims up rivers to produce its eggs. noun [count]	<i>I was very excited when I caught a salmon.</i>	
salt marsh /'sɔ:lt ,mɑ:(r)ʃ/	a flat area of land that is frequently covered with salt water. noun [count]		
sand bar /'sænd ,bɑ:(r)/	a raised area of sand in a river or sea that is just below the surface of the water or that sticks out above it. noun [count]		
sandy /'sændi/	covered with sand, or consisting mostly of sand. adjective	<i>a golden sandy beach</i>	
sea bed, the /,'si: 'bed/	the ground at the bottom of the sea. noun [singular]		
sea breeze /,'si: 'brɪz/	a gentle wind that blows from the sea onto the land. noun [count]		

Word	Definition	Example	Translation
sea level /ˈsiːˈlev(ə)l/	the average level of the sea. It is used for measuring the height of parts of the land. noun [uncount]	<i>The town is situated 500m above sea level.</i>	
seal /si:l/	a large sea animal that eats fish and lives mainly in cold parts of the world. Seals are amphibious (=they can live both in water and on land). A young seal is called a pup. noun [count]		
seaside /ˈsiːsaɪd/	1 an area that is near the sea, especially one where people go for a holiday. noun [singular] 2 at the seaside, or taking place there. [only before noun]	<i>This was their first holiday together at the seaside.</i> <i>a seaside resort/town/hotel</i>	
sea stump /ˈsiːstʌmp/	a small rock left after a stack collapses or is eroded. noun [count]		
seaward /ˈsiːwə(r)d/	1 the seaward side of something is nearest the sea. adjective 2 coming from the sea. adjective		
sea water /ˈsiːˌwɔːtə(r)/	salt water from the sea. noun [uncount]		
shallow /ˈʃæləʊ/	with only a short distance from the top or surface to the bottom. adjective	<i>Move to the shallow end of the pool.</i>	
shelf /ʃelf/	a narrow piece of rock or ice that sticks out from a mountain or under water. noun [count]		
shellfish /ˈʃel.fɪʃ/	sea creatures with a hard shell around them, for example crabs, mussels, and oysters. noun [singular]		
shingle /ˈʃɪŋɡ(ə)l/	small stones on a beach. noun [uncount]		
shore /ʃɔː(r)/	the land that is on the edge of a lake, river, or sea. noun [count]	<i>Three of the sailors managed to swim to the shore.</i>	
shoreline /ˈʃɔː(r)ˌlaɪn/	the edge of a sea or lake. noun [count]		
spit /spɪt/	a long narrow area of land that sticks out into the sea or a lake. noun [count]		
spray /spreɪ/	many small drops of water that are forced into the air together, for example from the sea. noun [singular/uncount]	<i>The cold spray from the rocks below stung her face.</i>	
stabilize /ˈsteɪbəˌlaɪz/	1 to reach a state where there are no longer any major changes or problems. verb [intransitive] 2 to make something stable. verb [transitive]	<i>The slope above the town has now been stabilized.</i>	
stack /stæk/	a tall steep piece of rock that rises out of the sea. It is formed as a result of being separated from a cliff by waves eroding the rock inbetween. noun [count]		
stormy /ˈstɔː(r)mɪ/	with a lot of rain and strong winds. adjective	<i>stormy weather/seas</i>	
strait /streɪt/	a narrow area of water that joins two larger areas of water. noun [count]	<i>the Straits of Gibraltar</i>	
supertanker /suːpə(r)ˌtæŋkə(r)/	a very large ship used for carrying oil or other liquids. noun [count]		
swamp /swɒmp/	an area of land that is covered by water. noun [count]		
swampland /ˈswɒmpˈlænd/	an area of land covered by a swamp. noun [count/uncount]		
swash /swɒʃ/	the water that goes onto the shore after a wave has reached its highest point and started to fall. noun [count]		
territorial sea /ˌterəˈtɔːriəlˈsiː/	the area of sea that covers a continental shelf. noun [uncount]		
tidal /ˈtaɪd(ə)l/	connected with the regular movement of the sea towards and away from the land. adjective	<i>This is a tidal river.</i>	
tide /taɪd/	the regular movement of the sea towards and away from the land. noun [count]		
tidemark /ˈtaɪdˌmɑː(r)k/	a mark left on land by the sea that shows the highest point that the sea has reached. noun [count]		
tombolo /ˈtɒmbəˌləʊ/	a narrow strip of sand or small stones that links one island to another, or to the mainland. noun [count]		

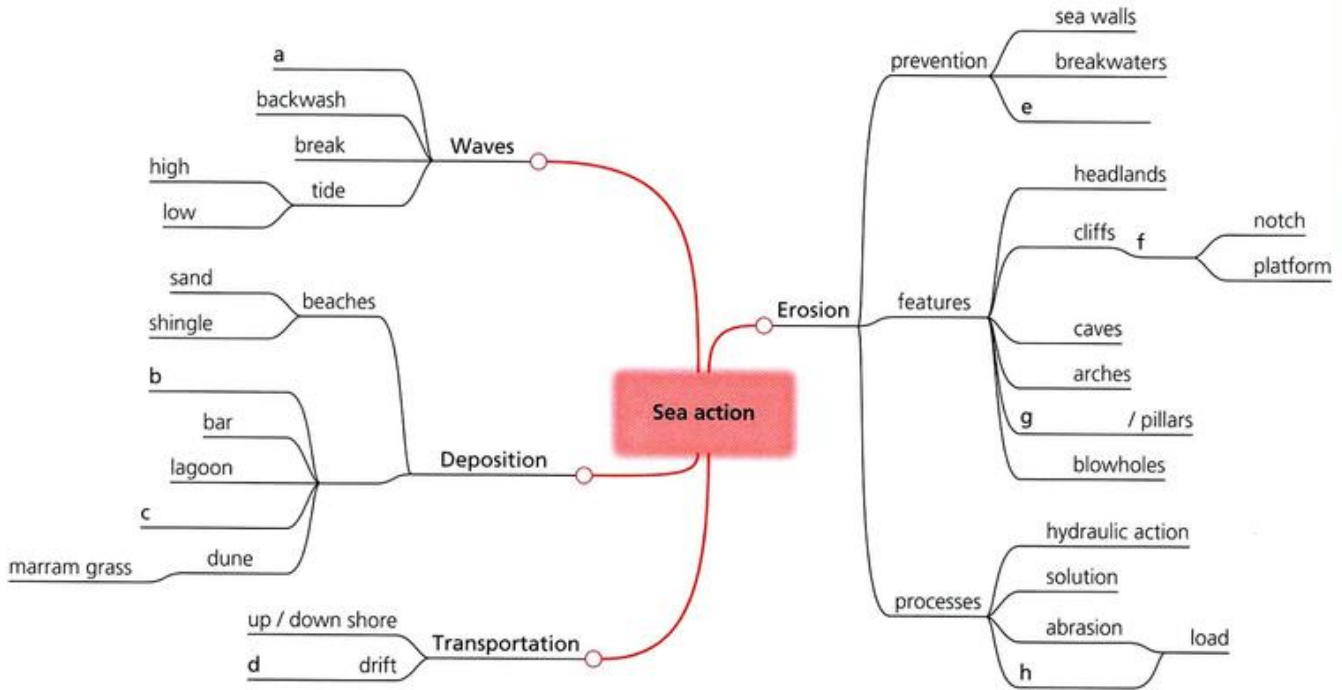
Word	Definition	Example	Translation
trade wind /'treɪd ,wɪnd/	a wind that blows continuously towards the equator (=the imaginary line around the middle of the Earth). noun [count]		
trawler /'trɔ:lə(r)/	a boat used for fishing by pulling a large net through the water. noun [count]		
undercut /'ʌndə,kʌt	an undercut cliff has been eroded at the bottom but not at the top. adjective		
undermine /'ʌndə(r)'maɪn/	to dig under something, especially so that it becomes weaker. verb [transitive]		
unusable /'ʌn'ju:zəb(ə)l/	not good enough to use. adjective	<i>The paint was so old it was unusable.</i>	
wave-built terrace /'weɪv,bɪlt 'terəs/	a narrow flat area built from loose stones, sand etc that have been carried by waves. noun [count]		
wave-cut platform /'weɪv ,kʌt 'plætfɔ:(r)m/	the narrow flat area often seen at the base of a sea cliff caused by the action of the waves. noun [count]		
wildlife /'waɪld,laɪf/	1 animals, birds, and plants that live in natural conditions. noun [uncount] 2 relating to wildlife. [only before noun]	<i>laws to protect wildlife and their habitats</i> <i>a wildlife conservation organization</i>	
wind-blown /'wɪnd ,bləʊn/	1 carried along by the wind. adjective 2 looking untidy because of being blown around by the wind. adjective		

A Working with words

1 Sea action word map

Write these words in the correct place on the word map.

groyne longshore tombolo swash attrition wave-cut stacks spit



2 Sea terms

Match the words and phrases with their explanation

Words

- 1 hydraulic action
- 2 abrasion
- 3 attrition
- 4 sea cliffs
- 5 sea caves
- 6 sea arches
- 7 sea stacks
- 8 spits
- 9 bars
- 10 tombolos
- 11 groyne

Explanations

- a These are the outer walls of collapsed arches.
- b These are used to reduce longshore drift.
- c These are where sea caves erode through headlands.
- d These form when spits block bays.
- e These form when spits join islands to the mainland.
- f These form where waves enlarge weak spots in cliffs.
- g This means erosion by the sea's load.
- h This means erosion of the sea's load.
- i These protrude out from the shore.
- j This refers to erosion by water.
- k These slope steeply up from the shore.

1 2 3 4 5 6 7 8 9 10 11

3 Sand dunes

Underline the correct word in each sentence.

- 1 When a beach dries out at (high tide / low tide / mid tide), some of the dry sand is blown from its surface.
- 2 The sand is blown to the top of the beach and (out to sea / upshore / inland) behind the beach.
- 3 After some time this sand accumulates to form sand (dunes / bars / spits).
- 4 If there is a shallow lake, such as a (reservoir / lagoon / pond), behind the beach, it will eventually be filled in by the wind-blown sand and will become dry land.

- 5 (Marram / Mirrim / Morrom) grass is characteristic with its long and numerous roots.
- 6 The grass roots will bind the sand grains together and (accumulate / isolate / stabilize) the dunes.
- 7 The grass itself breaks the force of the sea (tide / water / breeze) and so reduces erosion.

B Working with sentences

4 Sea caves, arches and stacks

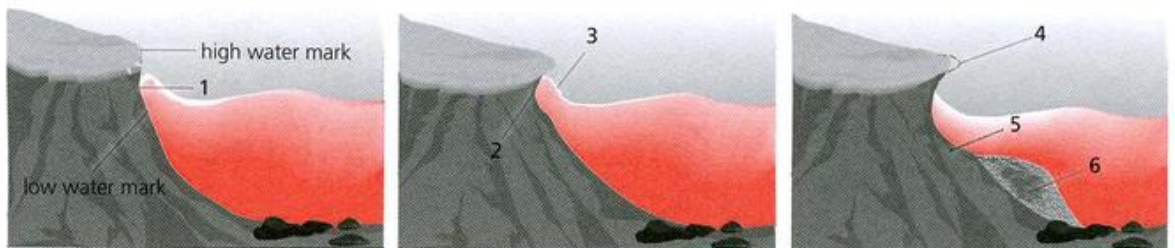
Put the sentences in the correct place on the picture.

- 1 A cave is eroded right through the headland.
- 2 A sea arch is a natural archway in a rocky headland.
- 3 A sea cave is a long, cylindrical tunnel in a cliff.
- 4 A sea stack is a pillar of rock jutting out of the sea near the coast.
- 5 A sea stump is the remainder of a sea stack, which has been eroded by the sea.
- 6 An arch collapses and its outer wall stands out as a pillar of rock.
- 7 A sea cave usually decreases in width away from the entrance.



5 Sea cliffs

Put these sentences in the correct order. Use the diagram to help you.

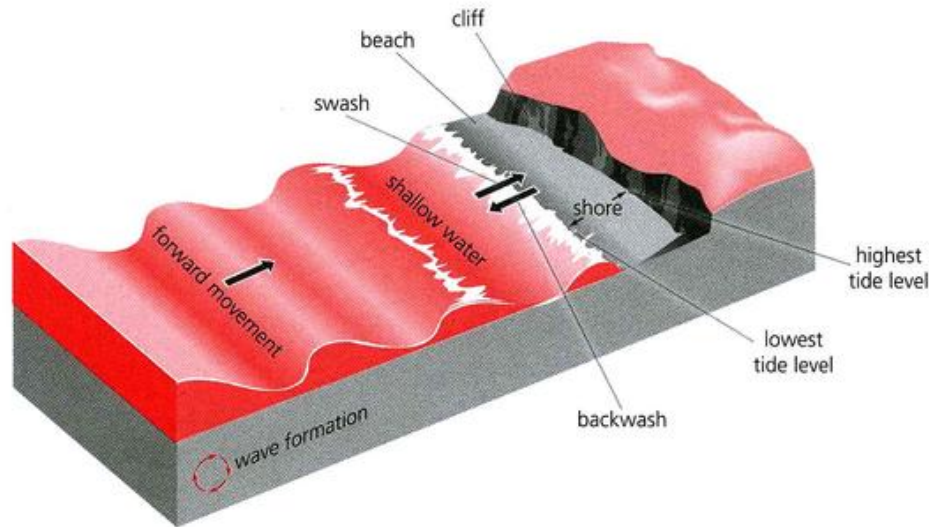


- a Waves lash against the cliff, air gets trapped in cracks and helps shatter the rock face.
- b Material eroded from the cliff builds up to form a wave-built terrace.
- c The former base of the cliff remains as a wave-cut platform.
- d The force of storm waves erodes a notch in the rock of the coastline.
- e The overhanging rock above the notch becomes unstable and finally collapses forming a cliff.
- f Continued undercutting causes the notch to cut deeper into the rock.

1 2 3 4 5 6

6 The work of the sea

Look at the picture. Decide which sentences are true and which are false.



- 1 Waves are formed when wind moves over the surface of the water and causes the water to make a circular motion which forms a wave shape.
- 2 It is this wave shape and not the water which moves forwards.
- 3 When waves reach deep water they break.
- 4 Only then does the water rush towards the shore.
- 5 The swash is the rush of water down the shore following the breaking of a wave.
- 6 The backwash is the return movement of water up the shore.

C Working with texts

7 Features of erosion and deposition

Read the text and sort the information into the correct columns. Some words and phrases can be used more than once.

Cliffs and wave-cut platforms are both features of sea erosion. The processes of sea erosion include hydraulic action from the force of storm waves which compresses air in cracks in the cliff; abrasion when large waves hurl beach material against the cliff; attrition when waves cause rocks on the beach to bump into each other and break up; and solution when salts and acids in the sea water dissolve the cliff.

The beach itself is a feature of deposition. The process which forms the beach is a combination of longshore drift and wind action. Caves, sea stacks, sea arches and blow holes are also caused by a combination of all of the processes of erosion mentioned above: hydraulic action, abrasion, attrition and solution. Sand spits, sand bars and tombolos are deposition features which are formed from the processes of longshore drift and wind action.

abrasion beach blow holes caves cliffs and wave-cut platforms
solution hydraulic action longshore drift sand bars
sand spits sea arches sea stacks tombolos wind action attrition

Features of erosion	Processes	Features of deposition	Processes
1	2	3	4
5	6	7	8

8 People and the sea

Read the text and make notes on the three areas in the table.

There are a number of ways that people interact with the sea. Positive ways include recreation. The sea and beaches provide recreational areas for sunbathing, swimming, sailing and fishing. Additionally, the sea brings food from large fish catches by trawlers. Thirdly, large deposits of fossil fuels, such as oil and natural gas, are found under the sea floor. A fourth advantage is the transport opportunity offered by the sea for large ships such as supertankers, which carry heavy and bulky cargo over long distances. In terms of agriculture, the sea offers farming opportunities for fish such as salmon, and shellfish such as mussels and oysters are reared in cages in sheltered bays. Lastly, the sea can be used to produce electricity generated by the incoming and outgoing tide in some estuaries.

There are also ways in which the sea is harmful to people. Houses, farmland and roads may be undermined and washed away when cliffs are eroded by the waves. Secondly, some beaches and sand spits may be eroded during storms. Another problem is caused by huge waves which may cause flooding in low-lying areas during storms. Fourthly, longshore drift may cause a harbour to fill up with sand and silt and ships are unable to continue to use it as a port.

There are ways in which people attempt to prevent the damage and destruction caused by the sea. Firstly, reinforced concrete walls are built along the foot of a cliff to reduce the force of waves. Large boulders may also be placed there for the same purpose. Secondly, groynes are built along the coast to trap sand, creating beaches where there was erosion originally. Next, dams or dykes are built to keep out the sea in low-lying areas. Lastly, jetties (concrete walls) are built at a harbour entrance to prevent silting.

A Ways in which the sea helps people	B Ways in which the sea is harmful to people	C Action to prevent damage
1	1	1
2	2	2
3	3	3
4	4	4
5		
6		

5 Ice action

Word	Definition	Example	Translation
abrade /ə'breɪd/	to damage something by rubbing its surface too hard. verb [transitive]		
advantage /əd'vɑ:ntɪdʒ/	1 benefit to yourself. noun [uncount] 2 a good feature or quality that something has. noun [count]		
age /eɪdʒ/	1 the number of years that something has existed. noun [count/uncount] 2 a period of history. noun [count] 3 to become older. verb [intransitive]	<i>The value of the furniture depends on its condition and age.</i> <i>the Ice Age</i>	
ancient /ˈeɪnʃ(ə)nt/	1 very old. adjective 2 relating to people who lived thousands of years ago, and to their way of life. adjective	<i>an ancient city/book/tradition</i> <i>recently discovered remains of an ancient civilization.</i>	
arctic /ɑ:(r)ktɪk/	extremely cold. adjective		
arête /ə'ret/	a narrow line of bare rock between two cirques, found in an area of mountains that has been covered by glaciers. noun [count]		
basin-shaped /ˈbeɪsn ʃeɪpt/	having steep sides and a wide curved bottom. adjective	<i>a basin-shaped valley</i>	
basket of eggs landscape /ˈbɑ:skɪt əv eɡz ˌlændʃkeɪp/	when clusters of drumlins appear on a landscape, this is known as a 'basket of eggs' landscape. phrase		
bog /bɒɡ/	an area of ground that is always very wet and soft. noun [count/uncount]		
cirque /sɜ:(r)k/	a valley with three steep sides on the slope of a mountain. It is formed by the movement of glaciers. noun [count]		
cluster /ˈklʌstə(r)/	a small group of people or things that are very close to each other. noun [count]	<i>People stood in clusters around the noticeboards.</i>	
compress /kəm'pres/	to press or squeeze something so that it fits into a smaller space. verb [transitive]	<i>The weight of the skiers compresses the snow and makes it solid.</i>	
combe/coombe /ku:m/	a valley on the downward slope of a hill. noun [count]		
crevasse /krə'væs/	a very deep crack in rock or ice. noun [count]		
decline /dɪ'klaɪn/	1 to become less or worse. verb [intransitive] 2 a reduction in the amount or quality of something. noun [count/uncount]	<i>The number of people buying their own homes has declined.</i>	
deepen /ˈdi:pən/	if water or something else deepens, or if someone deepens it, it becomes deeper. verb [intransitive/transitive]		
degree /dɪ'ɡri:/	an amount of something such as a feeling or a quality. noun [count/uncount]		
drumlin /ˈdrʌmlɪn/	a long narrow hill made of rock and small pieces of stone, put somewhere by a moving glacier. One end of it is vertical and the other is sloping. noun [count]		
dump /dʌmp/	to get rid of someone or something that you no longer want or need. verb [transitive]	<i>Over 150,000 tonnes of waste are dumped annually along the coastline.</i>	
embed /ɪm'bed/	to fix something firmly in a surface or object. verb [transitive]	<i>Rocks are embedded within the ice.</i>	
enormous /ɪ'nɔ:(r)məs/	very large in size or quantity. adjective	<i>The enormous birthday cake dwarfed everything else on the table.</i>	
erratics /ɪ'ræɪtɪks/	rocks that were carried to a place by a glacier and left there when the ice melted. noun [count]		

Word	Definition	Example	Translation
eskers /ˈeskə(r)z/	long narrow winding lines of sand or small bits of stone, put somewhere by a stream flowing under a glacier. noun [count]		
exposed /ɪkˈspəʊzd/	1 not covered or hidden and therefore able to be seen. adjective 2 not protected from the weather. adjective	<i>an exposed brick wall</i> <i>an exposed site on the hill</i>	
factor /ˈfæktə(r)/	one of the things that influence whether an event happens or the way that it happens. noun [count]		
flow /fləʊ/	if a substance flows, it moves smoothly and continuously in one direction. verb [intransitive]	<i>Glaciers flow very slowly down mountains.</i>	
flush /flʌʃ/	to remove something by pouring a lot of water through the place where it is. verb [transitive]	<i>The sand was flushed out of the tunnel by floodwater.</i>	
front /frʌnt/	the surface of something that faces forwards. noun [count] [often singular]		
frontal moraine /ˈfrʌnt(ə)l məˈreɪn/	material deposited at the farthest point reached by the ice in a glacier forms a ridge which runs across the valley floor. noun [count]		
glacial /ˈɡleɪʃ(ə)l/	1 extremely cold. adjective 2 created by glaciers millions of years ago. adjective	<i>a glacial wind</i> <i>a glacial lake</i>	
glaciated /ˈɡleɪsɪeɪt(ə)d/	covered by glaciers or a glacier. adjective		
glaciation /ˈɡleɪsɪˈeɪʃ(ə)n/	the process in which land becomes covered by glaciers. noun [uncount]	<i>There have been several periods of glaciation in the Earth's history.</i>	
glacier /ˈɡleɪsɪə(r)/	a very large mass of ice that moves very slowly. noun [count]		
great /ɡreɪt/	bigger or more than is usual. adjective		
hanging valley /ˈhæŋɪŋ ˈvæli/	a tributary valley that enters a main valley high up because the main valley has been deepened through glacial erosion. noun [count]		
heat /hi:t/	1 the quality of being hot, or the degree to which something is hot. noun [singular] [uncount] 2 the energy that is produced when the temperature of something changes. noun [uncount]	<i>the heat of the sun</i> <i>These chemical processes generate a lot of heat.</i>	
heavy /ˈhevi/	a heavy object weighs a lot. adjective		
hollow /ˈhɒləʊ/	a small area in the ground that is lower than the ground around it. noun [count]		
huge /hju:dʒ/	extremely large in size. adjective	<i>Huge boulders lay all over the plain.</i>	
iceberg /ˈaɪsbɜ:(r)ɡ/	a very large piece of ice floating in the sea with only a small amount of it above the surface of the water. noun [count]		
ice cap /ˈaɪs ˌkæp/	a large area of ice that covers the land and sea around the North or South Pole. noun [count]		
ice pack /ˈaɪs ˌpæk/	an area of small pieces of ice floating in the sea. noun [count]		
ice sheet /ˈaɪs ˌʃi:t/	an ice cap. noun [count]		
impermeable /ɪmˈpɜ:(r)miəb(ə)l/	something that is impermeable does not let liquid or gas pass through it. adjective		
inlet /ɪnˈlɛt/	a long narrow area of water that continues into the land from a lake or sea. noun [count]		
lateral moraine /ˈlæt(ə)rəl məˈreɪn/	material that is deposited along the sides of a glacier. noun [uncount]		
lip /lɪp/	the edge of a high piece of land. noun [count]	<i>We walked up to the lip of the canyon.</i>	

Word	Definition	Example	Translation
lough (loch) /lɒx/	a lake, or a narrow area of sea almost completely surrounded by land. noun [count]		
medial moraine /ˈmiːdiəl məˌreɪn/	a line of earth and pieces of rock formed in the centre of a glacier when the lateral moraines of two glaciers meet. noun [count]		
melt /melt/	1 to change a solid substance into a liquid. verb [transitive] 1a to be changed from a solid substance into a liquid. verb [transitive] 2 melt or melt away to disappear, usually gradually. verb [intransitive]	<i>Melt the butter in a small saucepan. Climate change is causing the polar ice cap to melt.</i>	
meltwater /ˈmeltwɔːtə(r)/	water formed by the melting of ice or snow, especially from a glacier. noun [uncount]		
moraine /məˈreɪn/	a mass of earth and pieces of rock carried by a glacier and left behind as it passes. noun [count]		
mountain /ˈmaʊntɪn/	a very high hill. noun [count]	<i>They went walking and climbing in the mountains.</i>	
mountainous /ˈmaʊntɪnəs/	covered with mountains. adjective	<i>Switzerland has many mountainous regions.</i>	
mountain range /ˈmaʊntɪn ˌreɪnʒ/	a long row of mountains. noun [count]		
mountainside /ˈmaʊntɪnˌsaɪd/	the side of a mountain. noun [count]		
mountaintop /ˈmaʊntɪnˌtɒp/	the area at the top of a mountain. noun [count]		
narrow /ˈnærəʊ/	small in width, especially when compared to how high or long something is. adjective	<i>a narrow strip of land/water</i>	
outwash plain /ˈaʊtwɔːʃ pleɪn/	a flat area formed by sand and small stones that have been left by streams flowing away from a glacier. noun [count]		
pack ice /ˈpæk ˌaɪs/	a large mass of ice that floats in the sea. noun [uncount]		
pass /pɑːs/	a path or road that goes through an area of mountains. noun [count]	<i>They reached the pass late in the afternoon.</i>	
patch /pætʃ/	an area that is different from what surrounds it. noun [count]	<i>Icy patches are likely on some roads.</i>	
paternoster lakes /ˈpætəˈnɒstə(r) ˌleɪks/	a series of lakes that form in a u-shaped valley. They are linked by a stream that flows through the valley. noun [plural]		
permafrost /ˈpɜː(r)məˌfrɒst/	ground that stays permanently frozen, for example in the polar regions. noun [uncount]		
permanent /ˈpɜː(r)mənənt/	happening or existing for a long time or for all time in the future. adjective		
plain /pleɪn/	a large flat area of land. noun [count]	<i>the vast plains in the central states of the US</i>	
pluck /plʌk/	to take material from the surface beneath a glacier. verb [transitive]	<i>Chunks of rock are plucked from the valley floor by the glacier.</i>	
pole /pəʊl/	one of the points on the extreme top or bottom of the Earth, called the North Pole and the South Pole. noun [count]		
polar /ˈpəʊlə(r)/	coming from, or relating to, an area near the North Pole or the South Pole. adjective	<i>the polar regions</i>	
precipice /ˈpresəpɪs/	a very steep high cliff. noun [count]		
process /ˈprəʊses/	a series of things that happen or actions that have a particular result. noun [count]		
produce /prəˈdjuːs/	to make or grow something, especially in large quantities and in order to be sold. verb [transitive]	<i>Fertile boulder clay soils can produce high crop yields.</i>	

Word	Definition	Example	Translation
profile /ˈprəʊfaɪl/	the shape of the edge of something. noun [count]	<i>the profile of the mountain against the sky</i>	
provide /prəˈvaɪd/	to cause something to exist or be available. verb [transitive]		
pyramidal /ˈpɪrəˌmɪd(ə)l/	in the shape of a pyramid. adjective		
quarry /ˈkwɒrɪ/	to dig stone out of the ground. verb [transitive]	<i>The land here was quarried for limestone in the past.</i>	
remain /rɪˈmeɪn/	to continue to exist, especially after other things have gone or been dealt with. verb [intransitive]		
ribbon lake /ˈrɪbən ˌleɪk/	a long narrow lake formed in the valley that was created when a glacier moved over an area containing bands of hard and soft rock. noun [count]		
routeway /ˈruːtweɪ/	a route for travelling to a place. noun [count]		
rub /rʌb/	to press and move one object against another or against a surface. verb [transitive]		
scour /skaʊə(r)/	scour or scour out to form a passage or hole in something by moving continuously over it. verb [transitive]	<i>a valley scoured out by a glacier</i>	
scrape /skeɪp/	if a sharp edge or point scrapes a surface, or if you scrape it across the surface, it moves across the surface. verb [intransitive/transitive]	<i>You'll have to scrape the walls before you paint them.</i>	
shatter /ˈʃætə(r)/	1 to break something suddenly into a lot of small pieces. verb [transitive] 1a to break suddenly into a lot of small pieces. verb [intransitive] 2 to destroy or seriously damage something. verb [transitive]	<i>The glass shattered when it hit the floor.</i>	
sheet /ʃi:t/	a wide flat area of something such as water or ice. noun [count]	<i>The lake was covered with a sheet of ice.</i>	
shorten /ˈʃɔː(r)t(ə)n/	to become shorter, or to make something shorter. verb [intransitive/transitive]		
smooth /smuːð/	1 completely even with no rough areas or lumps. adjective 2 to make the surface of something very flat and even. verb [transitive]		
snout /snaʊt/	the lowest end of a glacier, also called the terminus or toe. noun [count]		
snow /snəʊ/	1 small soft white pieces of ice that fall from the sky and cover the ground. noun [uncount] 2 if it snows, snow falls from the sky. verb [intransitive]	<i>Two to three inches of snow is predicted for tonight.</i>	
snowfield /ˈsnəʊfi:ld/	an area of land that is always covered with snow. noun [count]		
squeeze /skwi:z/	to press something such as a liquid out of something. verb [transitive]		
steep /sti:p/	1 a steep slope rises quickly and is difficult to climb. adjective 2 a steep drop or fall is sudden and nearly vertical. adjective		
steepen /sti:pən/	to become steeper, or to make something become steeper. verb [intransitive/transitive]	<i>The road steepens ahead.</i>	
straighten /streɪt(ə)n/	straighten or straighten out to make something straight. verb [intransitive/transitive]		
strip /stri:p/	to remove something that covers something. verb [transitive]	<i>The wind had stripped the leaves from the trees.</i>	
submerged /səbˈmɜː(r)ɔːd/	completely under water. adjective	<i>a submerged village</i>	
summit /ˈsʌmɪt/	the top of a mountain. noun [count]		
tarn /tɑː(r)n/	a mountain lake that forms in a cirque. noun [count]		

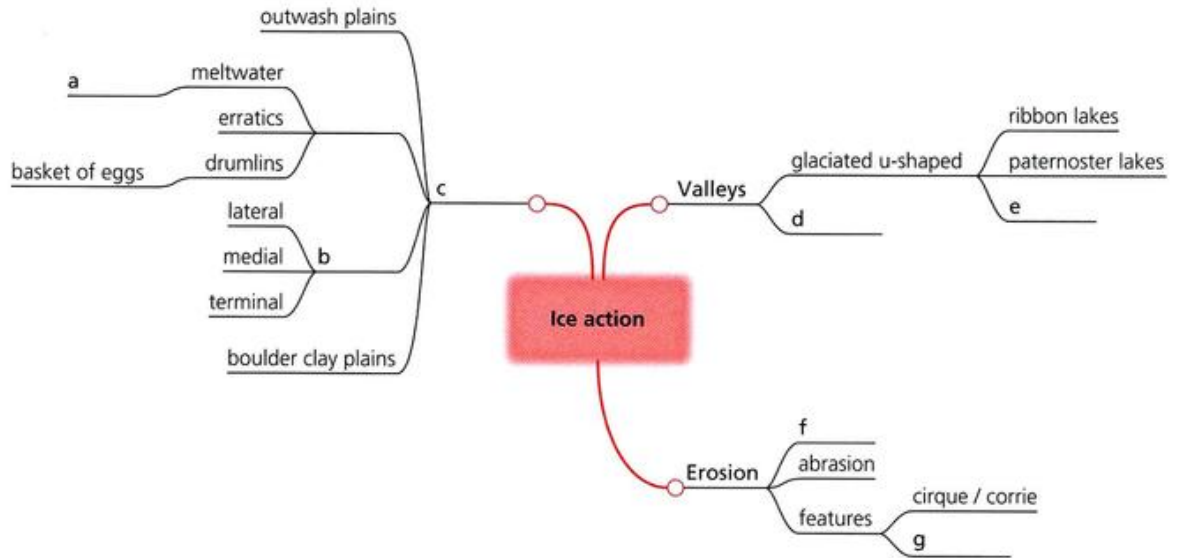
Word	Definition	Example	Translation
temperature /ˈtemprɪ,tʃə(r)/	a measurement of how hot or how cold a place or object is. Temperature is measured in degrees Celsius or degrees Fahrenheit, using the symbol °. noun [count/uncount]	<i>It's stopped snowing here but the temperature is still minus three.</i>	
terminal moraine /ˈtɜːmɪn(ə)l məˈreɪn/	a line of rock, gravel, and soil across a valley at the end of a glacier. noun [count]		
trap /træp/	to keep something such as air, gas, or energy in a particular place. verb [transitive]	<i>Some material remains trapped within the ice.</i>	
trend /trend/	a gradual change or development that produces a particular result. noun [count]		
valley /væli/	a low area of land between mountains or hills, usually with a river flowing through it. noun [count]	<i>Their house has wonderful views across the valley.</i>	
vast /vɑːst/	extremely large. adjective	<i>a vast empty plain</i>	
wasteland /ˈweɪst,lænd/	an area of land that is empty or cannot be used. noun [count/uncount]		
waterlogged /ˈwɔːtə(r),lɒgd/	soaked or saturated with water. adjective	<i>The ground is completely waterlogged.</i>	
yield /jiːld/	an amount of something that is produced. noun [uncount]	<i>increased crop yields produced on some farms</i>	

A Working with words

1 Ice action word map

Write these words in the correct place on the word map.

eskers plucking hanging deposition arête fjords moraine



2 Plucking and abrasion

Complete the text with these words.

smoothens dragged meltwater melt scrape melting erosion downslope

As a glacier moves 1 _____ the weight of ice causes the bottom of the glacier to
2 _____ the valley floor.

This scraping action creates just enough heat to 3 _____ a thin layer of ice at the bottom of the glacier.

When the ice stops, so does the 4 _____ and the 5 _____ freezes and attaches itself to the rocks on the valley floor.

When the ice begins to move again it plucks out chunks of rock from the valley and so causes
6 _____.

The plucked rocks become attached to the base of the glacier.

As the glacier moves, these rocks are 7 _____ along the valley floor under the great weight of glacier ice, and cause erosion, just as coarse sandpaper does when rubbed across timber.

This action 8 _____ rock surfaces.

3 Some features of glacial erosion

Read the text. Some of the sentences contain incorrect words. These are underlined. Replace them with one of these words.

arête basin-shaped compressed glacier plucked peak steep-sided tarns

Cirques are large, round hollows in mountains. They are flat on three sides. They sometimes contain round lakes called towns. Each cirque was once the birthplace of a iceberg. Snow accumulated in these areas and became impressed into ice. The ice eroded (packed and abraded) deep hollows as it began to move slowly downhill in the form of a glacier. When two cirques develop side by side, the land between them becomes eroded until only a narrow ridge separates them. This narrow ridge is called an crêpe. If three or more cirques formed around a mountain, they would erode the mountain so that only a steep-sided 'core' would remain. This steep-sided pyramid-shaped mountain is called a pyramidal poke.

round > _____

impressed > _____

flat > _____

packed > _____

towns > _____

crêpe > _____

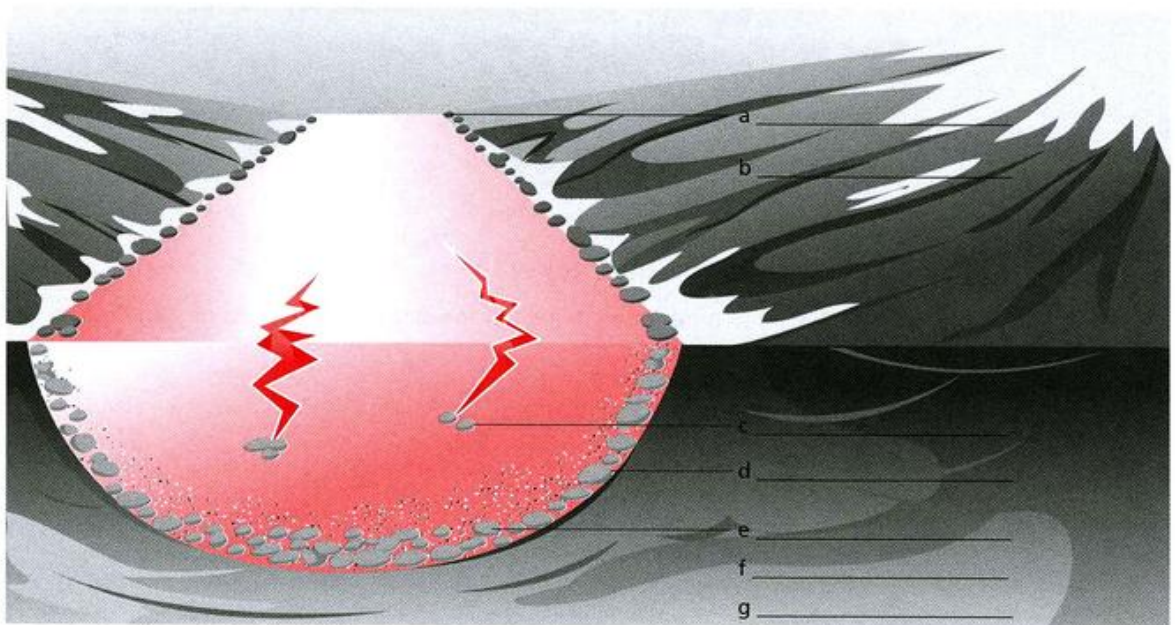
iceberg > _____

poke > _____

B Working with sentences

4 Transported material – moraine

Label the diagram with these sentences.

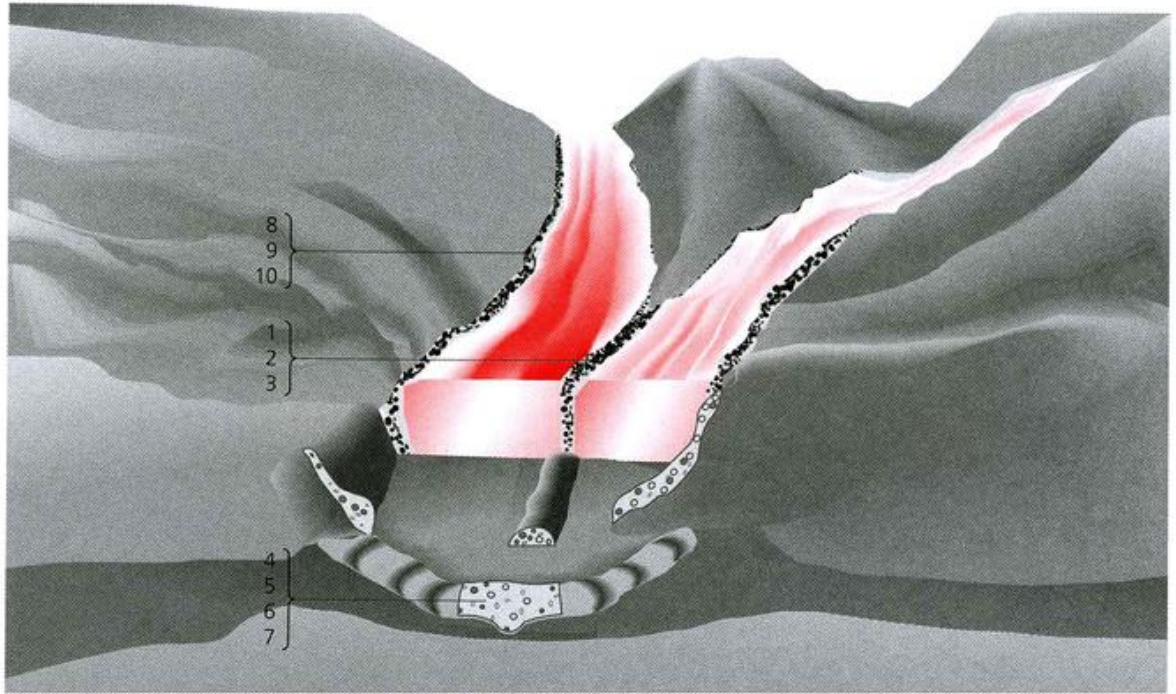


- 1 Finally, much of this material is ground into soil particles, rough stones and huge boulders called erratics.
- 2 More material is eroded from the valley sides by the processes of abrasion and plucking and is carried downhill.
- 3 Most material is carried along the base of a glacier or ice sheet.
- 4 Some material is carried on top of the glacier along its edges.
- 5 Some material which has fallen down steep narrow cracks, called crevasses, is carried within a glacier.
- 6 This is eroded by abrasion and plucking.
- 7 This is shattered rock which has fallen onto the glacier from steep mountain slopes.

5 Glacial deposition

Label the diagram with the phrases.

a medial moraine a lateral moraine a terminal moraine
sloping bank of unsorted material
curved high and wide bank along side of glacial valley
along front edge of glacier
along centre of glaciated valley
accumulated on top of earlier moraine



6 Outwash plains and eskers

Match the beginnings and endings of the sentences. There is one ending you don't need to use.

Beginnings

- 1 Outwash plains are low-lying areas of sand and gravel
- 2 Towards the end of the Ice Age, vast amounts of water flowed
- 3 This meltwater moved through the frontal moraines
- 4 As it did so, the water flushed large amounts of sand and gravel
- 5 Eskers are long, narrow ridges
- 6 When the ice was melting towards the end of the Ice Age, rivers of meltwater flowed
- 7 When the river left these tunnels at the snout of the glacier,
- 8 As the ice front melted back gradually, the material was deposited

Endings

- a from the melting ice fronts.
- b in the form of a long, narrow ridge.
- c it lost its energy and deposited material.
- d on to the plains beyond.
- e rapidly through tunnels beneath the ice.
- f through the moraines and deposited them on the outwash plains.
- g usually found near frontal moraines.
- h which wind across lowland areas.
- i before it climbed back up the slope.

1 2 3 4 5 6 7 8

7 The benefits and problems of glaciation to people

Read the text and make notes on the benefits and problems of glaciation.

Although they are very, very old and perhaps not something you think about every day, glaciers do provide problems and advantages for the local population. For example, glaciated regions with their U-shaped valleys and lakes attract tourists to their mountain areas where they may ski, hike or simply enjoy the natural beauty. Another plus is the soil. In glaciated regions, the fertile boulder clay soils can produce high crop yields, which is very good for local agriculture. Another advantage for the local economy, specifically the building industry, are eskers which provide sand and gravel for buildings. The glacial lakes themselves may be used as reservoirs and sources of hydro-electric power, and glaciers provide a service in digging routeways through mountains where roads can be built.

There are also some negative side effects. In some glacial areas, soil may have been stripped, leaving only a thin soil cover, which makes agriculture difficult. Glacial deposits can cause poor drainage in some areas which can then become waterlogged and develop into bogs. Bogs and stony soils are frequently factors in the movement of people which can also have an adverse effect on an area.

Benefits	Problems
1	6
2	7
3	8
4	
5	

8 Glaciated and hanging valleys

The sentences describe glaciated and hanging valleys, but the texts have been mixed up. Put the sentences in the correct order in the table.

- 1 These are tributary valleys which 'hang' above the levels of the main glaciated valleys.
- 2 These are deep, straight, U-shaped valleys with flat floors and steep sides.
- 3 Glaciers steepened the valley sides and flattened their floors so that the valleys became U-shaped.
- 4 Originally they were river valleys, occupied by glaciers during the Ice Age.
- 5 When the glaciers melted, the floors of the tributaries remained high above the floors of the main valleys.
- 6 Rivers often flow from these valleys into the main valleys by means of waterfalls.
- 7 Powerful glaciers deepened and straightened the valleys.
- 8 Tributary valleys were not deepened to the same degree as main valleys by the powerful glaciers that once occupied them.

A Glaciated valleys	B Hanging valleys

6 Soil

Word	Definition	Example	Translation
absorb /əb'zɔ:(r)b/	to take in a gas, liquid, or other substance. verb [transitive]	<i>The timber expands as it absorbs moisture.</i>	
abundance /ə'bʌndəns/	a very large quantity of something. noun [singular] [uncount]	<i>The lake attracts an abundance of wildlife.</i>	
accumulate /ə'kjʊ:mju:leɪt/	to increase in quantity over a period of time. verb [intransitive]		
acid /'æsid/	soil that contains a high level of acid. adjective	<i>Some plants prefer an acid soil.</i>	
adapted /ə'dæptɪd/	especially suitable for someone or something. adjective	<i>a plant well adapted to warm, dry conditions</i>	
affect /'æfekt/	1 to change or influence something. If something affects something else, it has an effect on it. verb [transitive] 1a to cause physical damage to something. verb [transitive]	<i>The area has been badly affected by pollution.</i>	
agent /'eɪdʒ(ə)nt/	something that causes change. noun [count]	<i>Soil erosion is a major agent of environmental change.</i>	
agriculture /'ægrɪ,kʌltʃə(r)/	the work, business, or study of farming. noun [uncount]	<i>Most of the population is employed in agriculture and fishing.</i>	
amount /ə'maʊnt/	a quantity of something. noun [count]	<i>You only need a small amount.</i>	
appearance /ə'piərəns/	the way that someone or something looks. noun [count/uncount]	<i>Recent initiatives have done a lot to improve the appearance of the district.</i>	
archaeologist /ɑ:(r)ki'blɔ:dʒɪst/	someone who studies archaeology. noun [count]		
ash /æʃ/	a tree with a smooth grey bark. noun [count]		
bacteria /bæk'tɪəriə/	microorganisms (=very small living things that consist of a single cell). Some types of bacteria cause diseases and others cause things to decay. noun [plural]		
bark /bɑ:(r)k/	the hard substance that covers a tree. noun [uncount]		
bedrock /'bed,rɒk/	the solid rock under the ground that supports the soil above it. noun [singular]		
beech /bi:tʃ/	a large tree with smooth grey bark and small nuts. noun [count]		
blend /blend/	to join with another substance to form a mixture. verb [intransitive]		
bog /bɒg/	an area of ground that is always very wet and soft. noun [count/uncount]		
break down /'breɪk ,daʊn/	if a substance breaks down or is broken down into parts, it separates into the parts that it is made up of. verb [intransitive/transitive]	<i>Like all natural substances, it is easily broken down by bacteria.</i>	
broad-leaved /'brɔ:d,lɪ:vd/	1 relating to or belonging to deciduous or evergreen trees such as oak or holly that have wide rather than needle-shaped leaves. adjective 2 relating to all plants that have wide leaves rather than narrow leaves, for example grasses. adjective		
cactus /'kæktəs/	a plant that grows in deserts and has thick stems and sharp points called spines. noun [count]		
calcium /'kælsiəm/	a white chemical element that is an important part of bones and teeth and is found in some types of rock. noun [uncount]		

Word	Definition	Example	Translation
capillary action /kə'pɪləri ,ækʃn/	the natural upward movement of water in confined areas, such as the spaces between soil particles. phrase		
chalk /tʃɔ:k/	a type of soft white rock that consists of almost pure calcium carbonate. It is a type of sedimentary rock. noun [uncount]		
chemical /'kemɪk(ə)l/	1 a substance used in chemistry or produced by a process involving chemistry. noun [count] 2 involving chemistry or produced by a method used in chemistry. adjective	<i>the dumping of toxic chemicals</i>	
chernozem /'tʃɜ:nəʊ,zem/	a fertile black or brown topsoil that is rich in humus. noun [count]		
circulate /'sɜ:(r)kjələt/	to move around continuously inside a system or area, or to make something do this. verb [intransitive/transitive]	<i>a machine designed to circulate warm air</i>	
clay /kleɪ/	a type of heavy wet soil that becomes hard when it is baked in a kiln (=oven), used for making cups, plates, and other objects. noun [uncount]	<i>clay pots</i>	
coarse /kɔ:(r)s/	1 a coarse substance or surface feels rough and hard. adjective 2 consisting of large or thick pieces. adjective	<i>the coarse outer leaves of the cabbage</i> <i>coarse sand</i>	
coloured /'kɒlə(r)d/	red, green, orange etc instead of black and white or transparent. adjective [usually before noun]		
combine /kəm'baɪn/	if you combine substances, or if they combine, you mix them together to form a single substance. verb [intransitive/transitive]	<i>Combine all the ingredients in a bowl.</i>	
composition /,kɒmpə'zɪʃ(ə)n/	the way that something is formed from separate parts or people. noun [uncount]	<i>the chemical composition of stars</i>	
cone /kəʊn/	the fruit of a pine tree. noun [count]		
conifer /'kɒnɪfə(r)/	a type of tree that produces cones and whose leaves do not fall off in winter. Pines, firs, and yews are conifers. noun [count]		
coniferous /kə'nɪf(ə)rəs/	1 a coniferous tree produces cones and its leaves do not fall off in winter. adjective 1a a coniferous forest has mainly conifers growing in it. adjective		
consist of /kən'sɪst əv/	to be made of particular parts or things. verb [transitive]	<i>Plant litter consists of dead leaves and grasses.</i>	
contain /kən'teɪn/	if a substance contains something, that thing is a part of it. verb [transitive]	<i>Brown rice contains a lot of vitamins and minerals.</i>	
crumble /'krʌmb(ə)l/	1 to break something into very small pieces, or to be broken into very small pieces. verb [intransitive/transitive] 1a if something hard such as stone or a brick crumbles or crumbles away, parts of it fall off because it is very old or damaged. verb [intransitive]	<i>The soft earth of the riverbank crumbled under his feet.</i> <i>Part of the roof had rotted away and the exposed plaster was beginning to crumble.</i>	
crumbly /'krʌmbli/	breaking easily into very small pieces. adjective		
crusty /'krʌsti/	covered with a hard layer of a substance. adjective		
cycle /'saɪk(ə)l/	a series of events that happen again and again in the same order or at the same times. noun [count]		
decay /dɪ'keɪ/	to be gradually destroyed as a result of a natural process of change. verb [intransitive]	<i>As dead plants decay, they release mineral salts into the soil.</i>	
deciduous /dɪ'sɪdʒjuəs/	deciduous trees lose all their leaves each autumn. adjective		
decompose /,dɪ:kəm'pəʊz/	to decay by a slow natural process, especially through the action of particular bacteria or fungi. verb [intransitive]		
denuded /dɪ'nju:did/	something that is denuded has had the thing that normally covers it removed. adjective		
deposition /,depə'zɪʃ(ə)n/	a process in which layers of a substance form gradually over a period of time. noun [uncount]		

Word	Definition	Example	Translation
desert /ˈdeɪzə(r)t/	a large area of land with few plants and little water and where the weather is always dry. noun [count/uncount]		
desertification /dɪzəːtʃɪfɪk(ə)ʃ(ə)n/	the process by which land becomes so dry that it cannot be used for farming. noun [uncount]		
destroy /dɪˈstrɔɪ/	to damage something so severely that it no longer exists or can never return to its normal state. verb [transitive]	<i>Half the world's rainforests have already been destroyed.</i>	
determine /dɪˈtɜː(r)mɪn/	to control what something will be. verb [transitive] [often passive]	<i>genetically/culturally/biologically determined</i>	
dissolve /dɪˈzɒlv/	if a solid substance dissolves in a liquid, it is mixed into the liquid so that it becomes included in it. verb [intransitive]	<i>salt dissolves in water</i>	
distribution /ˌdɪstrɪˈbjʊːʃ(ə)n/	the process of spreading something over an area or the way in which it is spread. noun [count/uncount]	<i>Bees are largely responsible for the distribution of pollen.</i>	
earthworm /ˈɜː(r)θ,wɜː(r)m/	a type of worm that lives in soil. noun [count]		
elevated /ˈeɪləˌveɪtɪd/	raised above the ground, or higher than the surrounding area. adjective		
elevation /ˌeɪləˌveɪʃ(ə)n/	the height of an area of land, usually measured from sea level. noun [count]		
equatorial /ˌekwəˈtɔːriəl/	near the equator, or typical of conditions near the equator. adjective	<i>equatorial rainforest</i>	
erosion /ɪˈrəʊʒ(ə)n/	the process by which the surface of land or rock is gradually damaged by water, wind etc and begins to disappear. noun [uncount]	<i>soil/coastal/glacial erosion</i>	
evergreen /ˈevə(r),ɡriːn/	covered in green leaves all year long, not only in summer. adjective		
ferralitic /ˈferəlɪtɪk/	a type of soil that occurs in the humid tropics. It is a greyish-red colour and is slightly acidic. noun		
fertile /ˈfɜː(r)taɪl/	fertile land is able to produce good crops or plants. adjective		
fertilize /ˈfɜː(r)təlaɪz/	to add a natural or chemical substance to soil in order to help plants grow. verb [transitive]		
fir /fɜː(r)/	a tall tree with thin sharp leaves that do not fall off in winter. It produces large hard brown fruits called cones and can be called a fir or a fir tree. noun [count]		
foliage /ˈfəʊliɪdʒ/	the leaves of a plant or tree. noun [uncount]	<i>red flowers and dark green foliage</i>	
forested /ˈfɒrɪstɪd/	covered with trees. adjective	<i>The hills nearby were thickly forested with oak trees.</i>	
fungus /ˈfʌŋɡəs/	a type of plant without leaves, flowers, or green colour that grows mainly in wet places or on decaying substances. There are many types of fungi, including mushrooms, mildews, yeasts, and moulds. noun [count/uncount]		
garigue /ɡəˈriːɡ/	an area of low, open scrubland in the Mediterranean area; characterized by small evergreen shrubs and low trees. noun [uncount]		
germinate /ˈdʒɜː(r)mɪneɪt/	to develop from a seed and begin to grow into a plant, or to make a seed develop in this way. verb [intransitive/transitive]	<i>It's been too cold for seeds to germinate properly.</i>	
gley /ɡleɪ/	a type of soil that occurs where the soil or rock beneath is impermeable. It is often sticky and waterlogged. noun [uncount]		
gravel /ˈɡræv(ə)l/	small pieces of stone used for making paths and roads. noun [uncount]		
growth /ɡrəʊθ/	1 an increase in the size, number, or development of a living thing. noun [singular/uncount] 2 something that grows or has recently grown, for example on a plant. noun [uncount]	<i>More air means better root growth.</i> <i>New growth will develop during spring.</i>	
hard pan /ˈhɑː(r)d pæn/	layer of hard minerals below the surface caused by leaching, and which is impermeable. noun [uncount]		
horizon /həˈraɪz(ə)n/	a layer of soil or minerals in the ground that is different from the layer above or below it. noun [count]		

Word	Definition	Example	Translation
humification /hju:mɪfɪkeɪʃ(ə)n/	the formation of humus. noun [uncount]		
humus /hju:məs/	plants and leaves that decay on the ground and improve the soil for the growth of other plants. noun [uncount]		
impermeable /ɪm'pɜ:(r)mɪəb(ə)l/	something that is impermeable does not let liquid or gas pass through it. adjective	<i>an impermeable layer of rock</i>	
infertile /ɪn'fɜ:(r)taɪl/	infertile land is not very good for growing crops. adjective		
ingredient /ɪn'ɡri:diənt/	one of the substances that are combined to make something. The active ingredient of a drug or medicine is the thing that makes it effective. noun [count]		
interaction /ɪntə'rækʃ(ə)n/	the process by which different things affect each other or change each other. noun [count/uncount]	<i>the interaction between an organism and its environment</i>	
larch /lɑ:(r)tʃ/	a tree with thin sharp leaves called needles that fall in the winter. Larches produce brown fruits called cones. noun [count]		
laterite /'lætə,raɪt/	a type of soil that occurs in tropical grassland areas. It is a deep soil and is often a red colour due to its high iron mineral content. noun		
layer /'leɪə(r)/	an amount or sheet of a substance that covers a surface or that lies between two things or two other substances. noun [count]	<i>There was a thin layer of ice on the pavements.</i>	
leach /li:tʃ/	to remove a chemical or mineral from something such as soil as a result of water passing through it, or to be removed by this process. verb [intransitive/transitive]		
lime /laɪm/	a white substance used for making cement and for helping plants to grow. noun [uncount]	<i>The farmer spread lime over his fields.</i>	
loam /ləʊm/	a type of soil that is extremely good for plants to grow in. It is a mixture of sand, silt, clay, and humus. noun [uncount]		
microorganism /ˌmaɪkrəʊ'ɔ:(r)gənɪz(ə)m/	a very small living thing that you can see only with a microscope. Some microorganisms cause disease. noun [count]		
mineral /'mɪn(ə)rəl/	a natural substance in the earth, for example coal, salt, gold, or diamonds. noun [count]	<i>Mineral particles are the main ingredient of soil.</i>	
moisture /'mɔɪstʃə(r)/	a small amount of water or another liquid in the air, on the surface of something, or in a substance. noun [uncount]		
nitrogen /'naɪtrədʒ(ə)n/	a gas with no colour or smell that exists in large quantities in the air that we breathe. noun [uncount]		
nourish /'nʌrɪʃ/	to give a person, animal, or plant the food and care that they need to live, grow, and be healthy. verb [transitive]	<i>well-nourished plants</i>	
nutrient /'nju:triənt/	a substance in food that plants, animals, and people need to live and grow. noun [count]		
oak /əʊk/	a large tree that can live for a very long time and produces small hard fruits called acorns. noun [count]		
organism /'ɔ:(r)gənɪz(ə)m/	a living thing such as a person, animal, or plant, especially an extremely small living thing. noun [count]	<i>tests to identify the organism that causes the disease</i>	
overuse /əʊvə(r)'ju:z/	to use something so much that it is no longer effective. verb [transitive]		
oxide /'ɒksaɪd/	a chemical that consists of oxygen combined with another substance. noun [uncount]		
particle /'pɑ:(r)tɪk(ə)l/	an extremely small piece or amount of something. noun [count]	<i>Soil is mostly made up of mineral particles.</i>	
peat /pi:t/	a type of soil consisting of decaying plants that can also be used as fuel. noun [uncount]		
pine /paɪn/	pine or pine tree a tall tree with thin sharp leaves called needles that do not fall off in winter, and hard brown fruits called cones. noun [count]		
plant litter /'plɑ:nt ˌlɪtə(r)/	dead plant material, such as leaves, that has fallen to the ground. noun [uncount]		

Word	Definition	Example	Translation
podzol /'pɒdʒɒl/	a type of soil that often occurs below areas of coniferous forest. It is not usually very fertile, and has a grey appearance. noun [count]		
potash /'pɒt.æʃ/	a soft white powder made by burning wood into ash, used in farming for improving the quality of the soil. noun [uncount]		
rainy /'reɪni/	a rainy day is one on which it rains a lot. adjective		
renewable /'riːnjuːəb(ə)l/	renewable energy and natural materials replace themselves by natural processes, so that they are never completely used up. adjective	<i>They are at last beginning to invest in renewable energy.</i>	
retain /'riːteɪn/	to keep someone or something. verb [transitive]	<i>Some soils retain a lot of moisture.</i>	
rich /'rɪtʃ/	1 containing a large quantity of something. adjective 2 containing a lot of substances that are good for growing plants. adjective	<i>an area rich in natural resources</i>	
root /'ruːt/	the part of a plant that grows under the ground, through which the plant gets water and food. noun [count]	<i>Olive trees have deep roots.</i>	
rot /'rɒt/	to decay by a gradual natural process, or to make something decay in this way. verb [intransitive/transitive]		
runoff /'rʌnɒf/	a flow of water or chemicals from one place to another, especially when this damages the environment. noun [uncount]		
rust /'rʌst/	the rough red substance that damages the surface of iron and steel. noun [uncount]		
sandy /'sændi/	covered with sand, or consisting mostly of sand. adjective	<i>The soil was sandy, and nothing seemed to grow in it.</i>	
saturated /'sætʃə, reɪtɪd/	very wet. adjective		
sediment /'sedɪmənt/	a layer of a substance that forms at the bottom of a liquid. noun [count/uncount]		
seep /'siːp/	to flow into or out of something through small holes, usually when this should not happen. verb [intransitive]	<i>Poisonous chemicals from the factory are seeping into our soil.</i>	
shallow /'ʃæləʊ/	with only a short distance from the top or surface to the bottom. adjective	<i>He dug a shallow trench.</i>	
shed /'ʃed/	to let something fall off as part of a natural process. verb [transitive]	<i>Deciduous trees shed their leaves each autumn.</i>	
silt /'sɪlt/	sand, dirt, and very small rocks that are carried from one place to another by moving water. noun [uncount]		
soluble /'sɒljʊb(ə)l/	able to dissolve in a liquid and become part of the liquid. adjective		
species /'spiːʃiːz/	a plant or animal group whose members all have similar general features and are able to produce young plants or animals together. noun [count]	<i>Over 120 species of birds have been recorded in this National Park.</i>	
spread /'spred/	to gradually affect or cover a larger area. verb [intransitive]	<i>Rain will spread from the west this evening.</i>	
springy /'sprɪŋi/	something that is springy quickly gets its original shape again after you stop pressing it or walking on it. adjective		
spruce /'spruːs/	a tall tree that has thin sharp leaves that do not fall off in winter and produces hard brown fruits called cones. noun [count]		
stony /'stəʊni/	covered with stones, or containing stones. adjective	<i>a stony beach</i>	
supply /'sʌplai/	to provide someone or something with something that they need or want. verb [transitive]		
surface /'sɜː(r)fɪs/	the top layer of water or land. noun [uncount]	<i>A farmer was spreading fertilizer over the surface of the soil.</i>	

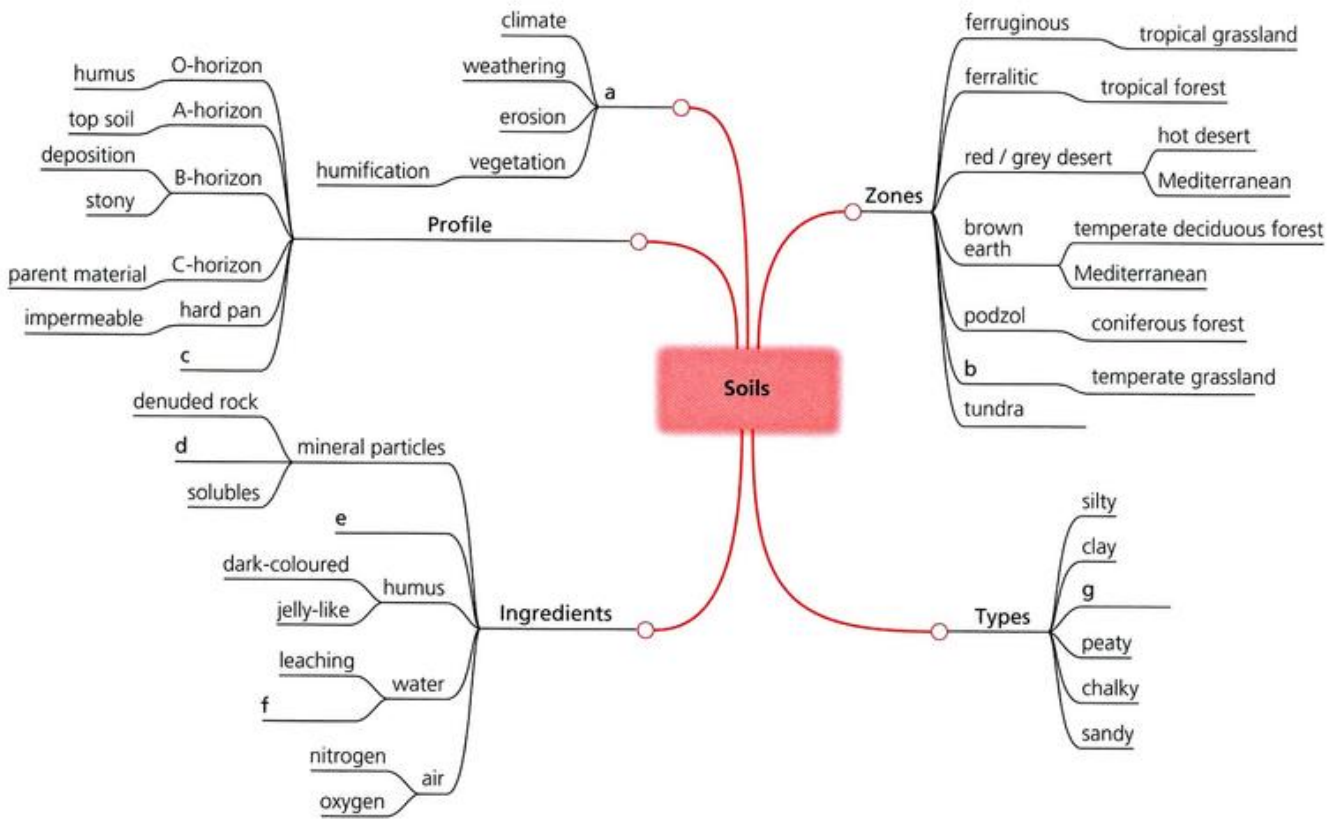
Word	Definition	Example	Translation
taiga /'taɪgə/	an area of land situated below the tundra in the northern hemisphere. It has cold winters and warm summers with many coniferous trees. noun [uncount]		
thrive /'θraɪv/	to become very successful, happy, or healthy. verb [intransitive]	<i>This type of plant thrives in cool conditions.</i>	
till /tɪl/	to prepare land for putting crops in the ground so that they will grow there. verb [transitive]		
tinted /'tɪntɪd/	containing a small amount of a particular colour. adjective		
transpiration /ˌtrænspraɪ'etʃ(ə)n/	the process in which water that has travelled from the roots of a plant up to its leaves passes out into the air as vapour. noun [uncount]		
treeline /'triːlaɪn/	the level on a mountain above which trees do not grow. noun [singular]		
tundra /'tʌndrə/	a large flat area of land without trees in very cold northern parts of the world. Its subsoil (=the layer under the top layer of soil) is permanently frozen. noun [count/uncount]		
uproot /ʌp'ru:t/	to pull a whole tree or plant from the ground, including all the roots that grow in the soil. verb [transitive]	<i>Trees were uprooted by the violent storm.</i>	
vegetation /ˌvedʒə'teɪʃ(ə)n/	plants and trees. noun [uncount]		
waterlogged /'wɔ:tə(r),lɒgd/	soaked or saturated with water. adjective	<i>The ground is completely waterlogged.</i>	
weather /'weðə(r)/	if something weathers or is weathered, its appearance changes because of the effects of wind, rain etc. verb [intransitive/transitive]	<i>The stone weathers to a beautiful pale gold.</i>	
widespread /'waɪd,spreɪd/	happening or existing in many places, or affecting many people. adjective		
woodland /'wʊdlənd/	an area of land filled with trees. You can also talk about woodlands, and this has the same meaning. noun [uncount]		

A Working with words

1 Soil word map

Write these words in the correct place on the word map.

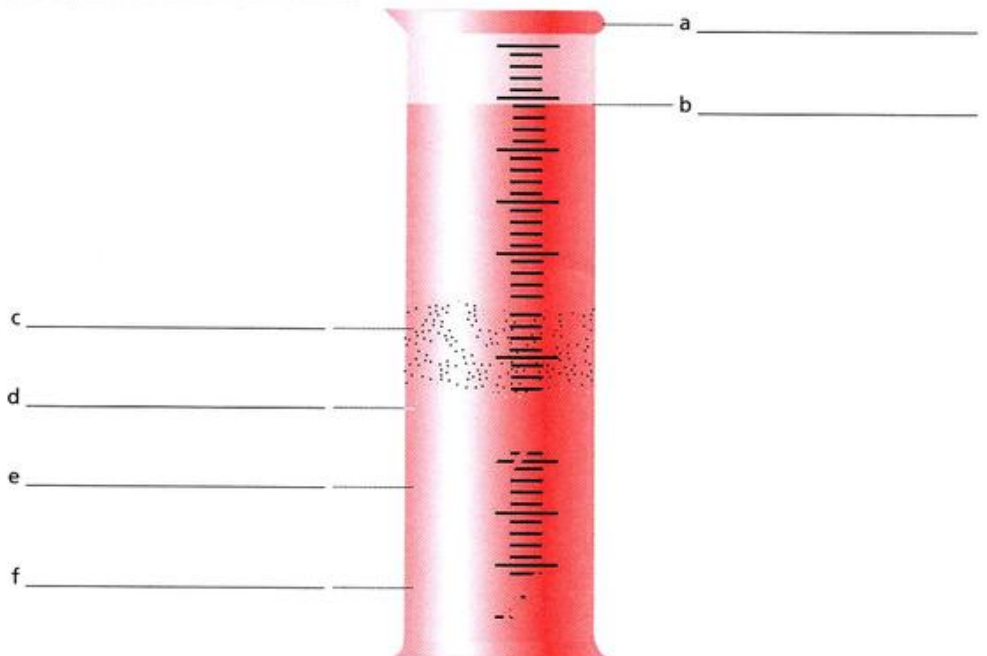
formation chernozem nutrients
capillary action loamy microorganisms bedrock



2 Examining soil

Label the picture with these words. There is one word you don't need to use.

chalk clay cylinder gravel humus sand silt



3 Composition

Underline the correct words in the text.

Mineral particles make up the biggest (1 impediment / ingredient) of soil. Most minerals exist in the form of tiny particles. They are the remains of rock, which have been broken down over long periods by (2 weathering / thundering) and erosion. Some minerals are soluble. They may dissolve in water and so take on a liquid form.

Numerous creatures live in the soil. Some of these are visible to the naked eye – insects and (3 earthworms / flatworms), for example. But the vast majority of creatures are too small to be seen without the aid of a microscope. These are called microorganisms. Microorganisms help to break down plant (4 litter / rubbish) to form humus. So they play a vital role in making the soil (5 fertile / fresh).

When dead plants, leaves and other forms of plant litter enter the soil, they decay to form a dark-coloured, (6 cream-like / jelly-like) substance called humus. Humus nourishes plants. It also helps to hold soil particles together.

As rainwater moves through the soil it dissolves soluble minerals. It then distributes these minerals to plants that can (7 absorb / release) them in liquid form through their roots. The dissolved minerals are called (8 snacks / nutrients) because they nourish the plants.

Air is found in many of the spaces between soil (9 particles / chunks). The air supplies the oxygen and nitrogen that are (10 vivid / vital) to plant life and to the survival of microorganisms.

B Working with sentences

4 Breakdown of vegetation

Put the phrases in the correct order to make sentences.

- 1 soil litter. surfaces Most contain plant
- 2 on the surface of the soil. This consists of and other pieces of decaying vegetation accumulate dead leaves, grasses which
- 3 and some fungi as bacteria such Microorganisms on the plant litter. work
- 4 substance slowly into They called humus. cause it to decay a black-coloured, jelly-like
- 5 of plant litter is also needed into humus. Oxygen to assist the breakdown
- 6 plays an important role So humification. air in the soil in the process of
- 7 soil to make fertile. Humus helps

5 Water movement in soil

Put the sentences in the correct order.

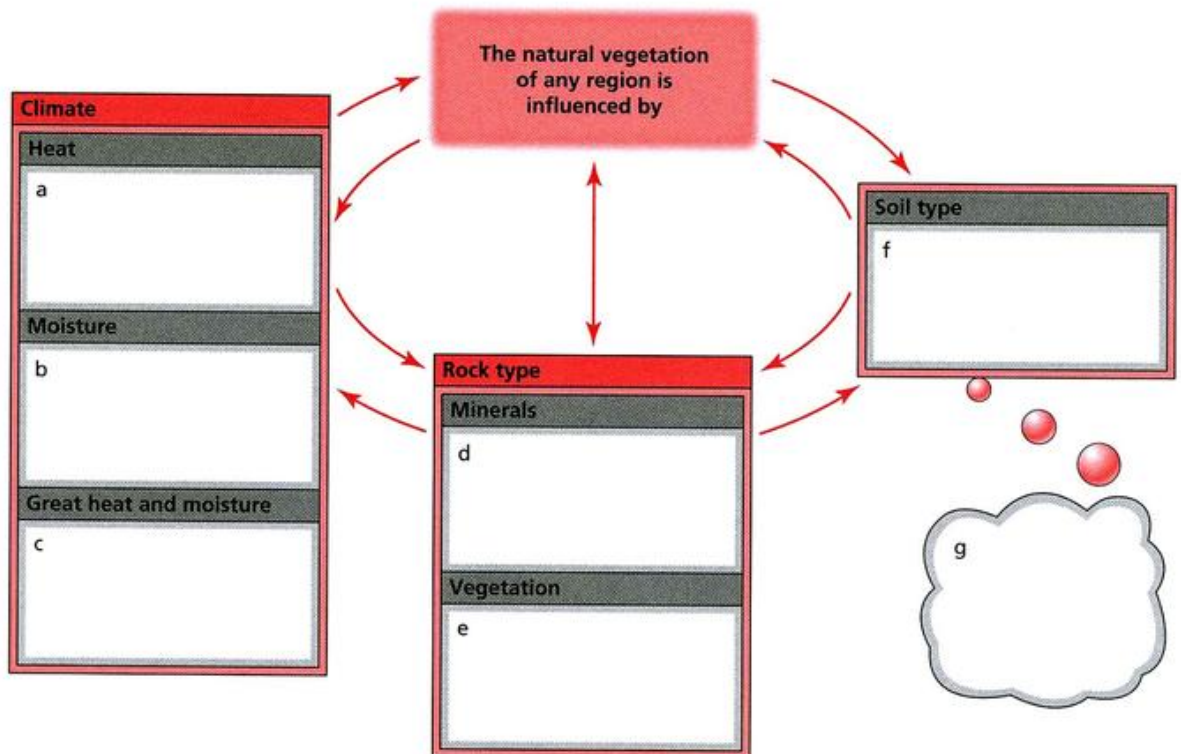
- a Firstly, water often dissolves minerals, humus and other plant nutrients on the upper parts of the soil.
- b Here, minerals may accumulate, gradually forming a crusty layer called a hard pan.
- c In rainy areas rainwater percolates (soaks) downwards through the soil.
- d The hard pan is usually impermeable – it does not allow water to pass through it.
- e Then, as the water seeps downwards, it washes these plant nutrients down beyond the reach of many plant roots.
- f This process is known as leaching.
- g Too much leaching is bad for the growth of vegetation because it deprives plants of many of the nutrients they need.
- h Where leaching is severe, the dissolved minerals may be washed downwards until they reach a depth at which the soil has become saturated.

1 2 3 4 5 6 7 8

6 Natural vegetation

Read the texts and sort them into the correct place on the diagram.

- 1 Soil is a living and everchanging mixture of: minerals, plant remains, water and microorganisms.
- 2 A deep soil forms in areas of great heat and moisture such as at the equator. These soils are generally tinted a red colour due to their high iron mineral content. They are called ferruginous or laterite soils.
- 3 The natural vegetation of any region is determined by the climate of that region. For example, some plants will only grow in areas of high temperature and cannot withstand frost.
- 4 Soil is weathered rock and rock is composed of minerals. The quantity and quality of minerals in a soil is therefore influenced by the type of rock from which a soil forms.
- 5 The type of vegetation that will grow on a soil is often influenced by the quantity and quality of minerals in that soil.
- 6 The vegetation of regions varies from soil to soil. For example in lowland areas some plants need peat soils, such as rhododendron and heather. Nearby brown soils will support oak trees and grass.
- 7 All plants need some moisture to germinate and grow. Some plants can survive on just a little moisture, such as the cactus. Deciduous trees, on the other hand, need lots of moisture during their growing season.



7 Soil conditions

Read the text and make notes in the framework below.

Fertile soil produces rich vegetation by providing it with essential minerals

- These minerals include nitrogen for the production of leaves and potash to encourage plant roots. Once the area is sufficiently warm and there is no risk of frost, then the quality of the soil determines the various species.
- Some plants need many minerals for healthy growth. These include deciduous trees such as oak and ash. Other plants such as coniferous trees need few minerals and will grow on thin gravel or peat soils.
- Soils without lime are called acid soil. They support a limited variety of plants such as rhododendron, heather and coniferous trees. Soils with lime, however, support a much greater variety of plant life, such as most deciduous trees and rich grasses for dairying and beef rearing.
- Deep soils are found in lowland plains and river valleys.

The depth of soil affects the type and height of plants

- Some plants need deep soils for support and the supply of essential minerals. Tall deciduous trees, such as oak and ash, have deep roots and a large network of other roots nearer the surface.
- Coniferous trees will naturally grow in upland areas where soils are thin. Their roots spread outwards just under the surface. Because of this they are easily uprooted during storms.
- Deep soils produce taller plants than shallow soils. This is especially noticeable when foundations of ancient houses, no longer visible on the surface, produce lighter and shorter plants than surrounding areas. These are called crop marks and are helpful to archaeologists in search of ancient buildings.

Fertile soil produces rich vegetation by providing it with essential minerals

- 1 a nitrogen helps with _____
b potash encourages _____
- 2 c deciduous trees such (oak and ash) need _____
d coniferous trees need _____
- 3 e acid soil supports _____
f soils with lime support _____
- 4 g deep soils are found in _____

The depth of soil affects the type and height of plants

- 5 h deep soils are needed _____
i deciduous trees, such as oak and ash have _____
- 6 j coniferous trees grow in _____
k roots spread under surface and because of this _____
- 7 l deep soils produce _____
m invisible foundations produce _____

8 Two types of soil

Read the sentences and sort them into the correct column in the correct order.

- 1 Additionally, the process of decay is slower in cooler areas.
- 2 Brown earth soils are found in areas where deciduous forests once grew.
- 3 Pine cones and larch needles fell to the forest floor.
- 4 Plant litter, such as leaves from these trees, decayed and formed humus on the forest floor.
- 5 The high percentage of humus, which helps to make soil crumbly, created well-drained soils with many minerals.
- 6 Their brown colour occurs because of their large humus content and little leaching.
- 7 Another reason is that there are fewer microorganisms because there is not enough nitrogen in the soil for them to live.
- 8 Lastly, there is less mineral content as needles provide few minerals when they decay.
- 9 As there is greater rainfall in these regions than in areas with brown earth soils, this causes some leaching.
- 10 These soils are found in upland areas where coniferous forests (mostly evergreen) once grew.
- 11 These needles and cones formed slightly acid soil for a number of reasons.
- 12 Firstly, the climate is cooler and wetter in elevated areas.
- 13 This humus was rich in minerals.

A Brown earth soils	B Podzols

7 Working with visuals

Word	Definition	Example	Translation
accurate /ˈækjʊrət/	1 correct or true in every detail. adjective 2 able to do something in an exact way, without making a mistake. adjective		
aerial /ˈeəriəl/	from a plane. adjective	<i>an aerial photo/picture/view</i>	
altitude /ˈæltɪtjuːd/	the height of a place or thing above sea level (=the surface of the sea). noun [count/uncount]	<i>The Rocky Mountains are lower in altitude than the Himalayas.</i>	
arrow /ˈærəʊ/	a sign that looks like an arrow ➡, used for showing people which direction to go in, or where to look for something. noun [count]	<i>Turn left at the green arrow.</i>	
aspect /ˈæspekt/	the direction in which land, a building, or window faces. noun [count] [usually singular]		
assumption /əˈsʌmpʃ(ə)n/	if you make an assumption, you make a decision based on poor evidence. noun [count]	<i>People tend to make assumptions about you based on your appearance.</i>	
atlas /ˈætləs/	a book of maps. noun [count]		
avoid /əˈvɔɪd/	to try not to go near someone or something. verb [transitive]		
background, the /ˈbækgraʊnd/	the part of a picture or pattern that is behind the main people or things in it. noun [singular]	<i>There's a lake in the background.</i>	
bailey /ˈbeɪli/	an area of land between the outer and inner walls of a castle. noun [count]		
battlefield /ˈbæt(ə)lfi:ld/	a place where a battle takes place or where one took place in the past. noun [count]		
bay /beɪ/	an area of the coast where the land curves inwards. noun [count]		
bearing /ˈbeərɪŋ/	an exact position, usually measured from north. noun [count]		
border /ˈbɔ:(r)də(r)/	1 the official line that separates two countries or regions. noun [count] 2 to be next to another country or region. verb [transitive]	<i>the border between Hungary and Romania</i> <i>Jordan holds a key position, bordering both Israel and Iraq.</i>	
boundary /ˈbaʊnd(ə)rɪ/	something such as a line on a map that marks where one area of land ends and another begins. noun [count]	<i>Estonians and Latvians began to query the status of their boundaries with Russia.</i>	
bridge /brɪdʒ/	a road, railway, or path that goes over a river, over another road etc, and the structure that supports it. noun [count]	<i>Go over the bridge and then turn right.</i>	
bridging point /ˈbrɪdʒɪŋ ˌpɔɪnt/	the narrowest place where it is possible to cross a river. noun [count]		
cairn /keə(r)n/	a pile of stones that marks the top of a mountain or some other special place. noun [count]		
castle /ˈkɑ:s(ə)l/	large strong building with thick walls, built in the past to protect the people inside from being attacked. noun [count]		
church /tʃɜ:(r)tʃ/	a building that Christians go to in order to worship. Traditional churches usually contain an altar and long wooden seats facing the altar called pews. The place where the priest or minister stands to talk to the people is called a pulpit. A religious ceremony that takes place in a church is called a service. noun [count]	<i>an old country church on the side of a hill</i>	
cliff /klɪf/	the steep side of an area of high land. noun [count]	<i>They pushed the car over the edge of the cliff.</i>	

Word	Definition	Example	Translation
cluster /'klʌstə(r)/	1 a small group of people or things that are very close to each other. noun [count] 2 to form a small close group. verb [intransitive]	<i>People stood in clusters around the noticeboards.</i> <i>She spotted Luke in a group clustered around the entrance.</i>	
coast /kəʊst/	an area of land beside a sea. noun [count]	<i>the east coast of England</i>	
coastal /'kəʊst(ə)l/	1 on land beside a sea. adjective 1a in the sea near to land. adjective [usually before noun]	<i>coastal areas/towns/roads</i>	
coastline /'kəʊst,laɪn/	the land along a coast, especially when seen from the sea or the air. noun [count]	<i>Brittany's rugged coastline</i>	
col /kɒl/	a pass between high places in mountains. noun [count]		
compass /'kʌmpəs/	a piece of equipment used for finding your way, with a needle that always points north. noun [count]		
concave /'kɒnkeɪv/	curved inwards. adjective	<i>a concave mirror</i>	
contour /'kɒntʊə(r)/	contour or contour line a line on a map joining points that are the same height above or below sea level. The lines are used for showing hills, mountains, and valleys. noun [count]		
converge /kən'veɪ:(r)dʒ/	to come from different directions to reach the same point. verb [intransitive]	<i>a station where three railway lines converge</i>	
convex /'kɒnveks/	a convex surface curves outwards, rather than being flat or curving inwards. adjective		
co-ordinate /kəʊ'ɔ:(r)dɪnət/	one of a set of numbers that give the exact position of something on a map or graph. noun [count]		
crop /krɒp/	a plant grown for food, usually on a farm. noun [count]		
crossroads /'krɒs,rəʊdz/	a place where one road crosses another. noun [count]		
cross-section /'krɒs ,sekʃ(ə)n/	1 the inside of an object that you can see by cutting through the middle of it from top to bottom. noun [count/uncount] 1a a drawing that shows the inside of something. noun [count/uncount]	<i>The model is a cross-section of the mountain.</i>	
curved /kɜ:vɪd/	forming a curve (=a shape or line with a gradual smooth bend). adjective		
density /'densəti/	the amount of something in a place. noun [uncount]	<i>the density of vegetation in the area</i>	
depression /dɪ'preʃ(ə)n/	an area on a surface that is lower than the parts around it. noun [count]	<i>a slight depression near the centre of the field</i>	
detail /'di:teɪl/	one of many small facts or pieces of information relating to a situation. noun [count]		
dip /dɪp/	a place in a surface that is lower than the surrounding area. noun [count]	<i>There's a dip in the road.</i>	
dirt-road /'dɜ:t ,rəʊd/	a road or track with a rough or loose surface. noun [count]		
distance /'dɪstəns/	the amount of space between two people or things. noun [count/uncount]		
district /'dɪstrɪkt/	1 an area of a town or country. noun [count] 2 one of the areas into which a town or country is divided for official purposes. noun [count]	<i>They live in one of the most exclusive districts of Paris.</i>	
drainage /'dreɪnɪdʒ/	1 a system of pipes and passages that take away water or waste liquid from an area. noun [count] 2 the process of taking away water or waste liquid from somewhere. noun [uncount]		
dwelling /'dwelɪŋ/	a house, flat, or other shelter in which someone lives. noun [count]		
Eastings /'i:stɪŋz/	vertical lines on an OS map which separate east from west. noun [plural]		

Word	Definition	Example	Translation
estuary /ˈestjuəri/	the part of a large river where it becomes wide and flows into the sea. noun [count]		
even /i:vn/	flat and level without any holes or raised areas. adjective		
factory /ˈfæktri/	a building or group of buildings where large quantities of goods are produced using machines. noun [count]	<i>She works in a factory.</i>	
farm /fa:(r)m/	an area of land used for growing crops or keeping animals. noun [count]		
feature /ˈfi:tʃə(r)/	an important part or aspect of something. noun [count]	<i>the natural features of the landscape</i>	
field /fi:ld/	an area of land used for keeping animals or growing food. noun [count]	<i>There were horses grazing in the next field.</i>	
flood plain /ˈflʌd ,pleɪn/	a flat area of land near a river that often floods when the water level rises. noun [count]		
footbridge /ˈfʊt,bri:dʒ/	a narrow bridge for people to walk across. noun [count]		
footpath /ˈfʊt,pɑ:θ/	path used only for walking, usually in the countryside. noun [count]		
foreground, the /ˈfɔ:(r),graʊnd/	the front part of a scene or picture. noun [singular]	<i>She drew a few flowers in the foreground.</i>	
forest /ˈfɒrɪst/	a large area of land covered by trees and other plants growing close together. noun [count/uncount]	<i>Acid rain is already destroying large areas of forest.</i>	
fort /fɔ:(r)t/	a strong building, often with a high wall around it, used by soldiers for defending a place. noun [count]	<i>an iron-age fort</i>	
geographical /ˌdʒi:əˈgræfɪk(ə)/	relating an area or place, or to geography. adjective		
globe /gləʊb/	a round object that has a map of the world on it. noun [count]		
gradient /ˈɡreɪdɪənt/	a measure of how steep a road is. noun [count]		
graph /ɡrɑ:f/	a picture that uses lines or curves to show the relationship between numbers or measurements that change. noun [count]	<i>The graph shows that the number of working mothers is increasing.</i>	
grid reference /ˈɡrɪd ,ref(ə)rəns/	a set of numbers and letters that shows a particular position on a map. The numbers and letters relate to the lines of the map's grid (=an arrangement of straight lines that cross each other to form a series of squares). noun [count]	<i>When reporting a problem, give a grid reference if you can.</i>	
headland /ˈhedlənd/	a narrow piece of land that sticks out into the sea. noun [count]		
hill /hɪl/	an area of land that is higher than the land surrounding it but smaller and lower than a mountain. noun [count]	<i>a valley surrounded by wooded hills</i>	
horizon, the /həˈraɪz(ə)n/	the line in the distance where the sky seems to meet the Earth. noun	<i>The sun was setting on the horizon.</i>	
horizontal /ˌhɒrɪˈzɒnt(ə)l/	straight and parallel to the ground. adjective	<i>Draw a horizontal line across the page.</i>	
hospital /ˈhɒspɪt(ə)l/	a place where people stay when they are ill or injured and need a lot of care from doctors and nurses. noun [count]	<i>He spent a week in hospital with food poisoning.</i>	
hostel /ˈhɒst(ə)l/	a youth hostel. noun [count]		
hotel /həʊˈtel/	a building where you pay to stay in a room and have meals. noun [count]	<i>a three-/four-/five-star hotel</i>	
indicate /ˈɪndɪkeɪt/	to be a sign or symbol of something. verb [transitive]		
inlet /ˈɪnlət/	a long narrow area of water that continues into the land from a lake or sea. noun [count]		
inner city /ˌɪnə ˈsɪti/	an area near the centre of a large city where a lot of social problems exist. noun [count]		

Word	Definition	Example	Translation
international date line /ˌɪntənəʃ(ə)nəl 'deɪt ˌlaɪn/	an internationally agreed imaginary line that runs along the 180° meridian of longitude. The date is one day earlier to the east of it than to the west of it. noun [singular]		
key /ki:/	a list of the symbols that are used on a map or a drawing. noun [count]	<i>Use the key to help you.</i>	
landform /'lænd,fɔ:(r)m/	a feature on the Earth's surface such as a mountain or a valley. noun [count]		
landscape /'lænd,skeɪp/	1 an area of land that is beautiful to look at or that has a particular type of appearance. noun [count] 2 a way of arranging a picture so that its long sides are at the top and bottom. noun [uncount]	<i>a green, rural landscape</i>	
lane /leɪn/	a narrow road, especially in the countryside. noun [count]	<i>They live down a little country lane.</i>	
large-scale /'lɑ:dʒ ˌskeɪl/	a large-scale map or plan is one that is big enough to show a lot of details. adjective [only before noun]		
lighthouse /'laɪt,haʊs/	a tower built next to the sea that has a powerful flashing light at the top to show ships where to go or to warn them of danger. noun [count]		
line of sight /'laɪn əv ˌsaɪt/	an imaginary line from the eye to a perceived object. noun [count]		
linear scale /'liːniə(r) skeɪl/	a scale with equal divisions of equal values. noun [count]		
location /'ləʊ'keɪʃ(ə)n/	the place or position where someone or something is or where something happens. noun [count]	<i>Have they managed to pinpoint the location of the boat yet?</i>	
longitude /'lɒŋɡɪ,tju:d/	the position of a place in the world when it is measured in relation to east or west, not to north or south. noun [count/uncount]		
map projection /'mæp ˌprɒ'ʒekʃ(ə)n/	a method of making a flat map of the Earth, or a map made by this method. noun [count/uncount]		
meadow /'medəʊ/	a field where grass and wild flowers grow. noun [count]		
measurement /'meʒə(r)mənt/	the exact size, degree, strength etc of something, usually expressed in numbers of standard units. noun [count] [often plural]	<i>They took measurements of noise levels inside the building.</i>	
meridian /'mɛrɪdiən/	1 one of the lines on a map that goes around the Earth from the North Pole to the South Pole. noun [count] 1a this line represented as a line on a map. noun [count]	<i>the Greenwich meridian</i>	
north /'nɔ:(r)θ/	1 the direction that is on your left when you are facing the rising sun. noun [uncount] 2 towards the north. adverb 3 in the north, or facing towards the north. adjective	<i>We were driving from north to south.</i> <i>a village 10 miles north of here</i>	
north-east /'nɔ:(r)θ'i:st/	1 the direction that is between north and east. noun [uncount] 2 in the north-east, or facing towards the north-east. adjective	<i>Sunderland is in the north-east of England.</i>	
Northings /'nɔ:θɪŋz/	horizontal lines on an OS map which separate north from south. noun [plural]		
north-west /'nɔ:θ 'west/	1 the direction that is between north and west. noun [uncount] 2 in the north-west, or facing towards the north-west. adjective		
oblique /ə'bli:k/	an oblique photograph is taken with the camera looking down and across at the area being photographed. adjective		
ordnance survey map /'ɔ:dnəns 'sə(r)veɪ ˌmæp/	a very detailed official map of a part of the UK. noun [count]		
orienteeing /'ɔ:riən'tiəriŋ/	a sport in which people try to find their way on foot across an area of countryside using a map and a compass. noun [uncount]		

Word	Definition	Example	Translation
parallel /'pærələl/	1 lines that are parallel are the same distance apart at every point along their length. adjective 2 an imaginary line around the Earth at a fixed distance from the equator. noun [count]	<i>The river flows parallel with the high street.</i> <i>The 49th parallel marks part of the boundary between the United States and Canada.</i>	
pasture /'pɑ:stʃə(r)/	land covered with grass where sheep, cows etc are kept. noun [count/uncount]	<i>100 acres of pasture and woodland</i>	
plot /plɒt/	1 to mark on a map the way that a ship or plane travels. verb [transitive] 1a to mark points on a graph. verb [transitive]		
plough /plau/	to turn over the soil before putting seeds into it using a plough. verb [intransitive/transitive]	<i>The fields were being ploughed for winter wheat.</i>	
prime meridian /'praɪm mə'rɪdiən/	the imaginary line on the Earth's surface that all lines of longitude are measured from. It passes through Greenwich in England. noun [singular]		
protruding /'prɒ'tru:diŋ/	further forward than the rest of something. adjective		
railway /'reɪlweɪ/	the metal track that trains travel on. noun [count]	<i>The path continues along a disused railway.</i>	
ratio /'reɪʃiəʊ/	a relationship between two things expressed as two numbers or amount. noun [count]	<i>a teacher-student ratio of 1:20</i>	
reading /'ri:diŋ/	a number or amount shown on a piece of measuring equipment. noun [count]	<i>The magnetism in the rock could produce distorted compass readings.</i>	
region /'ri:ʒ(ə)n/	a large area of land. noun [count]	<i>Peru's eastern jungle region</i>	
relief /'rɪ'li:f/	the elevations of a land surface. noun [count]		
relief map /'rɪ'li:f məp/	a map that shows hills and mountains in a way that makes them easy to see by using contour lines and different colours. noun [count]		
roundabout /'raʊndəbaʊt/	a circular area where three or more roads meet that you have to drive around in one direction in order to get onto another road. noun [count]		
route focus /'ru:t fəʊkəs/	where many roads lead to a bridging point over a river. noun [singular]		
satellite /'sætə,laɪt/	an object that is sent into space to travel round the Earth in order to receive and send information. noun [count]	<i>a spy/communications/weather satellite</i>	
scale /skeɪl/	the relationship between the actual distance or size of something and how it is shown on a map or in a drawing or model. noun [count/uncount]	<i>This map has a scale of 1:20,000.</i>	
scale down /skeɪl 'daʊn/	to make something smaller in size, amount etc than it used to be. verb [transitive]		
scattered /'skætə(r)d/	spread over a large area. adjective	<i>My relatives are scattered all over the country.</i>	
settlement /'set(ə)lmənt/	a place where people have come to live permanently, usually when there were very few people living there before. noun [count]	<i>an ancient settlement</i>	
shadow /'ʃædəʊ/	a dark shape made on a surface when someone or something is between that surface and a light. noun [count]	<i>The trees cast long, scary shadows in the evening light.</i>	
site /saɪt/	a place where something happened, especially something interesting or important, or where there is an important building. noun [count]	<i>We visited the site of the Battle of Bosworth.</i>	
situated /'sɪtʃueɪtɪd/	in a particular place. adjective	<i>This modern three-star hotel is situated close to the city centre.</i>	
sketch /sketʃ/	a drawing made quickly that does not have many details. noun [count]		

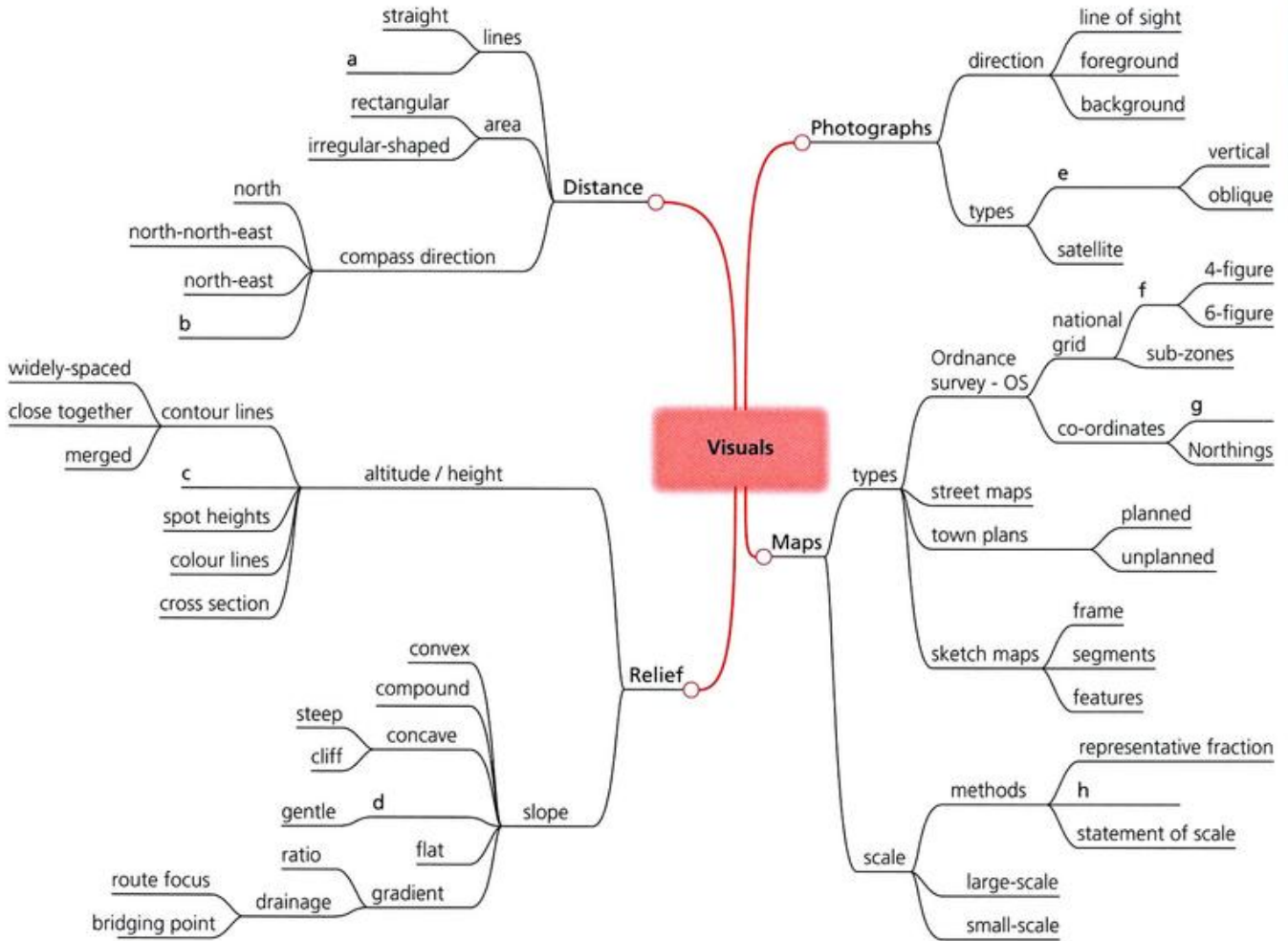
Word	Definition	Example	Translation
slope /sləʊp/	1 a straight surface that has one end higher than the other. noun [count] 2 the side of a hill or a mountain. noun [count]	<i>At the end of the garden there is a steep slope.</i> <i>Vines grow on the south-facing slopes.</i>	
small-scale /smɔ:l'skeɪl/	a small-scale map or plan is one that covers a relatively large area and has generalized labels. adjective		
south /sauθ/	1 the direction that is on your right when you are facing the rising sun. noun [uncount] 2 towards the south. adverb 3 in the south, or facing towards the south. adjective	<i>driving from south to north</i> <i>They live 20 minutes south of Manchester.</i>	
south-east /saʊθ'i:st/	1 the direction that is between south and east. noun [uncount] 2 in the south-east, or facing towards the south-east. adjective		
south-west /sauθ'west/	1 the direction that is between south and west. noun [uncount] 2 in the south-west, or facing towards the south-west. adjective		
spot height /spɒt'hait/	a point on the Earth's surface that the Ordnance Survey has measured to be exactly that height above sea level. noun [count]		
steep /sti:p/	a steep slope rises quickly and is difficult to climb. adjective	<i>a steep slope/hill/bank/path</i>	
subdivide /sʌbdɪ'vaɪd/	to divide the parts of something that has already been divided. verb [transitive]	<i>Each section of the book is subdivided into four chapters.</i>	
sub-zone /sʌb'zəʊn/	an area within a larger zone. noun [count]		
survey /'sɜ:(r)veɪ/	an examination of land by someone who is making a map. noun [count]		
surveyor /sə(r)'veɪə(r)/	someone whose job is to measure land in order to make maps. noun [count]		
symbol /'sɪmb(ə)l/	1 a picture or shape used to represent something. noun [count] 1a a mark, letter, number etc used to represent something, for example in chemistry or music. noun [count]	<i>A crescent moon was the symbol of the old Ottoman Empire.</i>	
terrain /tə'reɪn/	an area of land, usually one that has a particular physical feature. noun [uncount]	<i>familiar/hilly/mountainous terrain</i>	
tidal /'taɪd(ə)l/	connected with the regular rise and fall of the level of the sea. adjective	<i>the development of solar and tidal power</i>	
time zone /'taɪm zəʊn/	one of the areas that the world is divided into for measuring time. noun [count]		
topography /tə'pɒɡrəfi/	1 the study of the features of land, for example hills, rivers, and roads, and the process of making maps. noun [uncount] 2 the features of a particular area of land, for example hills, rivers, and roads. noun [count/uncount]		
triangulation /traɪ.æŋɡjʊ'leɪʃ(ə)n/	a method of finding out where you are using a map, a compass, and the positions of places that you know. noun [uncount]		
vertical /'vɜ:(r)tɪk(ə)l/	a vertical photograph is taken with the camera pointing directly down on the area being photographed. adjective		
viewpoint /'vjʊ:ˌpɔɪnt/	a place from which you can see or watch something. noun [count]		
west /west/	1 the direction that is behind you when you are facing the rising sun. noun [uncount] 2 towards the west. adverb 3 in the west, or facing towards the west. adjective	<i>We've driven from east to west.</i> <i>You drive west to get to the lake.</i> <i>a city on the west coast</i>	
zone /zəʊn/	a division of a larger area that is divided according to a system. noun [count]	<i>Your ticket is valid for Zones 1 and 2 only.</i>	

A Working with words

1 Visuals word map

Write these words in the correct place on the word map.

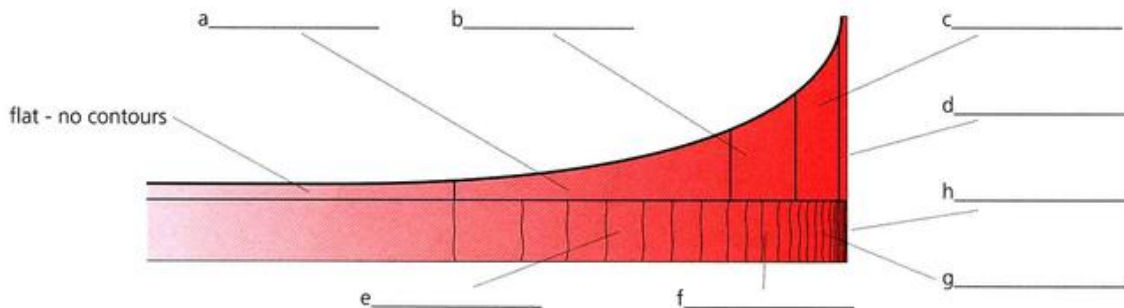
grid reference even east-north-east linear scale
triangulation pillars aerial Eastings curved



2 Slopes

Label the diagram with these words and phrases.

contours very close together steep contours close together cliff
contours far apart very steep contours touching gentle slope



3 Relief features

Match the words with the explanations.

Words

- 1 mountain
- 2 hill
- 3 ridge
- 4 col
- 5 spur
- 6 valley
- 7 estuary
- 8 bay
- 9 headland

Explanations

- a a dip between two areas of high land
- b a steep-sided landform, usually over 400 metres in height
- c the part of a river mouth which is tidal
- d a cliff-like area jutting into the sea
- e a large coastal inlet
- f a steep-sided landform, usually less than 400 metres in height
- g a low area of land between hills, usually occupied by a river
- h a protruding tongue of high ground
- i a long, narrow area of high land

1 2 3 4 5 6 7 8 9

B Working with sentences

4 Photograph use and seasons

Match these words with the correct paragraph.

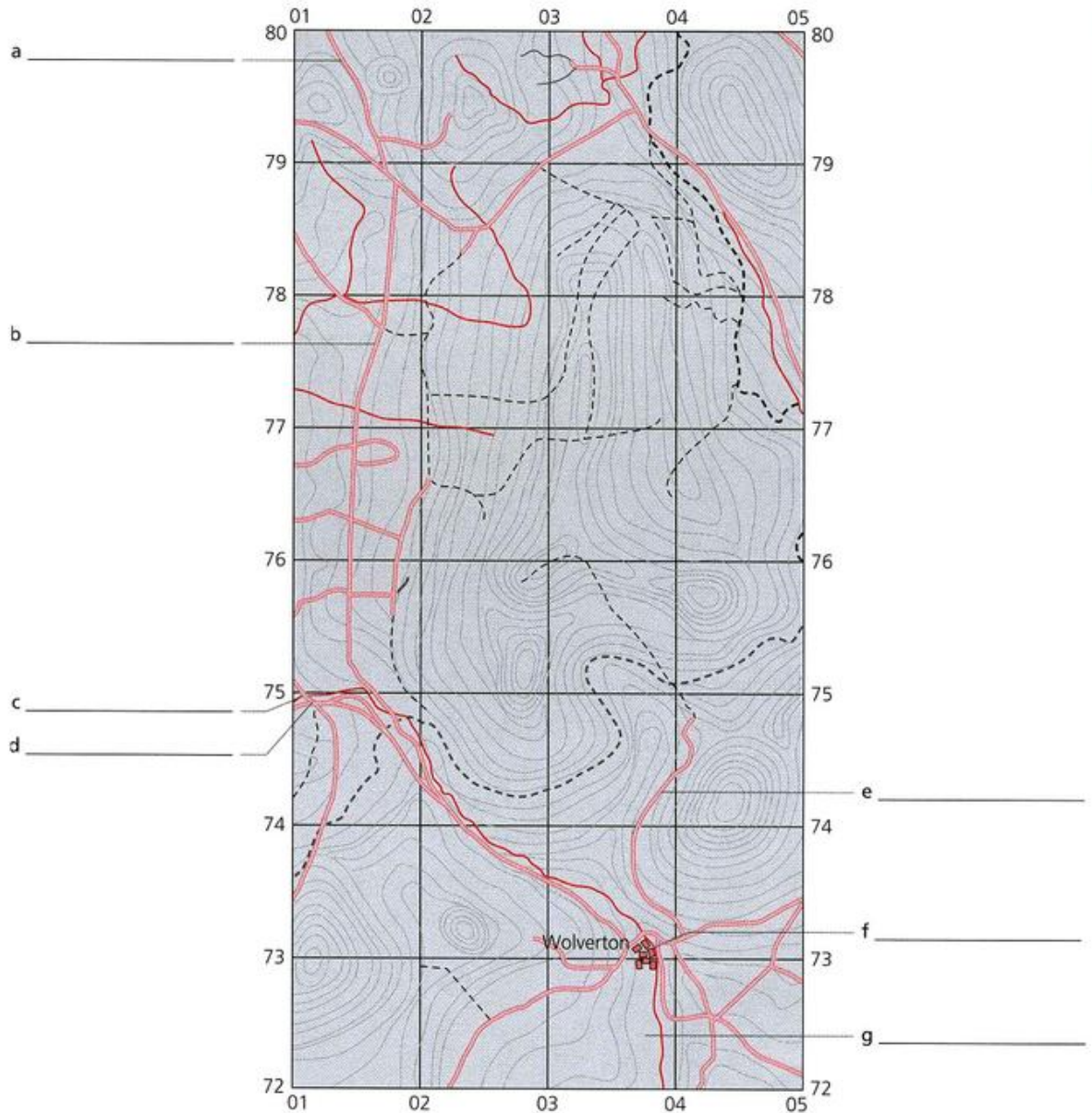
spring summer autumn winter time of day weather engineers archaeologists

- 1 _____ Leaves show numerous shades of colour now and meadows are cleared of hay, bales or stacks.
- 2 _____ You can make assumptions about this in a photograph by looking for long shadows which indicate either morning or evening and also shadows around the base of trees which indicate noon.
- 3 _____ Local government bodies such as county councils rely on aerial photographs in the construction of ring roads and bypasses.
- 4 _____ At this time of the year the trees are in full foliage. Hay and cereals appear yellow or golden during July and August and there are hay stacks and animals in the fields. The beaches get crowded depending on the weather. Strong shadows can be witnessed along ditches.
- 5 _____ Aerial photographs are frequently examined to identify ancient settlements that may not be visible at ground level.
- 6 _____ In this season photographs show few leaves on the trees and there are likely to be calves or lambs near their mothers in the fields.
- 7 _____ Satellite photographs are used to predict and study patterns. People such as fishermen and other shipping officers, and aeroplane pilots, all rely on accurate forecasting for their own safety and that of their crews. Farmers and tourists also depend on forecasts.
- 8 _____ At this time of the year, there are no leaves on deciduous trees. Ploughed fields can be seen, as can fields without animals. The cattle by now are in farmyards. Additionally, vehicle exhaust and chimney smoke are clearly visible during cold spells.

5 Relief and roads

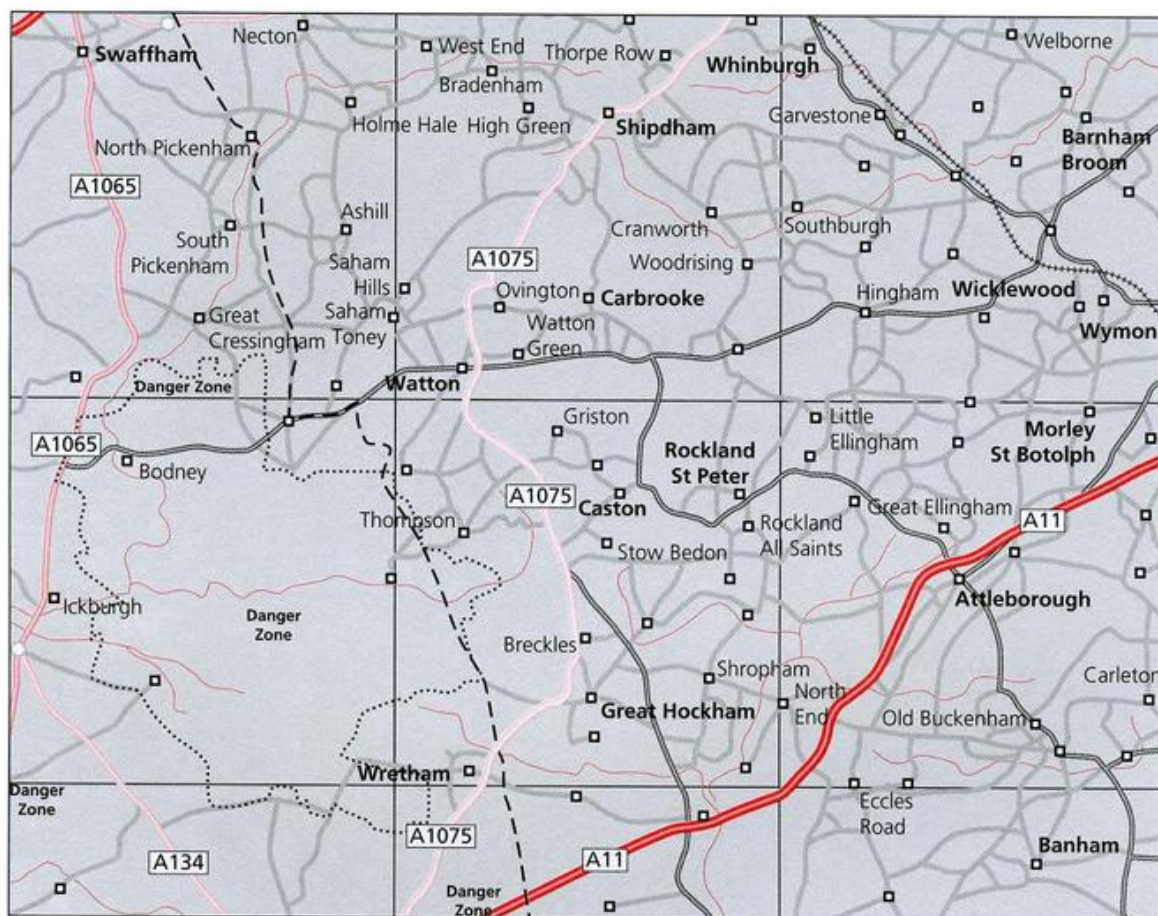
Read the sentences and put them in the correct place on the map.

- 1 villages often develop at bridging points
- 2 road travels along contour to keep level
- 3 roads avoid flood plain of river
- 4 roads travel between two hills
- 5 focus of routes at bridging point
- 6 roads meet and cross river at a bridging point
- 7 road goes around and avoids steep hills

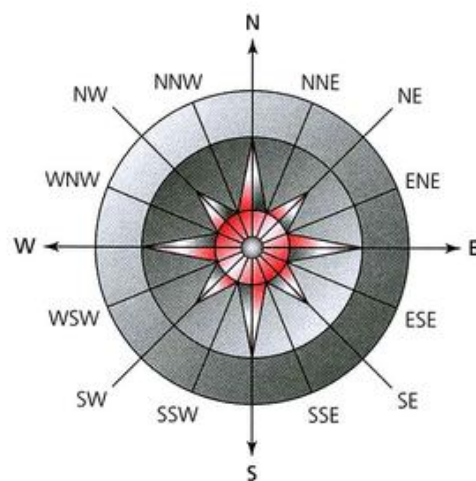


6 Compass directions

Look at the map. Decide which sentences are true and which are false.



- 1 Carbrooke is east-north-east of Watton.
- 2 Shipdham is north-north-east of Watton.
- 3 Swaffham is north-east of Watton.
- 4 Barnham Broom is due north of Morley St Botolph.
- 5 Swaffham is west-south-west of Banham.
- 6 Rockland St Peter is east of Caston.
- 7 Great Hockham is east-south-east of Wicklewood.
- 8 Whinburgh is south-south-west of Wretham.



7 Relief, rivers and roads

Read the text and make notes in the frame provided.

Roads by and large avoid steep mountain slopes and steep hill slopes. They travel around the base of these areas winding and twisting their way to find the easiest and shortest route possible, as road building in such terrain is very expensive and difficult. Roads do take advantage, however, of gaps through mountain areas by using river valleys or low points between hills (called saddles). On the whole though, few roads are built in mountainous areas. Roads also travel *along* contours as much as possible, rather than *across* them, to keep the slope of the road as gentle as possible, and many are built across large regions of level lowland called plains.

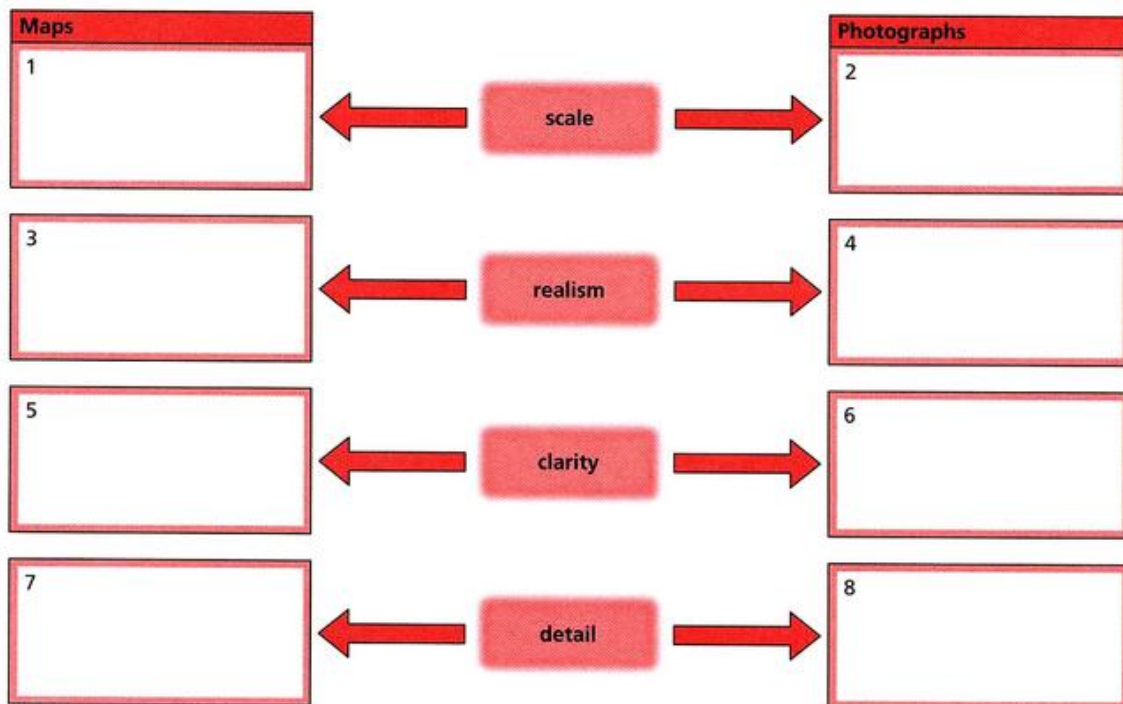
Roads are also built on slightly higher land away from rivers in river valleys to avoid flooding. They cross rivers where bridges have been built and these spots are called bridging points. In some situations, many roads may lead to a bridging point. If this happens, then the bridging point is called a route focus. If roads cross a river at the last bridge just before the river enters the sea, it is called the lowest bridging point of that river. Generally speaking, roads go around lakes because lakes are too wide to cross with bridges, and they avoid bogland because it is too soft and they would sink into the peat.

How does relief affect roads?	How do rivers and lakes affect roads?
1	6
2	7
3	8
4	9
5	10
	11

8 Comparing maps and photographs

The text below has been mixed up. Place the sentences in the correct order on the diagram.

- Background features often appear unclear and small in oblique photographs.
- Maps show landscape features by means of symbols only.
- Maps show some details which photographs cannot. Such details include place names, exact heights, etc.
- Photographs show some details that maps cannot. Such details include land use, details of buildings, etc.
- Photographs can give more complete and realistic-looking views of landscape features, such as rivers, cliffs, etc.
- Only vertical photographs have single scales. Oblique photographs are not drawn to single scales.
- We can calculate distances from maps, because each map is drawn to a single scale.
- All parts of a map can be seen with equal clarity.



8 Population

Word	Definition	Example	Translation
abandon /ə'bændən/	to leave a place, especially because it is difficult or dangerous to stay there. verb [transitive]	<i>Most of the villagers have abandoned their homes and fled.</i>	
accommodate /ə'kɒmə,deɪt/	to provide a place or room for someone to stay in. verb [transitive]		
administrative /əd'mɪnɪstrətɪv/	relating to the management of a company, organization, or institution. adjective		
adult /ædʌlt/	someone who is no longer a child and is legally responsible for their actions. noun [count]		
afford /ə'fɔ:(r)d/	if you can afford something, you have enough money to be able to pay for it. This word usually follows 'can', 'could', or 'be able to'. verb [transitive]	<i>The company simply cannot afford to pay overtime.</i>	
aged /eɪdʒd/	someone who is aged 18, 35, 70 etc is 18, 35, 70 etc years old. adjective [never before noun]		
agency /'eɪdʒ(ə)nəsi/	an organization that deals with social problems. noun [count]		
amenity /ə'mɪ:nəti/	something that makes it comfortable or enjoyable to live or work somewhere. noun [count] [usually plural]	<i>parks, shops, and other local amenities</i>	
antibiotic /æntɪbaɪ'ɒtɪk/	a drug that cures illnesses and infections caused by bacteria. Doctors often give people a course of antibiotics, when they have to take a fixed amount of medicine each day for several days. noun [count]		
assimilate /ə'sɪmɪ,leɪt/	to feel that you belong to the new community that you have started to live in, or to make someone feel like this. verb [intransitive/transitive]		
availability /ə'veɪlə'bɪləti/	1 the state of being able to be obtained or used. noun [count] 2 the state of not being too busy to do something. noun [uncount]	<i>Whether I take the job depends on the availability of child care.</i>	
available /ə'veɪləb(ə)l/	able to be obtained, taken, or used. adjective [not usually before noun]	<i>There is no money available for this project.</i>	
average /'æv(ə)rɪdʒ/	the amount, level, standard etc that is typical of a group of people or things. noun [count/uncount]	<i>Her performance in the test was way below average.</i>	
balanced /'bælənst/	with all parts combining well together or existing in the correct amounts. adjective		
basic /'beɪsɪk/	basic products and services are ones that everyone needs such as food, medicine, and fuel. adjective		
billion /'bɪljən/	the number 1,000,000,000. number		
birth /bɜ:(r)θ/	the occasion of a baby being born. noun [count/uncount]	<i>children who have medical complications at birth</i>	
birth rate /'bɜ:(r)θ,reɪt/	the official number of births in a particular year or place. noun [count]		
blight /blaɪt/	1 a serious disease affecting plants and crops. noun [singular/uncount] 2 something that damages or spoils something else. noun [singular/uncount]	<i>The threat of war cast a blight on their happiness.</i>	
born /bɔ:(r)n/	when a baby is born, it comes out of its mother's body and starts its life. The time when you are born is your birth, and a mother gives birth to a baby. adjective [never before noun]	<i>I was born in Tokyo.</i>	
breastfeed /'breɪst,fi:d/	to feed a baby with milk from your breasts rather than bottle-feeding it. verb [intransitive/transitive]		

Word	Definition	Example	Translation
breed /brɪd/	1 if animals breed, they become the parents of young animals. verb [intransitive] 2 to produce new plants or animals from existing ones, especially in order to produce plants or animals with particular characteristics. verb [transitive]		
built-up /bɪlt'ʌp/	a built-up area has a lot of buildings in it. adjective		
bulldoze /'bʊl,dəʊz/	to clear an area by removing earth, stones etc with a bulldozer (=a heavy vehicle with a large curved open container at the front). verb [intransitive/transitive]		
bustee /'bʌsti/	another spelling of basti, a slum. noun [count]		
bustee-dweller /'bʌsti,dwələ/	someone who lives in a bustee. noun [count]		
calculate /'kælkjʊleɪt/	to discover a number or amount using mathematics or with a piece of equipment such as a calculator. verb [transitive]	<i>He calculates that the proposal would cost £4 million a year.</i>	
capital (city) /'kæpɪt(ə)l/	capital or capital city the city where a country or region has its government. noun [count]	<i>Tallahassee is the state capital of Florida.</i>	
census /'sensəs/	an occasion when government officials count all the people in a country and record information about them. noun [count]		
century /'sentʃəri/	1 a period of 100 years, usually counted from a year ending in -00. For example, the 20th century is the period from 1900 to 1999. noun [count] 2 any period of 100 years. noun [count]		
childbearing /'tʃaɪld,bearɪŋ/	the process of being pregnant and giving birth to children. noun [uncount]	<i>She was just a girl, hardly of childbearing age.</i>	
childhood /'tʃaɪld,hʊd/	1 the time of your life when you are a child. noun [count/uncount] 1a connected with childhood. adjective [only before a noun]	<i>I had a wonderful childhood.</i> <i>childhood diseases</i>	
cholera /'kɒləərə/	a serious disease affecting your stomach and intestines (=the long tube that carries waste out of your body) that often causes death. It is caused by drinking water or eating food infected with bacteria. noun [uncount]		
citizen /'sɪtɪz(ə)n/	someone who has the right to live permanently in a particular country. noun [count]	<i>She married an American and became a US citizen.</i>	
citizenship /'sɪtɪz(ə)nʃɪp/	the legal right to be a citizen of a particular country. noun [uncount]	<i>I'm applying for Canadian citizenship.</i>	
civilian /'sɪvɪliən/	someone who does not belong to the armed forces or the police. noun [count]	<i>Over 700 civilians died as a direct result of the bombings.</i>	
civil liberties /'sɪv(ə)l'ɪbətɪs/	the basic freedom that all citizens have to do or say what they want. noun [plural]		
civil rights /'sɪv(ə)l'reɪts/	the basic rights that all people in a society have, for example the right to be treated fairly by the law. noun [plural]		
class /klɑːs/	one of the groups into which people in a society are divided according to education, income etc. noun [count/uncount]	<i>lower/middle/upper class.</i>	
classify /'klæsɪfaɪ/	to put people or things into particular groups according to the features that they have. verb [transitive]	<i>In the study families are classified according to their incomes.</i>	
classless /'klɑːsləs/	1 not divided into social classes adjective 2 not belonging to a particular social class. adjective		
colonize /'kɒlənaɪz/	to take control of another country by going to live there or by sending people to live there. verb [transitive]		
colony /'kɒləni/	a country that is controlled by another country. noun [count]		
commute /kə'mju:t/	to travel regularly to and from work. verb [intransitive]	<i>She commutes into London every day.</i>	
concentration /'kɒns(ə)n'treɪʃ(ə)n/	a large number of people or things in one area or a large amount of a particular thing. noun [count/uncount]	<i>This part of the city has a large concentration of immigrants.</i>	
conquer /'kɒŋkə(r)/	to take control of land or people using soldiers. verb [intransitive/transitive]		

Word	Definition	Example	Translation
contagious /kən'teɪdʒəs/	a contagious disease spreads from one person to another through touch or through the air. adjective		
core /kɔ:(r)/	the part inside an object that is nearest its centre. noun [count]	<i>These six countries are the geographical core of Western Europe.</i>	
couple /'kʌp(ə)/	two people who are married or involved in a romantic relationship with each other. noun [count]		
crowded /'kraʊdɪd/	containing a lot of people, especially too many. adjective	<i>The beaches are always crowded in summer.</i>	
curable /'kjʊərəb(ə)/	possible to cure. adjective		
cure /kjʊə(r)/	a medicine or treatment that makes someone who is ill become healthy. noun [count]	<i>There's no cure for diabetes but the symptoms can be managed.</i>	
death /deθ/	1 the state of being dead. noun [uncount] 2 an occasion when someone dies. noun [count]	<i>These people will starve to death unless they receive help soon. The programme is aimed at reducing the number of deaths from cancer.</i>	
death rate /'deθ ,reɪt/	the number of deaths in a particular area in one year. noun [singular]		
debt /det/	1 an amount of money that you owe. noun [count] 2 the total amount of money that the government of a country owes to banks and to other countries that it has borrowed from. noun [uncount]	<i>She had run up debts of nearly £10,000.</i>	
decline /dɪ'klaɪn/	to become less or worse. verb [intransitive]	<i>Share prices declined sharply last week.</i>	
decolonization /di:kɒlənaɪz(ə)n/	the process by which a colony becomes independent from the country that used to control it. noun [uncount]		
decrease /di:'kri:s/	to become less. verb [intransitive]		
define /dɪ'faɪn/	1 to describe clearly and exactly what something is. verb [transitive] 2 to be a feature or quality that shows exactly what someone or something is like. verb [transitive]		
demand /dɪ'mɑ:nd/	the amount of a product or service that people want, or the fact that they want it. noun [uncount]	<i>Demand for organic food is increasing.</i>	
demographic /dema'græfɪk/	1 relating to populations. adjective 2 demographics: the particular features of a population, for example people's age or race. noun [plural]		
demographic transition /dema'græfɪk træn'zɪʃ(ə)n/	the process of the shift from high birth rates and high death rates to low birth rates and low death rates as part of the economic development of a country. noun [uncount]		
dense /dens/	containing a lot of things or people close together. adjective		
density /'densəti/	the amount of something in a place. noun [uncount]		
dependency /dɪ'pendənsi/	a country that is controlled by another country. noun [count]		
depopulation /di:popju'leɪʃ(ə)n/	a situation in which a lot of people leave a place in order to live somewhere else, leaving far fewer people in the original place. noun [uncount]	<i>the depopulation of the countryside</i>	
descendant /dɪ'sendənt/	a relative of a person who lived in the past. noun [count]		
developing /dɪ'veləpɪŋ/	1 a developing country is poor and does not have many industries. adjective 1a the developing world (=poor countries): agriculture in the developing world. adjective		
development /dɪ'veləpmənt/	the process of improving the economy of a country or region by increasing the amount of business activity. noun [uncount]	<i>There has been massive economic development here over the past decade.</i>	

Word	Definition	Example	Translation
diarrhoea /daɪə'ri:ə/	an illness in which you pass solid waste from your body too often and in a liquid form. noun [uncount]		
diet /'daɪət/	the food that a person or animal usually eats. noun [count/uncount]	<i>Many people there have a poor diet.</i>	
dirty /'dɜ:(r)ti/	not clean. adjective		
disaster /dɪ'zɑ:stə(r)/	something very bad that happens and causes a lot of damage or kills a lot of people. noun [count/uncount]	<i>Protect your property from natural disasters such as flooding.</i>	
distribution /dɪstrɪ'bju:(ə)n/	the way in which something is spread over an area. noun [count/uncount]		
district /'dɪstrɪkt/	1 an area of a town or country. noun [count] 2 one of the areas into which a town or country is divided for official purposes. noun [count]		
diversity /daɪ'vɜ:(r)səti/	the fact that very different people or things exist within a group or place. noun [singular] [uncount]	<i>ethnic and cultural diversity</i>	
dominate /'dɒm,neɪt/	1 to control something or someone, often in a negative way, because you have more power or influence. verb [transitive] 2 to be the most important issue, activity, problem etc in a particular situation. verb [transitive]	<i>He always dominates our meetings.</i> <i>The earthquake once again dominated the news.</i>	
dysentery /'dɪs(ə)ntri/	a serious disease that affects your bowels and makes you go to the toilet very frequently and become very weak. noun [uncount]		
elderly, the /'eldə(r)li/	old people. Many people now think that this expression is offensive. noun		
emigrant /'emɪgrənt/	someone who leaves their country in order to live permanently in another country. noun [count]		
emigrate /'emɪgreɪt/	to leave a country in order to live permanently in another country. verb [intransitive]	<i>I'm planning to emigrate to Australia.</i>	
equality /'kwɒləti/	the state of being equal, especially in having the same rights, status, and opportunities. noun [uncount]	<i>equality between husband and wife.</i>	
expand /'ɪk'spænd/	if a business, organization, or activity expands, it grows by including more people, moving into new areas, selling more products etc. verb [intransitive]		
explosion /'ɪk'spləʊz(ə)n/	a very large increase in the size, amount, or importance of something over a very short period of time. noun [count]	<i>a wage explosion</i>	
facility /'fə'sɪləti/	something such as a room or piece of equipment that is provided at a place for people to use. noun [count] [usually plural]	<i>The hotel has excellent leisure facilities.</i>	
family planning /'fæm(ə)li 'plænɪŋ/	the practice of controlling the number of children that you have by using contraceptives (=drugs, objects, or methods that stop a woman becoming pregnant). noun [uncount]	<i>a family planning clinic</i>	
famine /'fæmɪn/	a serious lack of food that continues for a long time and causes many people in a country to become ill or die. noun [count/uncount]		
favela /'fɑ:velə/	a poor area of a town in Brazil where the houses are in very bad condition. noun [count]		
fertility /'fɜ:(r)'tɪləti/	a woman's ability to have babies. noun [uncount]		
flourish /'flaʊrɪʃ/	to grow well and be healthy. verb [intransitive]		
flow /'fləʊ/	the continuous movement of a line of vehicles or people. noun [count/uncount]	<i>There was a steady flow of refugees leaving the country.</i>	
fluctuate /'flʌktʃu,eɪt/	to change frequently. verb [intransitive]		
foodstuff /'fu:dstʌf/	a type of food. noun [count/uncount]		
gender /'dʒendə(r)/	1 the fact of being either male or female. noun [count/uncount] 2 all male people, or all female people. noun [count]	<i>The study examines gender roles in Latin America.</i> <i>the entire male gender</i>	

Word	Definition	Example	Translation
gradually /ˈɡrædʒuəli/	slowly and in small stages or amounts. adverb	<i>She gradually built up a reputation as a successful lawyer.</i>	
group /ɡru:p/	1 a set of people who meet or do something together because they share the same purpose or ideas. noun [count] [can be followed by a singular or plural verb] 2 a set of people, animals, or things that are considered together because they are similar in some way. noun [count] [can be followed by a singular or plural verb]	<i>She was a member of a right-wing political group.</i> <i>people from different ethnic and minority groups</i>	
growth /ɡrəʊθ/	an increase in the number, size, or importance of something. noun [singular/uncount]	<i>economic growth</i>	
habitable /ˈhæbitəb(ə)l/	a place that is habitable can be lived in. adjective		
hardship /ˈhɑ:(r)dʃɪp/	1 a situation in which life is very difficult, usually because you do not have enough money. noun [count/uncount] 1a something that makes your life more difficult or unpleasant. noun [count/uncount]	<i>Even slight rent increases would cause considerable hardship.</i>	
health care /ˈhelθˌkeə(r)/	the services that look after people's health. noun [uncount]	<i>Homeless people need better access to health care.</i>	
HIV /ˈeɪf aɪ ˈvi:/	human immunodeficiency virus: a virus that can cause Aids and is usually passed to someone else by having sex. noun [uncount]		
household income /ˈhaʊshəʊld ˈɪnkʌm/	the total money that all the people living in one home get from working or from investing money. noun [count/uncount]		
housing /ˈhaʊzɪŋ/	1 buildings for people to live in. noun [uncount] 1a connected with houses and other buildings that people live in. [only before noun]	<i>There is a shortage of affordable housing.</i>	
hygiene /ˈhaɪdʒi:n/	the practice of keeping yourself and the things around you clean, in order to prevent illness and disease. noun [uncount]		
illiterate /ɪˈlɪtərət/	someone who is illiterate cannot read or write. adjective		
immigrant /ɪˈmɪɡrənt/	someone who comes to live in a country from another country. noun [count]		
immigration /ɪˈmɪˈɡreɪʃ(ə)n/	the process in which people come to a country in order to live there permanently. noun [uncount]		
inadequate /ɪnˈædɪkwət/	not enough, or not good enough for a particular purpose. adjective	<i>We are trying to provide basic education with inadequate resources.</i>	
increase /ɪnˈkri:s/	1 to become larger in amount or number. verb [intransitive] 1a to make something become larger in amount or number. verb [transitive]	<i>Our costs increased dramatically over the last decade.</i> <i>We have managed to increase the number of patients treated.</i>	
industrialization /ɪnˈdʌstriəˌlaɪzəʃn/	the process of a country developing industries or making them more modern. noun [uncount]		
inequality /ɪnɪˈkwɒləti/	a situation in which people are not equal because some groups have more opportunities, power, money etc than others. noun [count/uncount]	<i>social/economic/racial/sexual inequality</i>	
infant mortality rate /ɪnfənt mɔ:ʔæləti reɪt/	the number of deaths of children under a year old in a particular society. It is expressed as the number of deaths out of every 1,000 live births. noun [count]		
infection /ɪnˈfekʃ(ə)n/	the process of becoming infected with a disease. noun [uncount]	<i>Breast milk can help protect babies against infection.</i>	
infrastructure /ɪnfraˌstrʌktʃə(r)/	the set of systems within a place or organization that affect how well it operates, for example the telephone and transport systems in a country. noun [count/uncount]		
inhabitant /ɪnˈhæbɪtənt/	a person or animal that lives in a particular place. noun [count]	<i>The city's first inhabitants arrived in the 16th century.</i>	
in-migration /ɪn maɪˈɡreɪʃ(ə)n/	the movement of people into a different region of the same country or territory. noun [uncount]		

Word	Definition	Example	Translation
inner city /ˌɪnə 'sɪti/	an area near the centre of a large city where a lot of poverty and other social problems exist. noun [count]	<i>Suburban lifestyles are very different from those in the inner city.</i>	
insufficient /ˌɪnsə'fɪʃ(ə)nt/	not enough. adjective	<i>The police had insufficient evidence to arrest him.</i>	
lack /læk/	to not have any or enough of something you need or want. verb [transitive]	<i>Many homes lack electricity and water supplies.</i>	
life-expectancy /laɪf ɪk'spektənsi/	the length of time that someone is likely to live. noun [count/uncount]		
lifestyle /'laɪf,staɪl/	the type of life that you have, for example the type of job or house you have or the type of activity you like doing. noun [count/uncount]	<i>a healthy, outdoor lifestyle</i>	
literacy /'lɪt(ə)rəsi/	the ability to read and write. noun [uncount]	<i>Teachers have been asked to concentrate on literacy and numeracy.</i>	
literate /'lɪt(ə)rət/	able to read and write. adjective	<i>Only 20 per cent of women in the country are literate.</i>	
majority /mə'dʒɔrəti/	the age at which someone legally becomes an adult. noun [uncount]	<i>the age of majority</i>	
malnourished /ˌmælnʌrɪʃt/	weak or ill because you do not eat enough or do not eat enough of the right foods. adjective	<i>malnourished children</i>	
malnutrition /ˌmælnju'trɪʃ(ə)n/	a medical condition in which you are weak or ill because you do not eat enough or do not eat enough of the right foods. noun [uncount]		
migrant /'maɪgrənt/	someone who travels to another place in order to find work. noun [count]	<i>migrant workers</i>	
migrate /'maɪ'greɪt/	to go to another place or country in order to find work. verb [intransitive]		
migration /'maɪ'greɪʃ(ə)n/	the process by which people or animals migrate to another place or country. noun [count/uncount]		
mixed-race /mɪkst 'reɪs/	involving people of different races. adjective	<i>mixed-race marriage</i>	
multicultural /ˌmʌlti'kʌltʃərəl/	consisting of people of different cultures. adjective	<i>Britain is a very multicultural society.</i>	
multiracial /ˌmʌlti'reɪʃ(ə)l/	involving people of many different races. adjective		
naturalize /'nætʃ(ə)rəlaɪz/	to make someone an official citizen of a country that they were not born in. verb [transitive]		
newborn /'njuːbɔː(r)n/	1 recently born. adjective 2 a baby who has just been born. noun [count]	<i>a newborn baby/lamb</i>	
nomadic /nəʊ'mædɪk/	moving from place to place rather than staying in one place. adjective	<i>a nomadic tribe</i>	
nuclear family /ˌnjuːkliə 'fæm(ə)li/	a family unit that consists of a mother, a father, and their children. noun [count]		
nutrition /njuː'trɪʃ(ə)n/	1 food considered as something that keeps you healthy. noun [uncount] 2 the science of food and its effect on health and growth. noun [uncount]	<i>adequate/poor nutrition</i> <i>He's studying Nutrition at university.</i>	
old age /əʊld 'eɪdʒ/	the period of time when you are old. noun [uncount]	<i>More and more people are surviving into old age.</i>	
optimistic /ˌɒptɪ'mɪstɪk/	someone who is optimistic is hopeful about the future and tends to expect that good things will happen. adjective		
out-migration /aʊt maɪ'greɪʃ(ə)n/	the movement of people out of one community, region, or country in order to live in another. noun [uncount]		
overcrowded /ˌəʊvə(r)'kraʊdɪd/	containing too many people or things. adjective	<i>Conditions in the camp are very overcrowded.</i>	
overpopulation /ˌəʊvə(r) ˌɒpjʊ'leɪʃ(ə)n/	the state of there being too many people living in a place. noun [uncount]		

Word	Definition	Example	Translation
peer group /'pi:ə gru:p/	a group of people of the same age, social class, or education. noun [count]		
per capita /'pə 'kæpɪtə/	based on calculations that show the average amount for each person affected. adjective	<i>a rise in per capita income</i>	
pessimistic /'pesə'mɪstɪk/	thinking that the worst thing will happen in every situation. adjective	<i>a pessimistic assessment of the overall situation</i>	
population /'pɒpjʊ'leɪʃ(ə)n/	the number of people who live in a particular area. noun [count]	<i>Los Angeles has a population of over 3 million.</i>	
population density /'pɒpjʊ'leɪʃ(ə)n ,densəti/	the number of people per square kilometre of land area. noun [uncount]		
populous /'pɒpjʊləs/	a populous nation, city, area etc has many people living in it. adjective		
prediction /'prɪ'dɪkʃ(ə)n/	a statement about what you think will happen in the future, or the process of making such a statement. noun [count]	<i>The government maintained its prediction that inflation will hold to 8.5% this year.</i>	
proportion /'prɒ'pɔ:ʃ(ə)n/	a quantity of something that is a part or share of the whole. noun [count]		
prosperous /'prɒsp(ə)rəs/	rich and successful. adjective	<i>With economic expansion comes the promise of a more prosperous future.</i>	
push factor /'pʊʃ ,fæktə(r)/	a force which acts to drive people away from a place (opposite = the pull factor). noun [count]		
quadruple /'kwɒdrəp(ə)l/	if a number or an amount quadruples, or if you quadruple it, it becomes four times bigger than it was. verb [intransitive/transitive]		
refugee /'refjuːdʒi:/	someone who leaves their country, especially during a war or other threatening event. noun [count]	<i>Thousands of refugees have entered the camps along the borders in recent days.</i>	
resource /'ri:zɔ:s/	1 something that you can use to help you to achieve something, especially in your work or study. noun [count] 1a something such as money, workers, or equipment that can be used to help an institution or a business. [usually plural] 1b things such as coal, trees, and oil that exist in nature and can be used by people. [usually plural]	<i>We have launched an appeal to set up a new library and resource centre.</i>	
sanitary /'sænət(ə)ri/	1 relating to people's health, especially to the system of supplying water and dealing with human waste. adjective 2 a sanitary process or method is one that keeps things healthy and clean, especially by killing bacteria. adjective	<i>Overcrowding has now been added to poor sanitary conditions. a simple sanitary procedure for dealing with household waste</i>	
scattered /'skætə(r)d/	spread over a large area. adjective	<i>My relatives are scattered all over the country.</i>	
scavenge /'skævɪndʒ/	to search through things that other people have thrown away in order to see if there is anything that you want. verb [intransitive/transitive]		
senile /'si:nəl/	someone who is senile is confused, forgets things, or behaves in a strange way, because they are old. adjective		
settler /'setlə(r)/	someone who goes to live in a place where not many people live, and starts to make it into a community. noun [count]		
shanty town /'ʃæntɪ ,taʊn/	an area where very poor people live in shanties (= badly built houses made from sheets of wood, metal, or other thin material). noun [count]		
shelter /'ʃeltə(r)/	a temporary place to live for people who do not have their own homes, or for animals who have been treated in a cruel way. noun [count]	<i>a women's shelter</i>	
single parent /'sɪŋgl 'peərənt/	a parent who raises their children alone, without a partner. noun [count]		
slum /'slʌm/	a poor area of a town where the houses are in very bad condition. noun [count] [often plural]		
sparse /'spɑ:s/	existing in small amounts, or very spread out. adjective		

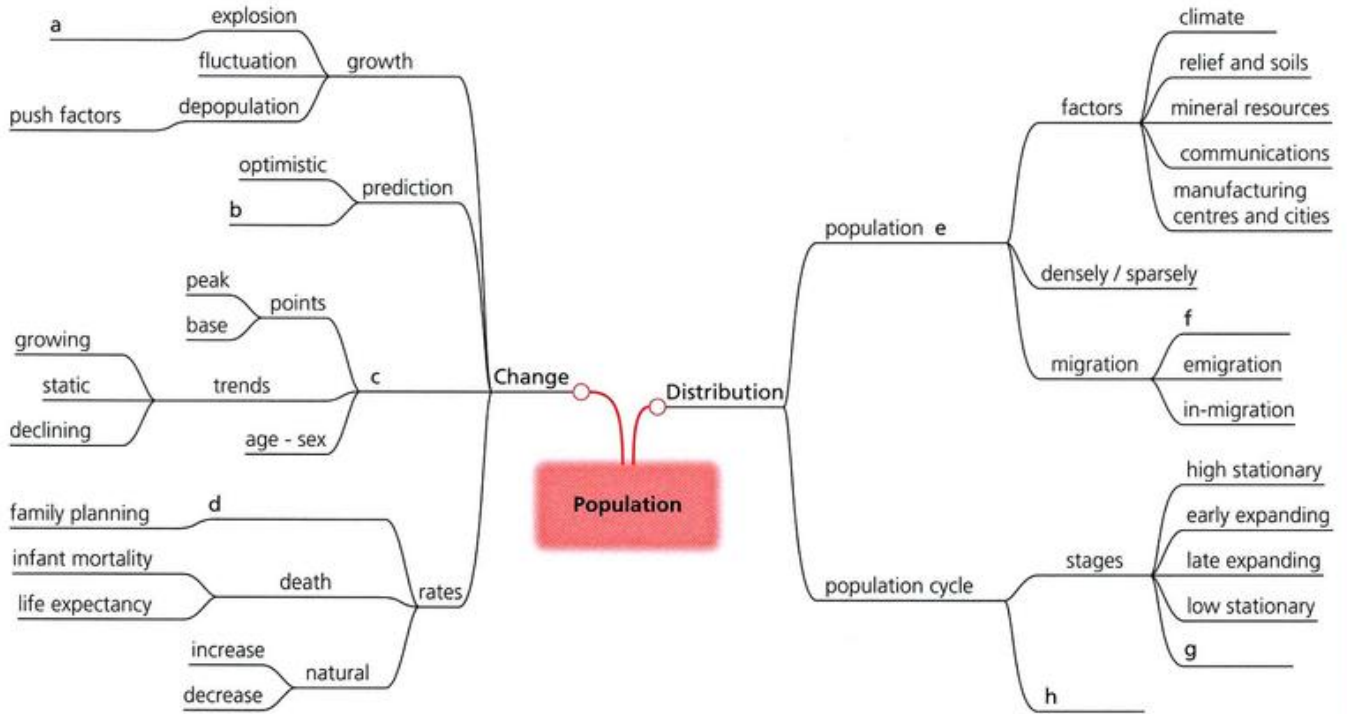
Word	Definition	Example	Translation
squatter /ˈskwɒtə(r)/	someone who lives in a place without permission and without paying the owner. noun [count]		
stable /ˈsteɪbl/	not changing frequently and not likely to suddenly become worse. adjective	<i>The economy is currently quite stable.</i>	
starvation /ˈstɑː(r)ˈveɪʃ(ə)n/	a situation in which a person or animal suffers or dies because they do not have enough to eat. noun [uncount]	<i>Millions are threatened by starvation and disease each year.</i>	
stationary /ˈsteɪʃ(ə)n(ə)ri/	not moving. adjective		
transition /ˈtrænˈzɪʃ(ə)n/	the process of changing from one situation, form, or state to another. noun [count/uncount]	<i>a transition period</i>	
underdeveloped /ˌʌndə(r)ˈdɛvələpt/	an underdeveloped country or region is poor and does not have modern industries or advanced technology. Many people consider this to be an offensive word, and prefer to use the word <i>developing</i> . adjective		
undernourished /ˌʌndə(r)ˈnaɪʃt/	someone who is undernourished is not healthy because they do not get enough food. adjective		
underpopulated /ˌʌndə(r)ˈpɒpjuleɪtɪd/	an underpopulated area has very few people living in it, especially with the result that there are not enough people to do all the work. adjective		
undeveloped /ˌʌndɪˈveləpt/	an undeveloped country is poor and does not have modern industries or advanced technology. adjective		
unequal /ˌʌnˈiːkwəl/	not giving the same treatment or opportunities to everyone, and therefore unfair. adjective	<i>Women claimed they were given unequal treatment.</i>	
vaccine /ˈvæksɪn/	a substance put into the body, usually by injection, in order to provide protection against a disease. noun [count/uncount]		
workforce /ˈwɜː(r)kˌfɔː(r)s/	1 the total number of people who work in a particular company, industry, or area. noun [singular] 1a used in general about people who work. noun [singular]	<i>The Government is encouraging women back into the workforce.</i>	

A Working with words

1 Population word map

Write these words in the correct place on the word map.

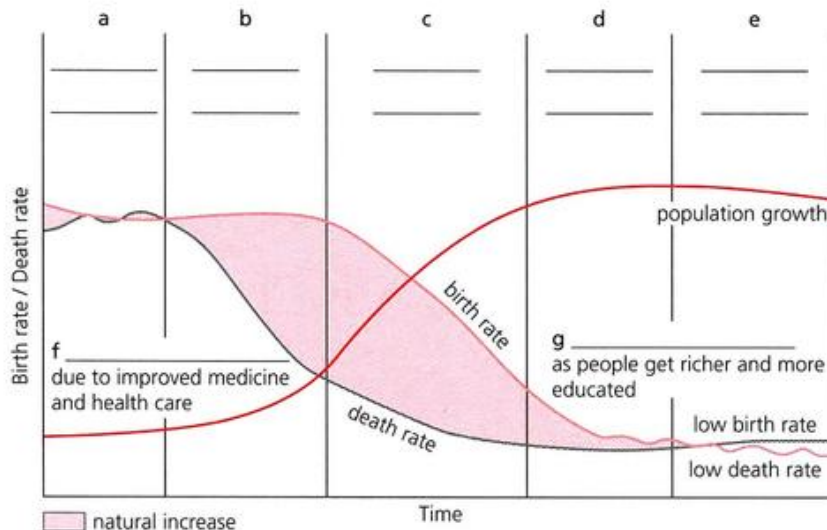
birth demographic transition density immigration overcrowding pessimistic pyramids senile



2 Model of population cycle

Label the graph with these phrases.

birth rate falls death rate falls early expanding stage senile stage
high stationary stage late expanding stage low stationary stage



3 Overcrowding in Hong Kong

Complete the text with these words.

accommodate communities density distribution household housing migrant slum

Hong Kong's population 1 _____ is 5,860 persons per square kilometre. However, because of its uneven population 2 _____, some areas, such as Mong Kok in Kowloon, have about 40,000 persons per square kilometre (about 100,000 per square mile).

Most of Hong Kong's slum areas have been replaced by public high-rise apartment blocks. Peaceful demonstrations have gained improved 3 _____ rights and improved buildings.

Hong Kong's government has reduced the demand for transport by building numerous planned 4 _____ near employment centres. Since many people in Hong Kong prefer living near their workplace, this approach has helped to 5 _____ Hong Kong's large population on its small area of land.

Wages are low in Hong Kong, but rents in public housing seldom rise above fifteen per cent of a family's income and most families pay well under ten per cent of their 6 _____ income.

Some 7 _____ areas are still located in downtown Hong Kong and on steep hillsides. The people who live in these slums are often single men and women, many of them old, who never married. Many recent 8 _____ families from China and Vietnam live in Hong Kong's harbour area.

B Working with sentences

4 Population change

Match the beginnings and endings of the sentences.

Beginnings

- 1 Natural increase in a population occurs
- 2 When the death rate is greater than the birth rate,
- 3 Population change may differ from the natural increase or decrease
- 4 Birth rate
- 5 The natural increase is found
- 6 People who move home from one country to another
- 7 Immigrants (into a country, immigration)
- 8 Emigrants (out of a country, emigration)

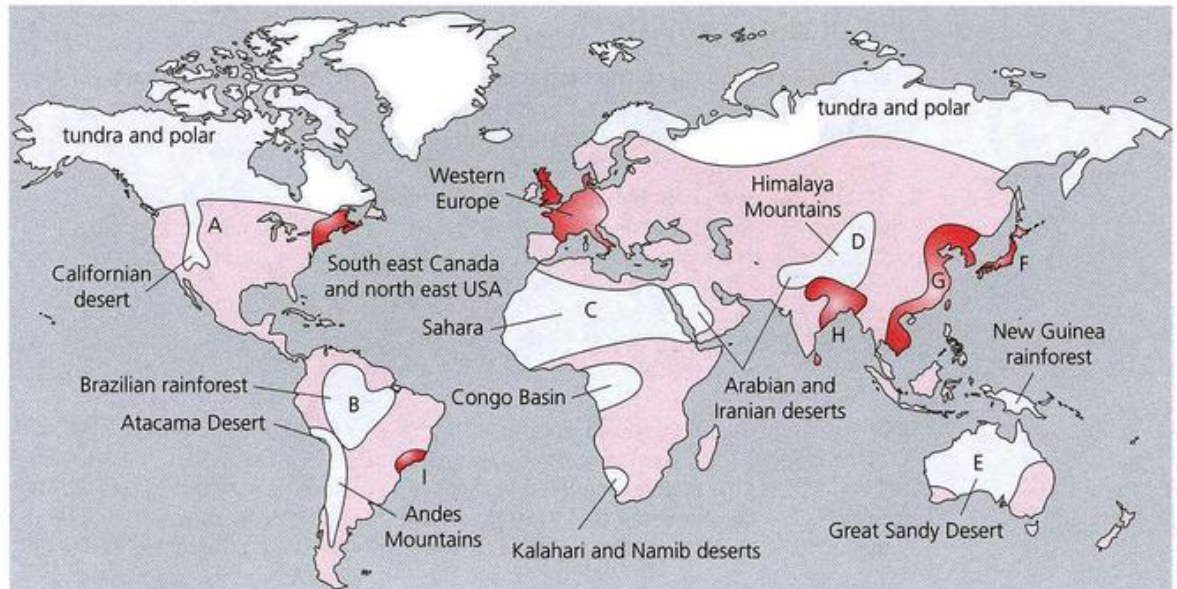
Endings

- a are called migrants.
- b because it also takes into account migrants which include emigrants (out) and immigrants (in).
- c increase population.
- d means the number of births for every 1,000 people in a country for one year.
- e reduce population.
- f there is a natural decrease.
- g when the birth rate is greater than the death rate.
- h when the birth rate is measured against the number of deaths (death rate) for every 1,000 people in the same year.

1 2 3 4 5 6 7 8

5 Population density

Look at the map, and decide which sentences are true and which are false.



areas of very high population density areas of medium population density areas of very low population density

- 1 Western Europe is an area of very high population density.
- 2 Areas F and G are both areas of medium population density.
- 3 Areas in B have very low population density because this is the Brazilian rainforest.
- 4 Area D is an area of very low population density because this area is almost entirely mountainous.
- 5 C is an area of very low population density because this is the area of African rainforest.
- 6 The tundra and polar regions are both areas of medium population density.
- 7 I is an area of very high population density largely due to the big cities in this area.
- 8 E is an area of very low population density because this is largely made up of desert.

6 Population growth in Brazil and Germany

Put the sentences in the correct order.

- a On the other hand, the population of developing countries such as Brazil and Ethiopia is increasing rapidly.
- b As a result, there is very little or no natural increase.
- c Firstly, the population of developed countries such as Britain, France and Germany increased rapidly during the industrial revolution from 1750 onwards.
- d They have high birth rates and their death rates are falling rapidly.
- e This creates a large natural increase in population growth.
- f This is because Germany is in the low stationary stage where standards of living are very high and deaths and births are almost equal.
- g This is because these countries are in the expanding stages of the population cycle.
- h This meant an increased food supply, and medicine and the invention of new machines improved living standards at that time.
- i Today, however, the population of rich developed countries such as Germany shows little or no increase.

1 2 3 4 5 6 7 8 9

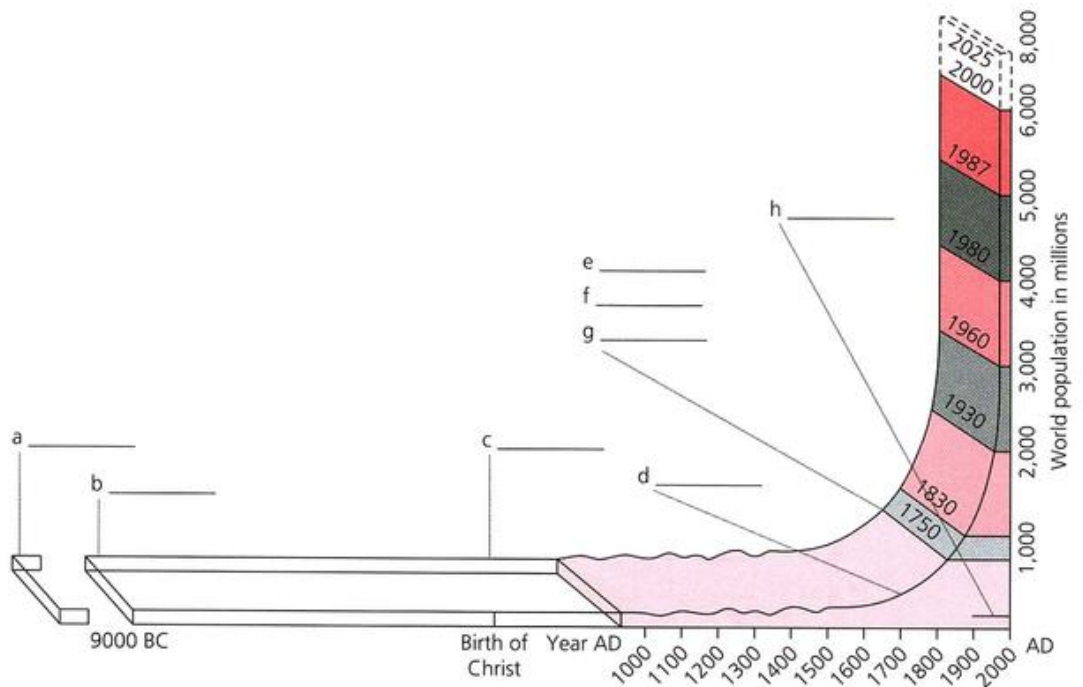
7 Population growth

Read the text and place the sentences in the correct place on the chart.

- 1 about 260 million people on Earth
- 2 population explosion during 20th century
- 3 industrial revolution in Europe provided employment for many people
- 4 war, famine, plagues and lack of medicine prevented rapid population growth
- 5 the spread of agriculture and speeding up of population growth
- 6 improvement in medical knowledge and hygiene
- 7 new farming methods lead to increased food production
- 8 population doubled to 520 million

In the past, the world's population fluctuated. War, famine, plagues like the Black Death, and lack of medicine prevented rapid population growth. It is estimated that the population of the world in 9000 BC was about ten million. At this time people wandered from place to place in search of wild cereals. Then, people in Mesopotamia (present-day Iraq) discovered that by using seeds from wild cereals and scattering them in a fertile area they would grow, flourish and produce crops for food. This eliminated their need to wander and so they became the first farmers.

The discovery and spread of agriculture led to a speeding up of population growth. Initially population growth was slow. When Christ was born there were about 260 million people on Earth. Growth rates continued to fluctuate because of war, famine and other natural disasters. It took the next 1,700 years for the world's population to double to 520 million. However, from 1750 onwards the world's population grew faster than before. Around then, new farming methods in Europe such as the development of better breeds of animals and the use of new farm machines, led to a large increase in food production. The invention of the steam engine provided employment for thousands of workers in coalfield areas in Europe. At this time hygiene and medical knowledge also improved. Europeans were healthier, lived longer and had more children than before. They conquered new lands in the colonies, which increased land for agriculture. So the world's population grew faster than ever. Throughout the twentieth century the world's population grew so fast that it was called a population explosion. Improved medical knowledge, hygiene and food supplies throughout the world allow people to live longer and have larger and healthier families.



The population cycle

Read the phrases and sort them into the correct place in the table.

- 1 birth rate falls quickly
- 2 birth rate very low
- 3 Brazil
- 4 death rate falls much more slowly
- 5 death rate falls rapidly
- 6 Germany and many Western European countries
- 7 high
- 8 poor and undeveloped economy
- 9 rapid increase
- 10 very slowly increasing

	High stationary stage	Early expanding stage	Late expanding stage	Low stationary stage	Senile stage
Birth rate	a	birth rate remains high	b	birth rate is low	c
Death rate	high	d	e	death rate is also low and people live long lives	
State of economy	f	Economy improves. Some new industries are established. New improved hospitals are built in cities. Vaccinations are introduced and food supplies improve.	Economy improves further. Many new industries set up. People's incomes improve. Parents have fewer children. People live longer.	Economy is developed: people are 'well off'. People have few or no children. Birth rate may be lower than death rate, so the population may fall slightly or remain the same.	
Reasons for changes in birth and death rates	Wars, famines and diseases. Few medical facilities.				
Natural increase in population growth	slow	g	still increasing but rate of growth is slowing down	h	stable or slightly decreasing
Examples of countries experiencing these conditions	parts of Ethiopia near the border with Eritrea, Rwanda	i	Venezuela	j	

9 Settlements

Word	Definition	Example	Translation
access /ˈæksɛs/	the means by which you get to a place. noun [uncount]	<i>There is easy access to the countryside by rail.</i>	
accommodate /əˈkɒmədeɪt/	to provide a place or room for someone to stay in. verb [transitive]	<i>Designed by an Italian architect, the hotel can accommodate 600 guests.</i>	
airport /ˈeə(r)pɔː(r)t/	a place where planes arrive and leave, consisting of runways (long roads where planes land and take off) and large buildings for passengers called terminals. noun [count]	<i>Our flight arrived at Delhi airport over 2 hours late.</i>	
Anglo- /ˈæŋɡləʊ/	involving or related to England or the UK. prefix		
architecture /ˈɑː(r)kɪtektʃə(r)/	a particular style or way of designing buildings. noun [uncount]	<i>The church is a typical example of Gothic architecture.</i>	
area /ˈeəriə/	a part of a city, town, country etc. noun [count]	<i>Bus services in rural areas are not very good.</i>	
arrange /əˈreɪndʒ/	to put things in a neat, attractive, or useful order. verb [transitive]		
attack /əˈtæk/	an organized attempt to defeat an enemy, using weapons. noun [count/uncount]		
attract /əˈtrækt/	to make someone interested in something so that they do it or come to see or hear it. verb [transitive]	<i>They hope to attract more foreign investors.</i>	
banking /ˈbæŋkɪŋ/	the work done by banks and other financial institutions. noun [uncount]		
boundary /ˈbaʊnd(ə)rɪ/	something such as a line on a map that marks where one area of land ends and another begins. noun [count]	<i>Akbar extended the boundaries of his empire in the north and to the south.</i>	
break-of-bulk point /ˈbreɪk əv ˌbʌlk pɔɪnt/	a place where a cargo of goods is divided into smaller units for distribution. noun [count]		
brick /brɪk/	a block used for building walls and other structures. noun [count]		
bridging point /ˈbrɪdʒɪŋ ˌpɔɪnt/	the narrowest place where it is possible to cross a river. noun [count]		
broken family /ˈbrəʊkən ˈfæmli/	a family where the parents are divorced or do not live together, and the children suffer as a result. phrase		
building /ˈbɪldɪŋ/	a structure made of a strong material such as stone or wood that has a roof and walls, for example a house. noun [count]		
business /ˈbɪznəs/	the work of buying or selling products or services for money. noun [uncount]		
canal /kəˈnæl/	an artificial river. noun [count]	<i>Canals were dug to connect England's industrial cities with the sea.</i>	
cargo /ˈkɑː(r)ɡəʊ/	things that are being sent by ship, plane, train, or truck. noun	<i>The ship and all its cargo sank.</i>	
cartwheel pattern /ˈkɑː(r)tˌwɪl ˈpæt(ə)n/	a round shape with lines coming out from the centre. noun [count]		
caters for /ˈkeɪtə(r) fɔː/	to provide people with everything they want or need. verb [transitive]	<i>The school caters for children of all abilities.</i>	
Celts /kelts/	members of an ancient group of people who lived in parts of Western Europe. noun [count]		
cemetery /ˈsemətəri/	an area of ground where dead people are buried. noun [count]		

Word	Definition	Example	Translation
cereal /'siəriəl/	a plant that produces grain, used as food for people and animals. noun [count]		
circle /'sɜ:(r)k(ə)l/	a round shape consisting of a curved line that completely encloses a space and is the same distance from the centre at every point. noun	<i>a mathematical calculation to find out the radius of a circle</i>	
circular /'sɜ:(r)kjʊlə(r)/	in the shape of a circle. adjective		
clan /'klæn/	a large group of families that are related to each other. noun [count]		
cluster /'klʌstə(r)/	to form a small close group. verb [intransitive/transitive]	<i>She spotted Luke in a group clustered around the entrance.</i>	
commercial /'kə:mɜ:(r)ʃ(ə)l/	1 relating to business. adjective 2 relating to making a profit. adjective	<i>a commercial transaction</i> <i>The film's commercial success made her a star.</i>	
commodity /'kɑ:mədəti/	something that can be bought and sold, especially a basic food product or fuel. noun [uncount]		
communal /'kɒmjʊn(ə)l/	owned or used by everyone in a group, especially a group of people who live in the same building. adjective	<i>a communal kitchen/garden/stairway</i>	
communication /'kə:mju:nɪkeɪʃ(ə)n/	the process of giving information or of making emotions or ideas known to someone. noun [uncount]	<i>There was a breakdown in communication.</i>	
communications /'kə:mju:nɪkeɪʃ(ə)nz/	a transport system for taking people or goods from one place to another. noun [plural]	<i>Trade and industry require good communications.</i>	
community /'kə:mjunəti/	the people who live in an area. noun [count] [can be followed by a singular or plural verb]	<i>I wanted to work somewhere where I could serve the community.</i>	
commuter /'kə:mjʊtə(r)/	someone who travels regularly to and from work. noun [count]		
company /'kʌmp(ə)ni/	an organization that provides services, or that makes or sells goods for money. noun [count]		
concentrate /'kɒns(ə)n,treɪt/	if something is concentrated in an area, that is where it mainly exists. verb [transitive/usually passive]	<i>The population is concentrated along the river banks.</i>	
connect /'kə'nekt/	to join two things together. verb [transitive]		
conurbation /'kɒnɜ:(r)'beɪʃ(ə)n/	a large city area. noun [count]		
converge /'kɒn'vɜ:(r)dʒ/	to come from different directions to reach the same point. verb [intransitive]	<i>a station where three railway lines converge</i>	
convergence /'kɒn'vɜ:(r)dʒ(ə)ns/	a situation in which people or things gradually become the same or very similar. noun [singular/uncount]		
cooperative /'kəʊ'ɒp(ə)rətɪv/	a cooperative business or other organization is owned by the people who work in it who also share the profits. adjective [only before noun]		
country /'kʌntri/	an area of land that has its own government and official borders. noun [count]		
countryside /'kʌntri,sɑɪd/	the area outside towns and cities, with farms, fields, and trees. noun [count]		
county /'kaʊnti/	a region that has its own local government in some countries such as the UK and US. noun [count]	<i>the county of Essex</i>	
cross /'krɒs/	to go from one side of something such as a road or river to the other. verb [intransitive/transitive]		
decline /'dɪ'klaɪn/	to become less or worse. verb [intransitive]	<i>The number of people buying their own homes has declined.</i>	
defence /'dɪ'fens/	actions that you take to protect someone or something that is being attacked. noun [uncount]		
desegregation /,dɪ:segrɪ'geɪʃ(ə)n/	the process of ending a system in which people of different races are made to live or work separately. noun [count]		
destination /,destɪ'neɪʃ(ə)n/	the place where someone or something is going. noun [count]	<i>a popular holiday destination</i>	

Word	Definition	Example	Translation
develop /dɪ'veləp/	to grow, change, or improve, or to make something grow, change, or improve. verb [intransitive/transitive]		
developed /dɪ'veləpt/	a developed country, region, or economy has a lot of industries and business activity. adjective	<i>We spend less on health care than most other developed nations.</i>	
dispersed /dɪ'spɜːst/	to be spread in different directions over a wide area. adjective		
distribution pattern /dɪstrɪ'bjuːʃn pæt(ə)n/	used for talking about where different plants, animals, etc are found in an area. noun [count]		
ditch /dɪtʃ/	a long narrow hole dug along the side of a road or field, usually so that water can run into it. noun [count]		
dock /dɒk/	if a ship docks, it arrives at a dock. verb [intransitive]		
dormitory settlement /'dɔː(r)mɪtri setlmənt/	a place from which many people travel to a city to work. noun [count]		
downriver /daʊn'rivə(r)/	at or towards a place that is further along a river as it flows in the direction of the sea – opposite <i>upriver</i> . adjective, adverb		
dry-point site /'draɪ pɔɪnt saɪt/	a town, village etc that is built on higher land surrounded by water or wet ground. noun [count]		
dweller /'dwelə(r)/	someone who lives in a particular type of place. noun [count]	<i>a city/country/cave dweller</i>	
dwelling /'dwelɪŋ/	a house, flat, or other shelter in which someone lives. noun [count]		
dyke /daɪk/	a wall that prevents a river, lake, or sea from flooding the land. noun [count]		
ecclesiastical /ɪ,kliːzi'æstɪkl/	relating to the Christian church. adjective		
emigrate /'emɪɡreɪt/	to leave your country in order to live in another country. verb [intransitive]	<i>We're thinking of emigrating to New Zealand.</i>	
employ /'ɪm'plɔɪ/	to pay someone regularly to do a job for you or to work as a member of your organization. verb [transitive]	<i>They employ a nanny, cleaner, and gardener.</i>	
employee /'ɪm'plɔɪiː/	someone who is paid regularly to work for a person or an organization. noun [count]		
employer /'ɪm'plɔɪə(r)/	a person, company, or organization that pays someone to work for them as a member of their staff. noun [count]		
employment /'ɪm'plɔɪmənt/	work that you are paid regularly to do for a person or company. noun [uncount]		
establish /'stæblɪʃ/	to make something start to exist or start to happen. verb [transitive]	<i>A proper procedure for complaints should be established.</i>	
expand /'ɪk'spænd/	to become larger in size and fill more space. verb [transitive]		
expansion /'ɪk'spænj(ə)n/	the process of increasing in size and filling more space. noun [uncount]	<i>damage caused to buildings through the expansion and contraction of timbers</i>	
extended family /'ɪk'stendɪd fæmli/	the family that you belong to, including people such as your grandparents, cousins etc. noun [count]		
facility /'fæsɪləti/	something such as a room or piece of equipment that is provided at a place for people to use. noun [count]	<i>The hotel has excellent leisure facilities.</i>	
factor /'fæktə(r)/	one of the things that influence whether an event happens or the way that it happens. noun [count]	<i>Public pressure was a factor in the government's decision.</i>	
factory /'fæktəri/	a building or group of buildings where large quantities of goods are produced using machines. noun [count]	<i>She works in a factory.</i>	
farm /'fɑː(r)m/	an area of land used for growing crops or keeping animals. noun [count]	<i>Patrick worked on a neighbouring farm.</i>	

Word	Definition	Example	Translation
finance /'faɪnæns/	decisions on how money is spent or invested. noun [count]	<i>He's now studying international banking and finance.</i>	
first generation /fɜː(r)st ˌdʒenə'reɪʃ(ə)n/	the generation of people who were the first from their country to go and live in another country. noun [singular]		
foreigner /'fɔːrɪnə(r)/	someone who comes from another country. noun [count]	<i>She is Spanish so she is a foreigner in the UK.</i>	
function /'fʌŋkʃ(ə)n/	the job that something is designed to do. noun [count]	<i>The function of advertising is to create a unique image for your company.</i>	
generation /ˌdʒenə'reɪʃ(ə)n/	a group of people in society who are born and live around the same time. noun [count]	<i>The site was preserved as a monument for future generations.</i>	
government /'gʌvə(r)nmənt/	the people who control a country, region, or town and make decisions about its laws and taxes. noun [followed by a singular or plural verb]	<i>The government has announced plans to raise the minimum wage next year.</i>	
green belt /'griːnˌbɛlt/	an area of land around large cities where no buildings are allowed in order to protect the countryside. noun [count/uncount]		
high-speed /haɪˈspiːd/	moving or operating very quickly. adjective	<i>a high-speed train</i>	
hilltop /'hɪl,tɒp/	the top of a hill. noun [count]		
hinterland /'hɪntəˌlænd/	a region that is near to a town or city and whose economy depends on it. noun [count]		
historical /hɪ'stɔːrɪkl/	connected with history or the past. adjective [usually before noun]	<i>There are no historical precedents for a President resigning in mid-term.</i>	
hub /hʌb/	the most important place where a particular activity takes place. noun [count]	<i>Mumbai is the financial hub of India.</i>	
improvement /ɪm'pruːvmənt/	the state of being better than before, or the process of making something better than it was before. noun [uncount]	<i>The school is performing well, but we recognize the need for further improvement.</i>	
industry /'ɪndəstri/	the production of goods, especially those made in factories. noun [uncount]	<i>The town was severely hit by the decline in industry.</i>	
invest /ɪn'vest/	to use your money with the aim of making a profit from it, for example by buying property or buying shares in a company. verb [transitive]	<i>How much do you have to invest?</i>	
land bridge /'lændˌbrɪdʒ/	a neck of land that connects two land masses. noun [count]		
leading /'liːdɪŋ/	main, most important, or most successful. adjective	<i>He became a leading figure in the London art world.</i>	
linear /'liːniə(r)/	consisting of lines or of one straight line. adjective	<i>a linear design</i>	
locate /'ləʊˌkeɪt/	to become established in a particular place. verb [intransitive]		
market settlement /'mɑː(r)kɪt setlmənt/	a town that provides a wide range of services for the community. noun [count]		
migrate /'maɪˌɡreɪt/	to go to another place or part of the world in order to find work. verb [intransitive]		
military /'mɪlɪt(ə)ri/	relating to armies or armed forces and the way in which they are organized. adjective		
monastic /'mɒnə'stɪk/	relating to monks or monasteries. adjective		
motorway /'məʊtə(r),weɪ/	a wide road with several lanes of traffic going in each direction, built for fast travel over long distances. noun [count]		
native /'neɪtɪv/	living in a particular country, area, or city since birth. adjective	<i>My wife's a native New Yorker, but I'm from Atlanta.</i>	
navigable /'nævɪɡəb(ə)l/	a navigable river, lake etc is deep and wide enough for ships to travel through. adjective		

Word	Definition	Example	Translation
newcomer /ˈnjuːkʌmə(r)/	someone who has recently started to live or work somewhere, or who has just arrived in a place. noun [count]	<i>As a newcomer to the area, Paul was anxious to make friends.</i>	
nomadic /nəʊˈmædɪk/	moving from place to place rather than staying in one place. adjective	<i>They lead a nomadic life.</i>	
nucleated /ˈnjuːkleɪtɪd/	a nucleated settlement is one in which houses are found around a central place and are clustered together. adjective		
opportunity /ˈɒpə(r)tjuːnəti/	a chance to do something, or a situation in which it is easy for you to do something. noun [uncount]		
origin /ˈɒrɪdʒɪn/	the place or moment where something begins to exist. noun [count]	<i>Meteorites may hold clues about the origin of life on Earth.</i>	
outskirts /ˈaʊtˌskɜː(r)ts/	the areas of a town or city that are furthest away from the centre. noun [plural]	<i>Alberton is located in Johannesburg's eastern outskirts.</i>	
overspill /ˈəʊvə(r)ˌspɪl/	the people who begin to live and work in places just outside a crowded city, making it bigger. noun [uncount]		
peasant /ˈpez(ə)nt/	a poor person who works on another person's farm or on their own small farm, especially in the past. noun [count]		
periphery /pəˈrɪf(ə)rɪ/	the outer part of an area, very far from the centre. noun [count]		
pilgrimage /ˈpɪlɡrɪmɪdʒ/	a journey that a religious person makes to a holy place. noun [count]	<i>He was on a pilgrimage to Tirupathi temple in south India.</i>	
plentiful /ˈplentɪf(ə)l/	present or available in large quantities. adjective		
polder /ˈpəʊldə/	land reclaimed from the sea. noun [count]		
port /pɔːt/	an area of water where ships stop, including the buildings around it. noun [count/uncount]	<i>At dusk, they docked at the port of Monaco.</i>	
primary /ˈpraɪməri/	most important. adjective	<i>Dealing with crime is our primary concern.</i>	
primate city /ˈpraɪˌmeɪt sɪti/	a major city that functions as the financial, political, and population centre of a country. noun [count]		
principal /ˈprɪnsəp(ə)l/	main, or most important. adjective	<i>The principal aim of the project is to provide an answer to this question.</i>	
protection /prəˈtektʃ(ə)n/	the process of keeping someone or something safe, or the condition of being kept safe. noun [uncount]		
public /ˈpʌblɪk/	available for people in general to use. adjective	<i>public transport</i>	
radial /ˈreɪdiəl/	a radial pattern or design consists of straight lines that all go out from the centre of a circle. adjective		
reclamation /ˌrekləˈmeɪʃ(ə)n/	the improvement of an area so that it can be used. noun [uncount]		
recreation /ˌrekrɪˈeɪʃ(ə)n/	things that you do to enjoy yourself. noun	<i>I play golf for recreation only.</i>	
residential /ˌrezɪˈdenʃ(ə)l/	a residential area is one in which most of the buildings are houses. adjective		
resort /rɪˈzɔː(r)t/	a place that many people go to for a holiday. noun [count]	<i>a ski/seaside/mountain resort</i>	
resource /rɪˈzɔː(r)s/	1 things such as coal, trees, and oil that exist in nature and can be used by people. noun [plural] 2 something such as money, workers, or equipment that can be used to help an institution or business. noun [usually plural]	<i>Many of these countries are rich in timber and mineral resources.</i>	
ribbon pattern /ˈrɪbən pæt(ə)n/	the way a settlement is laid out – the same as a linear pattern. noun [count]		
routeway /ˈruːtweɪ/	a route for travelling to a place. noun [count]		
scattered /ˈskætəd(r)d/	spread over a large area. adjective	<i>My relatives are scattered all over the country.</i>	
schooling /ˈskuːlɪŋ/	the education that you get at school. noun [uncount]	<i>My grandmother had very little schooling.</i>	

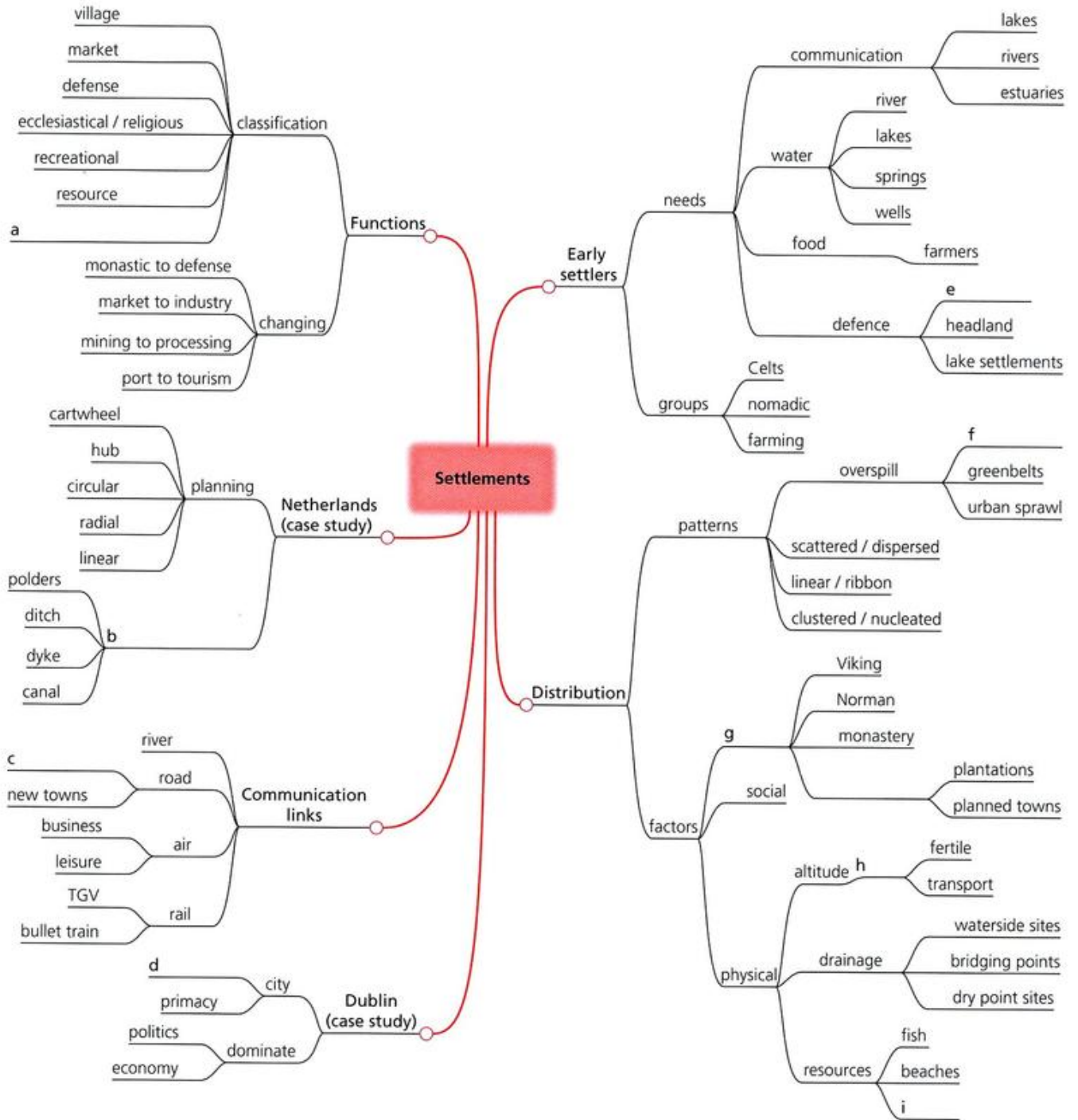
Word	Definition	Example	Translation
second-generation /ˈsekənd dʒenəˈreɪʃ(ə)n/	used for describing someone who was born in the country that they live in but whose parents were not born there. adjective		
segregate /ˈseɡrɪgeɪt/	to separate groups of people, especially according to race, sex, or religion. verb [transitive]	<i>The army has decided not to segregate men and women during training.</i>	
services /ˈsɜː(r)vɪsɪz/	work, help or advice provided by a business or organization for the public. noun [count]		
settlement /ˈset(ə)lmənt/	a place where people have come to live permanently, usually when there were very few people living there before. noun [count]	<i>They discovered the remains of an early Anglo-Saxon settlement.</i>	
settler /ˈsetlə(r)/	someone who goes to live in a place where not many people live, and starts to make it into a community. noun [count]		
social /ˈsəʊʃ(ə)l/	relating to society and to people's lives in general. adjective	<i>They try to address social problems such as unemployment and poor health.</i>	
society /səˈsaɪəti/	1 people in general living together in organized communities, with laws and traditions controlling the way that they behave towards each other. noun [uncount] 2 a particular community or type of community, or the people who live in it. noun [count/uncount]	<i>Society has to be prepared to support its elderly people.</i> <i>Never forget that we live in a multicultural society.</i>	
socioeconomic /səʊʃiəʊˌekəˈnɒmɪk/	involving a combination of social and economic elements. adjective		
specialized /ˈspeʃə,laɪzɪd/	1 designed for a particular purpose. adjective 2 concentrating on a particular subject. adjective	<i>specialized tools</i> <i>specialized training/skills</i>	
specialist /ˈspeʃəlɪst/	1 someone whose training, education, or experience makes them an expert in a particular subject. noun [count] 1a relating to learning or knowledge in a particular part of a subject or profession. [only before noun]		
spread /spred/	1 to gradually affect or cover a larger area. verb [intransitive] 2 to be present in many parts of a large area. verb [intransitive/transitive] [usually passive] 3 the growth or development of something, so that it affects a larger area or a larger number of people. noun [uncount]	<i>Anti-globalization protests spread rapidly across the globe.</i> <i>There are 54 community colleges spread across California.</i> <i>There were concerns about the spread of fighting to other regions.</i>	
suitability /suːtəˈbɪləti/	the degree to which someone or something is suitable for a particular job or purpose. noun [uncount]		
supply /səˈplaɪ/	1 an amount or quantity of something that is available to use. noun [count] 2 the act or process of providing something that is needed. noun [uncount] 3 to provide someone or something with something that they need or want. verb [transitive]		
support /səˈpɔː(r)t/	to provide money, food, shelter, or other things that someone needs in order to live. verb [transitive]	<i>How can we support our families on such low wages?</i>	
surrounding /səˈraʊndɪŋ/	near or all around a place. adjective [only before noun]	<i>The hotel is ideally located for visiting the city and the surrounding area.</i>	
territory /ˈterətri/	an area of a town or country that a person or organization is responsible for, especially as part of their work. noun [uncount]	<i>The Water Authority's territory covers 5,000 square miles.</i>	
TGV /ˈtiː ˌdʒiː ˌviː/	Train à Grande Vitesse – a high-speed train in France		
trade /treɪd/	a particular area of business or industry. noun [count]	<i>the book/drug/jewellery trade</i>	
transshipment /ˈtrænzʃɪpmənt/	the act of transferring goods from one ship to another. noun [uncount]		
urban /ˈɜːbən/	relating to towns and cities, or happening there. adjective [usually before noun]		
village /ˈvɪlɪdʒ/	1 a very small town in the countryside. noun [count] 1a the people who live in a village. noun [count] 1b in a village, or relating to a village. [only before noun]	<i>a Scottish fishing village</i> <i>The whole village attended the meeting.</i>	

A Working with words

1 Settlements word map

Write these words in the correct place on the word map.

primate historical land quality reclamation hinterland
convergence hilltop / knolls lowlands residential / dormitory



2 Classifications of settlements by function

Match the words with the explanations.

Words

- 1 resource settlements
- 2 dormitory settlements
- 3 villages
- 4 recreational settlements
- 5 market settlements
- 6 defence settlements
- 7 ports

Explanations

- a These provide a small number of services, which cater for people's regular needs. Services might include small shops, bars, a church and a primary school.
- b These provide a wider range of services such as specialist shops (like jewellers and clothes shops), banks, insurance offices, a cinema and hotels. Most were once the venues of agricultural fairs and some now contain cooperative marts.
- c Many grew up around castles, which offered protection in the event of an armed attack. Some settlements were once surrounded by medieval walls.
- d These developed as a result of natural resources being found nearby. Mining towns, such as Navan in Co. Meath, are typical of such settlements.
- e These are built in sheltered harbours or estuaries and have docking and mooring facilities for ships. Commercial ones are usually larger than those used for fishing.
- f All towns are largely residential in nature. These are especially so, because they provide a residential function for many people who work in nearby cities.
- g These are usually holiday resorts, typically in areas that offer attractions such as sandy beaches, water sports, fishing and golf courses. The towns offer tourist information centres, as well as numerous leisure services.

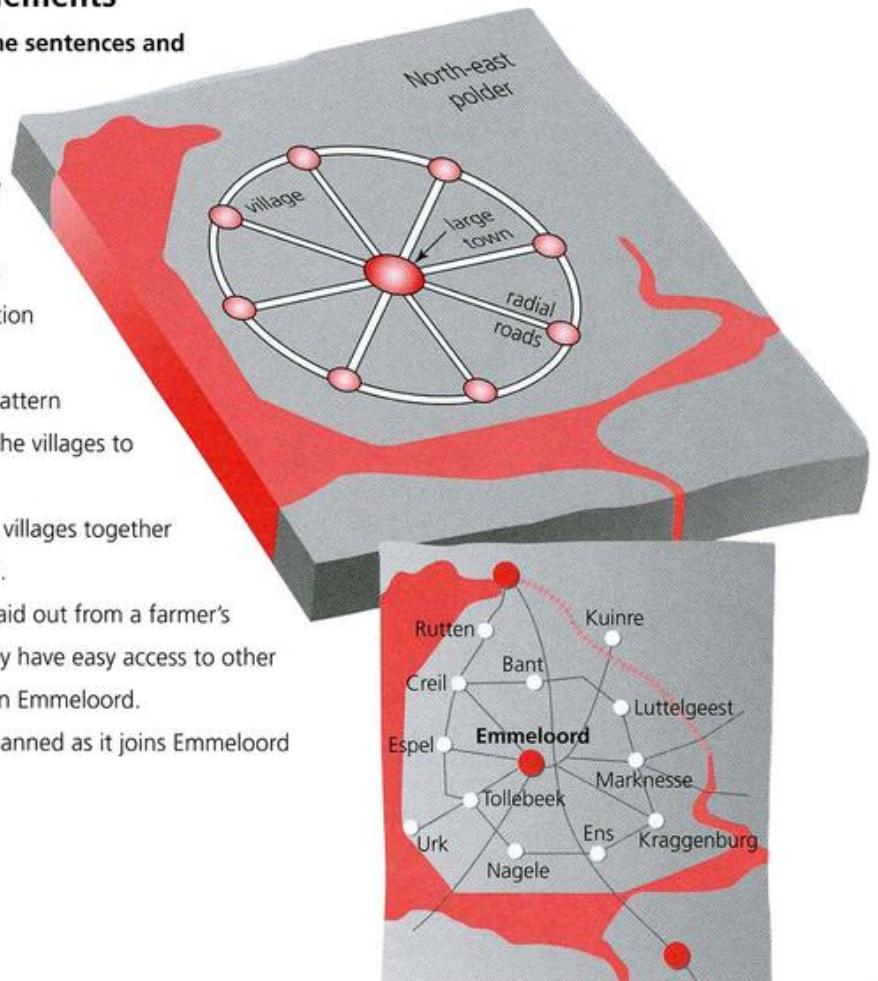
1 2 3 4 5 6 7

B Working with sentences

3 Planned urban settlements

Look at the picture, read the sentences and decide which are true and which are false.

- 1 The town of Emmeloord is located at the periphery of the villages.
- 2 The villages form a ringed settlement pattern in relation to the town.
- 3 The roads make a radial pattern which connects many of the villages to the town.
- 4 The road that joins all the villages together forms a triangular pattern.
- 5 The settlements are well laid out from a farmer's point of view because they have easy access to other farms and to the market in Emmeloord.
- 6 The circular road is well planned as it joins Emmeloord to all of the villages.



4 Differences between settlements in Ireland and the Dutch Polders

Read the sentences and sort them into the correct column.

- a Ring roads join villages arranged in a circle and 'radial' roads connect individual villages with a large central town.
- b Roads often follow river valleys or join at bridging points of rivers.
- c Villages often develop at bridging points of rivers.
- d Individual farmhouses form planned linear patterns along roads.
- e Individual farmhouses are scattered throughout the countryside.
- f Villages are arranged in a circle around a large town.

Differences between settlements in Ireland and the Dutch Polders		
	In the Dutch Polders	In Ireland
Farmhouses	1	4
Villages	2	5
Roads	3	6

5 Early settlement patterns in Ireland

Read the sentences and choose the best ending.

- 1 People first came to Ireland from Britain about 9,000 years ago and they settled initially along the
 - a east and north-east coasts.
 - b west and north-west coasts.
 - c west and south-west coasts.
- 2 The sea levels were much lower then than they are today as this was
 - a a long time after the Ice Age.
 - b shortly before the Ice Age.
 - c shortly after the Ice Age.
- 3 As a result, the places we now call Britain and Ireland were joined by narrow strips of land called
 - a 'land steps'.
 - b 'land bridges'.
 - c 'land roads'.
- 4 People settled on the coasts because these coastal areas were
 - a nearest to Britain.
 - b farthest from Britain.
 - c highest from Britain.
- 5 They were the first settlement places they found which were
 - a navigable.
 - b available.
 - c suitable.
- 6 Ireland was densely forested and this made it difficult for people to
 - a travel outside.
 - b emigrate abroad.
 - c migrate inland.
- 7 The coastlands provided a plentiful supply of shellfish, which was good to eat and
 - a easy to gather.
 - b easy to expand.
 - c easy to employ.

6 European airports

Read the information and sort it into the grid to make short texts.

- a air travel has improved the comfort of travel and has reduced the time taken to reach foreign places
- b capital cities like London and Paris
- c competition between travel companies has reduced air fares and increased the number of flights to a greater variety of places
- d developed cities such as Paris and London, which have expanded because of the extra business created by air traffic
- e European people have become wealthier and so can afford to travel more often on holiday
- f industrial areas like the Ruhr in Germany
- g new towns, such as Shannon New Town in Co. Clare, which have developed near airports
- h recreational areas like Spain's Mediterranean coastline
- i religious centres like Lourdes in France and Knock in Co. Mayo
- j there are far more companies in developed countries now than before. Many of their personnel need to travel between their offices or factories for business purposes.
- k tourist resorts, such as Alcudia and Santa Ponza in Majorca, which have grown from tiny fishing villages into large seaside resorts

1 Many large international airports have been developed over the past sixty years. These airports have attracted large numbers of people to certain places such as

-
-
-
-

2 Many large airports been built during this time because

-
-
-
-

3 The presence of so many airports has led to the growth of settlements like

-
-
-

7 Physical factors of Irish settlements

Read the text and make notes in the frame provided.

The physical factors that affect the distribution pattern of towns and villages include altitude, drainage and resources such as land quality. Altitude or height above sea level has a big influence on the distribution of towns and villages. Lowland locations attract settlement for a number of reasons. They are generally flat or gently sloping and are therefore easy to build on. They are warmer, less windy and usually have deeper and more fertile soils than highland areas. They are also usually well serviced by roads, railways or other transport routeways.

It was, and still is, important that settlements were located in areas which are well-drained by rivers and streams. Very few settlements are located in poorly-drained areas, which may be marshy or littered with many small lakes. Rivers have a major influence on the location of nucleated settlements and many towns and villages are built along major river valleys. They originated next to rivers as these provided water for drinking, cooking and other domestic purposes. Large rivers may also be navigable and many of these provided important transport routeways in former times. Settlements or parts of settlements may sometimes be located only short distances away from a river which is liable to flood. These settlements are therefore built on dry-point sites (mounds or terraces above flood level). A great number of our towns and villages are built on the bridging points of rivers. Roads usually meet at bridges in order to cross rivers; where roads converge, people meet; where people meet, business develops and where business develops, towns grow.

Most Irish towns and villages are situated in fertile areas and many of them originated as market towns, where farmers bought and sold the produce of their land. These settlements are distributed in a generally scattered pattern throughout the lowland areas of Ireland. The east and south of the country contain a higher density of larger towns than the west. This is partly because land quality is generally more fertile in the east and south. Fishing villages developed in sheltered bays and harbours and are distributed in a generally linear pattern along the coast. Sandy beaches were often vital resources in the development of seaside resorts.

A Altitude	Lowland characteristics: 1 2 3	
B Drainage	Very important:	
	River use: 1 2	Sites: 1 2
C Land quality	Factors: 1 2 3	Where: 1 2 3

Factors of early settlement in Ireland

Read the sentences and sort them into the table in the correct order.

- They appear to have been a warlike people for whom defence was important.
- Also, Ireland's forests provided animals, berries, nuts and mushrooms.
- Then, about 5,000 years ago, Ireland's inhabitants began to farm as well as hunt for food.
- Ireland's earliest people made sure to settle near regular and plentiful supplies of fresh drinking water.
- This was another reason for people to settle near rivers, near lakes and by river estuaries.
- We know this because a Celt's home was often surrounded by a circular wall.
- This meant that they lived near the banks of rivers and lakes or near springs or wells.
- About 3,000 years ago, the Celts began to arrive in Ireland.
- Travel and transport was carried out mainly by water.
- Firstly, rivers, lakes and coastal areas provided them with fish and shellfish.
- Our earliest Stone-Age settlers were hunters and gatherers.
- For most of the early period, there were no roads or extensive tracks through Ireland's dense forests.

Water

1

2

Communications

3

4

5

Food

6

7

8

9

Defence

10

11

12

10 Urbanization

Word	Definition	Example	Translation
accommodation /ə,kəmə'deɪf(ə)n/	a place for someone to stay, live, or work in. noun [uncount]	<i>The hotel provides accommodation for up to 100 people.</i>	
adjacent /ə'dʒeɪs(ə)nt/	next to or near something else. adjective		
administration /əd,mɪnɪ'streɪf(ə)n/	the activities involved in managing a business, organization, or institution. noun [uncount]	<i>Too much is spent on administration, and not enough on patient care.</i>	
administrative /əd'mɪnɪstrətɪv/	relating to the management of a company, organization, or institution. adjective	<i>purely administrative tasks</i>	
affordable /ə'fɔ:(r)dəb(ə)l/	cheap enough for ordinary people to afford. adjective	<i>affordable childcare</i>	
amenity /ə'mɪ:nəti/	something that makes it comfortable or enjoyable to live or work somewhere. noun [count]	<i>Amenities include a gym, a pool, and a jacuzzi.</i>	
apartment /ə'pɑ:(r)tmənt/	American for a set of rooms for living in, usually on one floor of a large building. The usual British word is <i>flat</i> . noun [count]		
asylum /ə'saɪləm/	the right to stay in a country, given by a government to protect someone who has escaped from war or political trouble in their own country. noun [uncount]		
attract /ə'trækt/	to make someone interested in something so that they do it or come to see or hear it. verb [transitive]	<i>They hope to attract more foreign investors.</i>	
basic /'beɪsɪk/	basic products and services are ones that everyone needs such as food, medicine, and fuel. adjective	<i>The state provides only basic health care.</i>	
block /blɒk/	a large building with a lot of different levels. noun [count]	<i>There's a flat available in the block where I live.</i>	
boarded up /'bɔ:dɪd 'ʌp/	with windows or doors covered with wooden boards. adjective	<i>All the windows were either broken or boarded up.</i>	
boom /bu:m/	a sudden major increase in trade, profits etc in a particular country or region. noun [count/uncount]		
bulky /'bʌlki/	too big to be carried or stored easily. adjective	<i>The TV was too bulky to fit into the boot of her car.</i>	
case study /'keɪs 'stʌdi/	a piece of research that records details of how a situation develops over a period of time. noun [count]	<i>a case study of a tribal group in Borneo</i>	
CBD /si: bi: 'di:/	Central Business District		
chamber of commerce /'tʃembə(r) əv kɒmə:s/	an organization of people who own shops and businesses in a particular town or city. Their aim is to improve conditions for business in their area. noun [count]		
characteristic /kærɪktə'rɪstɪk/	a particular quality or feature that is typical of someone or something. noun [uncount]	<i>In the future parents may be able to choose their children's physical characteristics.</i>	
city /'sɪti/	a large important town. noun [count]	<i>a thriving industrial city on the Tasmanian coast</i>	
city centre /'sɪti 'sentə(r)/	the part of a town or city that contains most of the shops, restaurants, and places of entertainment. noun [count]	<i>We caught a bus into the city centre.</i>	
civil service, the /'sɪvəl 'sɜ:(r)vɪs/	a country's government departments and the people who work in them. noun [singular]		
combat /'kɒmbæt/	to do something to try to stop something bad from happening or a bad situation from becoming worse. verb [transitive]	<i>the need for effective action to combat global warming</i>	

Word	Definition	Example	Translation
communal /ˈkɒmjʊn(ə)l/	owned or used by everyone in a group, especially a group of people who live in the same building. adjective	<i>a communal kitchen/garden/stairway</i>	
congestion /kənˈdʒestʃ(ə)n/	a situation in which a place is crowded with people or vehicles, so that it is difficult to move around. noun [uncount]	<i>The project aims to reduce traffic congestion.</i>	
construction /kənˈstrʌkʃ(ə)n/	the process of building something large or complicated, such as a bridge or road. noun [count]	<i>The company will finance the construction of a new community sports centre.</i>	
convert into /kənˈvɜː(r)t ɪntu/	to change from one system, use, or method to another, or to make something do this. verb [transitive]	<i>They converted the old school into luxury flats.</i>	
core /kɔː(r)/	most important or most basic. adjective	<i>We need to focus on our core activities.</i>	
corporation /ˌkɔː(r)pəˈreɪʃ(ə)n/	a large company or business organization. noun [count]		
council /ˈkaʊns(ə)l/	the elected officials who govern a local area such as a city or county. noun [count] [can be followed by a singular or plural verb]	<i>a member of the city council</i>	
crime /kraɪm/	an illegal activity or action. noun [count]	<i>She was unaware that she had committed a crime.</i>	
crowded /ˈkraʊdɪd/	containing a lot of people, especially too many. adjective	<i>a crowded street/train/restaurant</i>	
culture /ˈkʌltʃə(r)/	a set of ideas, beliefs, and ways of behaving, especially one belonging to a particular society, race, religion. noun [count/uncount]	<i>societies that share the same language and culture</i>	
decay /dɪˈkeɪ/	the process by which a building or area gradually gets into a worse state because it has not been looked after. noun [uncount]	<i>urban decay</i>	
decline /dɪˈklaɪn/	a reduction in the amount or quality of something. noun [count/uncount]	<i>There has been a steady decline in public services over recent years.</i>	
demolish /dɪˈmɒlɪʃ/	to deliberately destroy a building. verb [transitive]	<i>Disused factories were demolished, and the site redeveloped.</i>	
demolition /ˌdeməˈlɪʃ(ə)n/	the deliberate destruction of a building. noun [count/uncount]	<i>The church is due for demolition next year.</i>	
densely /ˈdensli/	containing a lot of things or people close together. adverb	<i>densely populated regions</i>	
density /ˈdensəti/	the amount of something in a place. noun [uncount]	<i>the density of vegetation in the area</i>	
derelict /ˈderəlɪkt/	something such as a building or piece of land that is derelict is empty, not used, and in a bad condition. adjective	<i>a derelict house/factory/warehouse</i>	
deserted /dɪˈzɜː(r)tɪd/	a deserted place has no people in it. adjective		
detached /dɪˈtætʃt/	a detached house is not joined to another house. adjective	<i>a four-bedroomed detached house</i>	
deteriorate /dɪˈtɪəriəˌreɪt/	to become worse. verb [intransitive]	<i>The weather deteriorated rapidly so the game was abandoned.</i>	
developer /dɪˈveləpə(r)/	someone who buys land or buildings in order to put new or better buildings there and make money from them. noun [count]		
development /dɪˈveləpmənt/	the process of putting new buildings on land. noun [uncount]	<i>The land was sold for development.</i>	
disposal /dɪˈspəʊz(ə)l/	the process of getting rid of something. noun [uncount]	<i>the disposal of nuclear waste at sea</i>	
distribution of wealth /ˌdɪstrɪˈbjuːʃ(ə)n əv weɪθ/	the way in which the available supply of money is shared among people or spread over an area. noun	<i>Brazil has a very unequal distribution of income and wealth.</i>	
district /ˈdɪstrɪkt/	an area of a town or country. noun [count]	<i>They live in one of the most exclusive districts of Paris.</i>	
dominate /ˈdɒmɪˌneɪt/	to be the most important issue, activity, problem etc in a particular situation. verb [intransitive/transitive]	<i>The earthquakes once again dominated the news.</i>	

Word	Definition	Example	Translation
dual carriageway /ˈdjuːəl ˈkærɪdʒweɪ/	a road with two or more lanes of traffic going in each direction, separated by a piece of land in the middle. noun [count]		
effluent /ˈefluənt/	liquid waste such as sewage or waste from a factory. noun		
electricity /ɪˈlekˈtrɪsəti/	a form of energy that can produce light, heat, and power for machines, computers, televisions etc. noun [uncount]	<i>The machines run on electricity.</i>	
elegant /ˈeɪɡənt/	elegant places and things are attractive because they are beautiful in a simple way. adjective	<i>an elegant room/house/restaurant</i>	
endanger /ɪnˈdɛndʒə(r)/	to put someone or something into a situation where they might be harmed or damaged. verb [transitive]	<i>The hospital is accused of endangering patients' lives.</i>	
ensure /ɪnˈʃʊː(r)/	to make certain that something happens or is done. verb [intransitive]	<i>The lifejacket had almost certainly ensured her survival.</i>	
entertainment /ɛntə(r)ˈteɪnmənt/	performances that people enjoy. noun [uncount]	<i>A jazz band provided the entertainment.</i>	
environment /ɪnˈvaɪrənmənt/	the place in which people live and work, including all the physical conditions that affect them. noun [count]	<i>He grew up in a harsh urban environment.</i>	
estate /ɪˈsteɪt/	an area where there are many houses, usually built at the same time by the same company. Many estates are owned by local government and have cheap houses for poorer families. noun [count]	<i>He grew up on a council estate.</i>	
extend /ɪkˈstend/	to increase the size of a building or area, especially by adding extra parts onto it. verb [intransitive/transitive]	<i>We're going to extend the first floor.</i>	
flat /flæt/	a set of rooms for living in, usually on one floor of a large building. noun [count]	<i>The family live in a fourth-floor flat.</i>	
fringe /frɪndʒ/	the outer edge of something. noun [count]	<i>industrial developments situated on the northern fringe of the city</i>	
galvanize /ˈɡælvənaɪz/	to shock or affect someone enough to produce a strong and immediate reaction. verb [transitive]	<i>The results of the study galvanized residents into action.</i>	
garden /ˈɡɑː(r)d(ə)n/	1 an area of land next to a house that belongs to the house, usually with grass and plants growing in it. noun [count] 2 a large area of grass, flowers, trees etc that is open to the public for their enjoyment. noun [count]	<i>The house has a large garden with fruit trees.</i> <i>They spent the afternoon wandering around Kew Gardens.</i>	
Georgian /ˈdʒɔː(r)dʒən/	in a style typical of the UK and the US in the 18th century. adjective	<i>a Georgian house</i>	
ghetto /ˈɡetəʊ/	an area in a city or town where people of a particular type live, usually in poor conditions.	<i>an inner-city ghetto</i>	
graffiti /grəˈfiːti/	words or pictures drawn on walls in public places. noun [uncount]		
high-density /ˈhaɪ ˌdensəti/	having a high number of people or things in an area. adjective	<i>high-density housing</i>	
high-rent /ˈhaɪ ˌrent/	costing a lot of money to rent. adjective	<i>high-rent properties</i>	
high-rise /ˈhaɪ ˌraɪz/	a high-rise building is very tall with many floors or levels. adjective		
homeless /ˈhəʊmləs/	without a place to live. adjective		
household /ˈhaʊsˌhəʊld/	the people who live in a house or flat when they are considered as a single unit. noun [count]	<i>What percentage of the city's households live in poverty?</i>	
housing /ˈhaʊzɪŋ/	buildings for people to live in. noun	<i>Land had to be found for new housing.</i>	
inadequate /ɪnˈædɪkwət/	not enough, or not good enough for a particular purpose. adjective	<i>inadequate provision of health care</i>	
industrial estate /ɪnˈdʌstriəl ɪˈsteɪt/	an area of land where industrial companies have their buildings. noun [count]		
inequality /ɪnɪˈkwɒləti/	a situation in which people are not equal because some groups have more opportunities, power, money etc than others. noun [count]	<i>There are great inequalities in health care across the country.</i>	

Word	Definition	Example	Translation
infrastructural /ˈɪnfɹəˌstrʌktʃ(ə)r(ə)l/	having to do with the infrastructure (=the set of systems that affect how well it operates) of a place or organization. adjective		
inhabitant /ɪnˈhæbɪtənt/	a person or animal that lives in a particular place. noun [count]	<i>The city's first inhabitants arrived in the 16th century.</i>	
inner city /ɪnə(r)ˈsɪti/	an area near the centre of a large city where a lot of poverty and other social problems exist. noun [count]	<i>Suburban lifestyles are very different from those in the inner city.</i>	
landlord /ˈlænd(ɪ),lə:(r)d/	a man who owns a house, flat, or room that people can rent. noun [count]	<i>Their landlord is very nice, because he always repairs damages quickly.</i>	
leisure /ˈleɪʒə(r)/	activities that you do to relax or enjoy yourself. noun [uncount]	<i>My busy schedule leaves little time for leisure.</i>	
let /let/	to rent a room flat, house etc to someone. verb [intransitive/transitive]	<i>The landlord can let at an agreed market rent.</i>	
locality /ləʊˈkæləti/	a particular area or district. noun [count]	<i>Many people had moved to different localities.</i>	
locate /ləʊˈkeɪt/	to establish something in a particular place. verb [transitive]	<i>The company wants to locate the factory on land near the railway.</i>	
location /ləʊˈkeɪʃ(ə)n/	the place or position where someone or something is or where something happens. noun [count]	<i>We have not found a suitable location for the new offices.</i>	
long-term /ˈlɒŋ tɜ:(r)m/	continuing to exist, be relevant, or have an effect for a long time in the future. adjective	<i>a good long-term investment</i>	
low-density /ləʊˌdensəti/	having a low number of people or things in an area. adjective		
luxury /ˈlʌkʃəri/	something expensive that you enjoy but do not really need. noun [count]	<i>She likes to have a few luxuries like fresh flowers.</i>	
maintenance /ˈmeɪntənəns/	work that is done to keep something such as a building, machine, or piece of equipment repaired and in good condition. noun [uncount]	<i>regular/routine/preventive maintenance</i>	
makeshift /ˈmeɪkʃɪft/	made using whatever is available and therefore not very good. adjective		
manufacturing /ˌmænʃʊˈfæktʃərɪŋ/	the business of making goods in large quantities in a factory. noun [uncount]	<i>manufacturing industries</i>	
megacity /ˈmegaʃɪti/	a city with a population of more than 10 million people. noun [count]		
modern /ˈmɒdə(r)n/	1 relating to or belonging to the present time. adjective 2 using new styles that are very different from the styles of the past. adjective	<i>The programme examines the role of women in modern society. The architecture of the hotel is strikingly modern.</i>	
modernize /ˈmɒdə(r),naɪz/	if something modernizes or you modernize it, it becomes less old-fashioned as result of new methods, equipment, or ideas. verb [intransitive/transitive]	<i>They will continue to modernize the army.</i>	
multi-storey /ˈmʌlti ˈstɔ:ri/	having several levels or floors. adjective	<i>a multi-storey car park</i>	
neglect /nɪˈgлект/	to fail to look after a place, for example a house or garden. verb [transitive]	<i>The building has been neglected for years.</i>	
neighbourhood /ˈneɪbə(r),hʊd/	a particular area of a city or town. noun [count]	<i>He lives in our neighbourhood.</i>	
Norman /ˈnɔ:(r)mən/	relating to the 11th and 12th centuries in English history, when England was ruled by people from Normandy in northern France. adjective	<i>a Norman church</i>	
obsolete /ˈɒbsəli:t/	no longer used because of being replaced by something newer and more effective. adjective	<i>Most computer hardware rapidly becomes obsolete.</i>	
overcrowded /ˌəʊvə(r)ˈkraʊdɪd/	containing too many people or things. adjective	<i>Conditions in the camp are very overcrowded.</i>	
overpopulation /ˌəʊvə(r)ˌpɒpjʊˈleɪʃ(ə)n/	the state of there being too many people living in a place. noun [uncount]		
packed /pækt/	extremely crowded. adjective	<i>The cinema was packed on Friday.</i>	

Word	Definition	Example	Translation
pedestrian /pə'destrɪən/	someone who is walking, especially in a town or city, instead of driving or riding. noun [count]	<i>The area is open to cyclists and pedestrians.</i>	
planner /'plænə(r)/	someone whose job is to plan the way that towns, cities, and other areas will grow and develop. noun [count]	<i>He trained as an architect and town planner.</i>	
planning /'plæniŋ/	the control of building and development in towns, cities, and other areas, especially by local government. noun [uncount]	<i>The planning application was agreed by the district council last week.</i>	
poverty /'pɒvəti/	a situation in which someone does not have enough money to pay for their basic needs. noun [uncount]		
prefabricated /'pri:fæbrɪ'keɪtɪd/	a prefabricated building is built in sections that can be moved and put together quickly. adjective		
preserve /'prɪzɜ:(r)v/	to take care of a place or building in order to prevent it from being harmed or destroyed. verb [transitive]	<i>The society works to preserve the district's historic buildings.</i>	
private /'praɪvət/	used only by a particular person or group, or available only to them. adjective	<i>a private bathroom/party/plane</i>	
prosper /'prɒspə(r)/	to grow and do well. verb [intransitive]	<i>Under his reign peace and mutual understanding prospered.</i>	
prosperity /'prɒ'sperəti/	the situation of being successful and having a lot of money. noun [uncount]	<i>a time of national prosperity</i>	
provision /'prɒ'vɪz(ə)n/	plans or preparation for future need. noun [uncount]	<i>There is no provision for expanding classroom space.</i>	
purpose-built /'pɜ:(r)pəs bɪlt/	designed to be suitable for one particular purpose. adjective	<i>a purpose-built exhibition centre</i>	
railway /'reɪlweɪ/	the system of travelling by train, and all the companies, people, and equipment relating to it. noun [count]	<i>We should encourage more people to use the railway.</i>	
recreational facilities /'rekrɪ'eɪʃ(ə)n(ə)l fə'sɪlətɪz/	places provided for people to do sports or other leisure activities. noun [plural]		
redevelopment /'ri:dɪ'veləpmənt/	the improvement of an area that is in bad condition by destroying or improving old buildings and building new ones. noun [uncount]		
refurbish /'ri:fɜ:(r)bɪʃ/	to improve a room or a building by cleaning and painting it, adding new furniture or equipment etc. verb [transitive]		
rehouse /'ri:'haʊz/	to provide a new house for someone when their own house is no longer suitable or has been destroyed. verb [transitive]		
renovate /'renəveɪt/	to make something old look new again by repairing and improving it, especially a building. verb [transitive]	<i>They have recently renovated this building.</i>	
rented /'rentɪd/	used by someone who pays rent to the owner. adjective	<i>rented accommodation</i>	
residence /'rezɪd(ə)ns/	a house or other place where someone lives, especially a large house used by an important person. noun [count]	<i>The building is partly a museum and partly a private residence.</i>	
restoration /'restə'reɪʃ(ə)n/	the process of putting something such as a piece of art or a building back into its original condition so that it looks cleaner and better. noun [count/uncount]	<i>She specializes in the cleaning and restoration of antique paintings.</i>	
restriction /'rɪ'strɪkʃ(ə)n/	a rule, action, or situation that limits or controls someone or something, often plural. noun [count]	<i>trade/travel/speed/parking restrictions</i>	
rezone /'ri:'zəʊn/	to officially make a particular area of land available for a purpose that was not originally allowed. verb [transitive]		
run-down /'rʌn daʊn/	in bad condition because no one has spent money on repairs. adjective	<i>This area of Liverpool is poor and run-down.</i>	
sanitation /'sæni'teɪʃ(ə)n/	conditions and processes relating to people's health, especially the systems that supply water and deal with human waste. noun [count]		
satellite town /'sætələɪt taʊn/	a town or city that is close to and depends on a larger city. noun [count]		
scheme /'ski:m/	a plan that is developed by a government or large organization in order to provide a particular service for people. noun [count]	<i>The proposed scheme should solve the parking problem.</i>	

Word	Definition	Example	Translation
semi-detached /ˌsemiˈdætʃt/	a semi-detached house is joined to another house by one wall that they share. adjective	<i>Sue lives in a semi-detached house.</i>	
sewage /ˈsuːɪdʒ/	waste substances, especially waste from people's bodies, removed from houses and other buildings by a system of large underground pipes called sewers. noun [uncount]		
sewerage /ˈsuːəɪdʒ/	a system of pipes and passages that carry sewage. noun [uncount]		
shanty town /ˈʃænti taʊn/	an area where very poor people live in shanties (=a badly built house made from sheets of wood, metal, or other thin material). noun [count]		
shopping /ˈʃɒpɪŋ/	the activity of going to a shop to buy things. noun [uncount]	<i>I don't like shopping very much.</i>	
skyscraper /ˈskaɪˌskreɪpə(r)/	a very tall building containing offices or flats. noun [count]	<i>There are lots of skyscrapers in Manhattan.</i>	
slum /slʌm/	1 a poor area of a town where the houses are in very bad condition. noun [count] [often plural] 1a a house in such an area. noun [count]		
spending-power /ˈspendɪŋ ˌpaʊə(r)/	the amount of money that a person, business etc has available to spend. noun		
spread /spred/	to gradually affect or cover a larger area. verb [transitive]	<i>Within less than an hour, the fire had spread to the fuel stores.</i>	
subculture /ˈsʌbˌkʌltʃə(r)/	a group of people whose beliefs and ways of behaving make them different from the rest of society. noun [count]	<i>Pop music is an important part of the youth subculture.</i>	
suburb /ˈsʌbɜː(r)b/	an area or town near a large city but away from its centre, where there are many houses, especially for middle-class people. noun [count]	<i>Wanstead is a suburb of London.</i>	
suburban /səˈbɜː(r)bən/	in a suburb, or relating to a suburb. adjective	<i>suburban shopping centres/schools/housewives</i>	
terraced house /ˈterəst haʊs/	a house in a row of similar houses joined together on both sides. noun [count]		
townhouse /ˈtaʊnˌhaʊs/	an expensive house near the main part of a town or city. noun [count]		
underground /ˈʌndə(r)ˌɡraʊnd/	a system of public transport consisting of trains that travel in tunnels below a city. noun [count]		
unemployment /ˌʌnɪmˈplɔɪmənt/	a situation in which someone or a lot of people do not have work and do not have an income. noun [uncount]	<i>The community here has been devastated by poverty and unemployment.</i>	
urban /ˈɜː(r)bən/	relating to towns and cities. adjective	<i>People moved to the urban areas for jobs.</i>	
urbanization /ˌɜː(r)bənəɪˈzeɪʃ(ə)n/	the process by which towns and cities grow bigger and more and more people go to live in them. noun [uncount]		
urban renewal /ˈɜː(r)bən rɪˌnjuːəl/	the process of making areas of a city more attractive and rich by creating new buildings and parks, more business activity etc. noun [uncount]		
urban sprawl /ˈɜː(r)bən ˌsprɔːl/	a very large area of buildings, industries, etc that has spread from a city into the countryside surrounding it, especially in a way that is not attractive. noun [uncount]	<i>We drove through several miles of urban sprawl.</i>	
vandalism ˈvændə,lɪz(ə)m	the act of deliberately damaging or destroying things, especially public property. noun [uncount]		
well-established /ˌwel rɪˈstæblɪʃt/	having existed for a long time, and having been successful or accepted for a long time. adjective	<i>a well-established company/hotel</i>	

A Working with words

1 Urbanization word map

Write these words in the correct place on the word map.

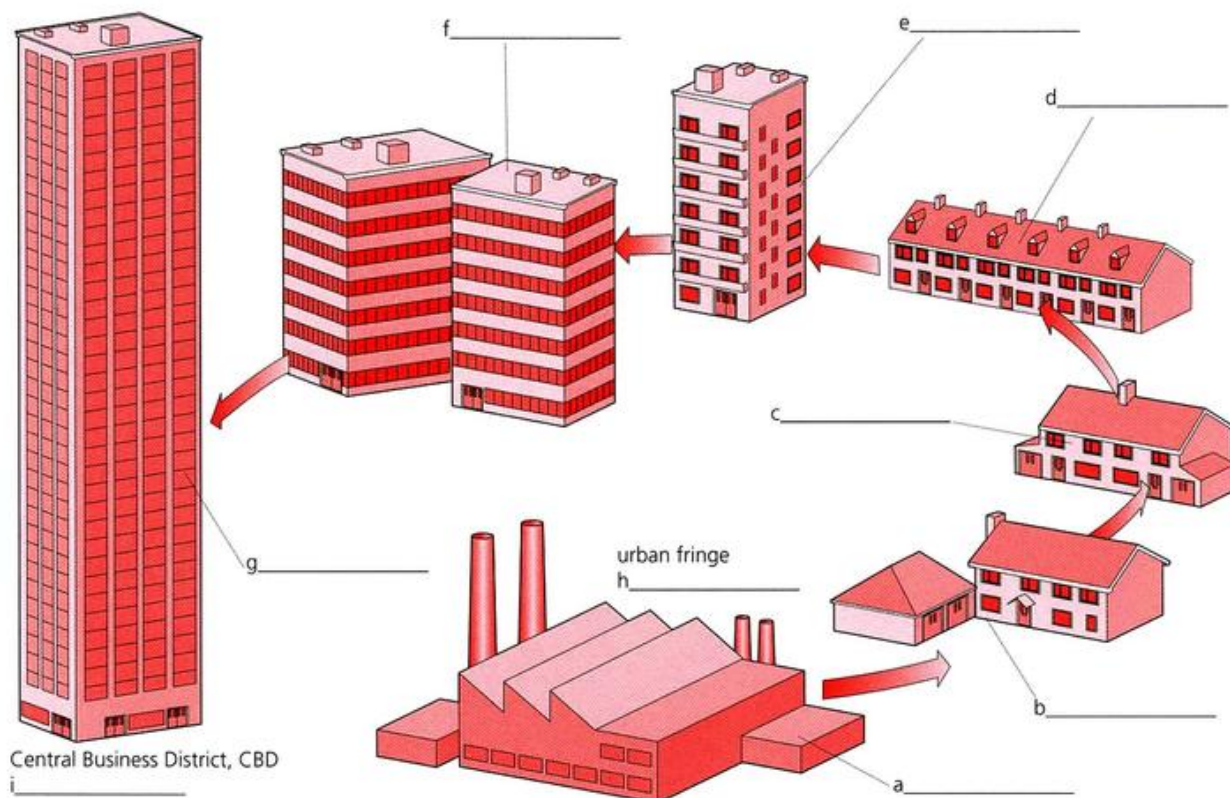
administrative congestion crime higher density
inequality new towns River Seine semi-detached



2 Land value and land use

Label the picture with these words and phrases.

apartment blocks detached houses high land value industrial buildings
low land value office blocks semi-detached houses skyscrapers terraced houses



3 Paris

Complete the sentences with these words.

commercial cultural dominated located manufactured
outer suburbs primate redeveloped scattered

- The economic and social life of France is _____ by Paris, the capital and centre of government.
- With a population of almost 11 million, Paris is several times larger than Lyons, which is France's second biggest city. Paris is therefore a _____ city.
- The CBD of Paris is _____ in the heart of the city around such famous streets as the Champs Elysées.
- To the west of the CBD is La Défense, an elegantly _____ area of Paris. The CBD is usually in the busy centre of a city and is a city's main commercial area.
- Land is extremely valuable and buildings are usually high, occupied usually by profitable _____ offices, banks, department stores and specialist shops such as jewellers.
- The CBD is also likely to contain important _____ centres such as museums and cathedrals.
- A number of traditional industries still make light, luxury items in _____, city-centre locations.
- Heavy industries make bulky products in the north-eastern suburbs and most _____ goods are produced in the suburbs and fringes of Paris.
- Modern industries produce electronics, medicines and many other products in the _____ and new satellite towns.

B Working with sentences

4 Inner city development and new towns

Put the phrases in the correct order to make sentences.

- 1 are used inner city decay, redevelopment and renewal to combat Urban
- 2 are built to reduce New towns urban sprawl, uncontrolled
- 3 are demolished, houses is where old, run-down redevelopment Urban
- 4 are in new towns, in the suburbs or rehoused Their inhabitants
- 5 are then used commercial purposes, inner city sites mainly for multi-storey car parks, shops and such as offices, The valuable
- 6 are refurbished means that new houses, old dwellings or replaced by Urban renewal
- 7 and other are encouraged are provided, Community centres facilities in their old localities, existing inner city residents so that to remain
- 8 are built In order to near large cities, new towns reduce sometimes urban sprawl,
- 9 a planned, are deliberately built but do not grow maximum population, naturally, New towns to house
- 10 and are built are connected to good transport systems, near large cities New towns the cities with
- 11 and is of nearby cities prevent urban sprawl, so the overspill populations Their main function to house
- 12 as well as carefully planned contain industrial estates, New towns services shopping centres, such as

5 Variations in housing

Read the sentences and sort them into the correct order in the grid.

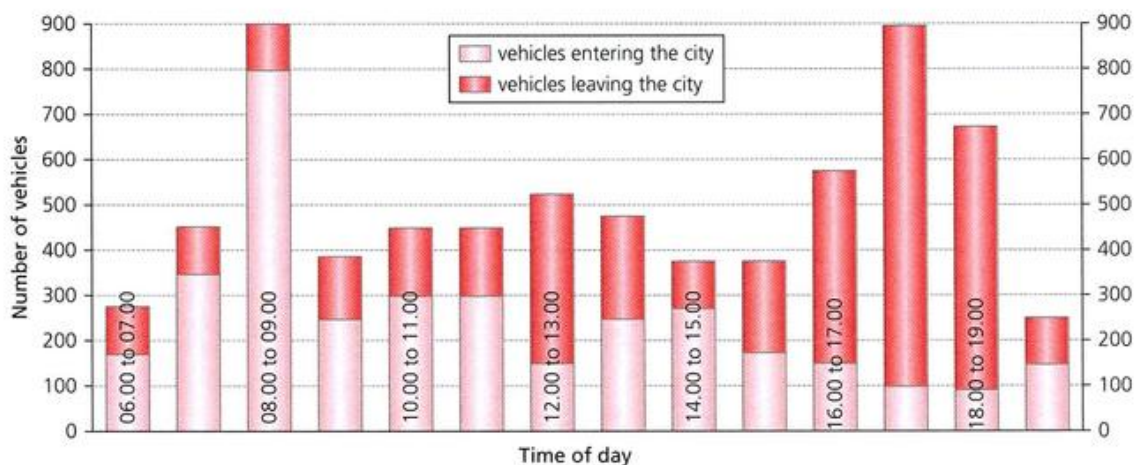
- a The quality of housing varies greatly within cities.
- b Because most cities grow outwards, the newest houses are usually to be found in the outer suburbs of cities.
- c Most outer suburbs contain low-density, semi-detached or detached dwellings which are typically two-storey houses with front and back gardens.
- d Most cities grow from their centres outwards, so most of the older houses are situated in or near inner city areas.
- e Public housing estates, built by city corporations, usually contain dwellings that are modest in size and quality and are typically three-bedroom terraced or semi-detached houses with small front and back gardens.
- f Most inner city residences are multi-storey, high-density, terraced dwellings with little or no garden spaces.
- g Some privately built estates contain very large, high-quality houses for wealthy buyers with top-of-the-range detached houses that may contain five or six bedrooms and large front and back gardens.
- h Houses tend to be older in inner city areas and newer towards the suburbs.
- i The densities and heights of houses tend to become lower from the inner city outwards.

	Tendency	City	Suburbs
Age of housing	1	2	3
Type of housing	4	5	6
Quality of housing	7	8	9

6 Traffic patterns in Cork

Look at the diagram and decide which sentences are true and which are false.

- The hour with the most ingoing traffic is 17.00 to 18.00.
- The most outgoing traffic occurs between 07.00 and 08.00.
- The two hours best described as rush hours are 08.00 to 09.00 and 17.00 to 18.00.
- The most significant amount of outgoing traffic in between the rush hours occurs between 12.00 and 13.00.
- There are two peaks of ingoing traffic in between the rush hours.
- Generally speaking, the ingoing traffic flow in the morning period is less steady than the outgoing traffic flow in the afternoon and evening.
- There is more traffic going into Cork between 06.00 and 07.00 than there is between 14.00 and 15.00.
- More vehicles enter and leave Cork between 07.00 and 08.00 than between 12.00 and 13.00.



C Working with texts

7 The expansion of Dublin

Read the text and sort the information into the table.

biggest manufacturing city chief commercial centre city-suburb migration focus of transport routes
location of civil services post-independence capital rural-urban migration

There are a number of economic reasons for the growth and dominance of Dublin. Firstly, it is the focus of Ireland's road, rail and other transport routes. Secondly, it contains Ireland's chief port and airport. It is also Ireland's biggest manufacturing city. Finally, it is the chief commercial centre and port and it contains the headquarters of several Irish banks and other commercial firms.

There are also several social reasons for this phenomenon. Rural to urban migration greatly enlarged the population of Dublin. This means that many people moved from the countryside to live in the city. Additionally, the migration of people from the city centre itself to live in the suburbs caused Dublin to expand outwards.

Finally, there are also administrative reasons for the expansion of the city. After Irish independence in 1921, Dublin once again became the capital of Ireland. The Irish civil service operates mainly out of there. This means that the management of the whole country is located in Dublin.

Economic reasons	Social reasons	Administrative reasons
1	4	6
2	5	7
3		

8 Functional zones

Read the text and make notes in the framework provided.

Within cities, there is a general tendency for different areas or zones to be given over to different functions or uses. For example, some areas may be used mainly for housing, while other zones may be devoted principally to recreation, shopping or manufacturing industries.

Few urban dwellers do their regular shopping in the CBDs of large cities. Most people prefer to use shopping areas closer to where they live. Some of these smaller shopping areas were once the CBDs of small towns, which have been 'swallowed up' by growing cities. Some are the CBDs of new 'satellite towns', which more recently were built at the fringes of cities. Most modern cities now contain numerous specially built shopping centres, each of which is made up of several stores adjacent to each other. Usually shopping centres are located in residential suburbs where they satisfy the day to day shopping needs of local residents. Some centres are located within the shopping areas described above.

Large cities usually have several different manufacturing zones. A small number of older industries may still exist near to the city centre. Most of these would produce valuable products in relatively small factories. Most modern industries, however, are now likely to be situated in new industrial estates in the suburbs. Land there is usually much cheaper and traffic congestion less serious than in areas closer to city centres. Likewise, industries that import or export bulky goods may be situated near dock areas.

Residential zones can be found in most city areas. The oldest ones are usually in the inner city areas. Some old housing areas fall into decay or are converted into very expensive apartments for wealthy people and many inner-city residential areas are rezoned and redeveloped as profitable commercial areas. Most of the newer residential zones are in the city suburbs and in new satellite towns on the fringes of the cities. Housing is generally much more affordable there, because land values are not as high as in the city centre. Some satellite towns may be called commuter towns if many of their inhabitants commute to and from work in the city proper.

Most European cities contain within them many open spaces for recreation. Such spaces may vary from large, formal parks to small, children's playgrounds. They enable urban dwellers to escape from the noise and stress of modern life.

Introduction

Zones given over to 1

Smaller shopping areas

In CBDs 2

or CBDs of 3

Shopping centres

In residential 4

or within 5

Industrial areas

Older industries 6

Modern industries 7

Residential areas

Oldest in 8

Newer 9

Open spaces for recreation

Children's 10

Escape 11

11 Primary economic activity

Word	Definition	Example	Translation
abattoir /ˈæbətwaː(r)/	a place where animals are killed for meat. noun [count]		
activity /æk'tɪvəti/	things that people do. noun [uncount]	<i>These environmental changes are the result of human activity.</i>	
agribusiness /ˈægrɪ,bɪznəs/	the business of operating a very large farm. noun [count]		
agricultural /ˌægrɪ'kʌltʃ(ə)rəl/	relating to farming. adjective	<i>Farmers have criticized the government's agricultural policy.</i>	
agriculture /ˈægrɪ,kʌltʃə(r)/	the work, business, or study of farming. noun [uncount]		
alternative /ɔ:l'tɜ:(r)nətɪv/	something that you can choose instead of something else. noun [count]	<i>There was no alternative but to close the road until February.</i>	
arable /ˈærəb(ə)l/	relating to, used for, or involved in the growing of crops. adjective	<i>arable land</i>	
artificial fertilizer /ɑ:tɪfɪʃl 'fɜ:təlaɪzə/	an inorganic substance that is obtained by mining or is produced by a chemical process that is used to help plants to grow in a healthy way. noun [count]		
backbreaking /ˈbæk,breɪkɪŋ/	physically very hard and tiring. adjective	<i>Cleaning all the floors was backbreaking work.</i>	
barley /ˈbɑ:(r)li/	a plant that is a type of grass that produces grain. The grain is used for making food, beer, and whisky. noun [count]		
barn /bɑ:(r)n/	a large building on a farm where animals, crops, or machines are kept. noun [count]		
beef /bi:f/	the meat from a cow. noun [uncount]	<i>a slice of roast beef</i>	
benefit /ˈbenɪfɪt/	an advantage you get from a situation. noun [count/uncount]	<i>The new sports centre will bring lasting benefit to the community.</i>	
bloom /blu:m/	if a tree or plant blooms, it produces flowers that have opened. verb [intransitive]	<i>Magnificent lilac trees bloomed in the forest.</i>	
bone meal /bəʊn ,mi:l/	a substance made of crushed bones, used as food for animals or for helping plants to grow. noun [uncount]		
breed /bri:d/	to produce new plants or animals from existing ones, especially in order to produce plants or animals with particular qualities. verb [transitive]	<i>She breeds sheep.</i>	
breeding /ˈbri:dn̩/	the activity of keeping animals or plants in order to produce new animals or plants. noun [uncount]	<i>the world leader in cattle breeding technology</i>	
BSE /bi: es 'i:/	bovine spongiform encephalopathy; a disease in cows that affects the brain and the ability to control the muscles. The disease can be spread to humans if they eat meat from an infected cow, where it appears in the form of Creutzfeldt-Jakob disease. noun [uncount]		
bullock /ˈbʊlək/	a young male cow that has been castrated. noun [count]		
by-product /ˈbaɪ ,prɒdʌkt/	a product that is made as a result of making another product. noun [count]	<i>the by-products of petroleum refining</i>	
calf /kɑ:f/	a young cow (plural: calves). noun [count]		
cash crop /ˈkæʃ 'krɒp/	a crop that farmers grow so that they can sell it, rather than use it themselves. noun [count]		
cassava /kə'sɑ:və/	a tropical plant with roots that can be cooked and eaten or made into flour = manioc. noun [count]		

Word	Definition	Example	Translation
cereal /'sɪəriəl/	a grain that can be made into flour or other food, or a plant of the grass family that produces grain. noun [count]	<i>cereal crops</i>	
cheese /'tʃiːz/	a solid food made from milk. noun [count]	<i>a piece of cheese</i>	
chicken /'tʃɪkɪn/	a bird kept for its eggs and meat. noun [count]	<i>There are lots of chickens on the farm.</i>	
cocoa /'kəʊkəʊ/	a brown powder made from a cocoa bean. It is used for making chocolate and chocolate-flavoured food and drinks. noun [uncount]		
collective farm /'kɒləktɪv ˌfɑː(r)m/	a farm that is run by the people who work there but is owned by the government or another group of people. noun [count]		
combine harvester /'kɒmbaɪn ˈhɑː(r)vɪstə(r)/	a large machine used on a farm for cutting grain crops and then removing and cleaning the seeds. noun [count]		
commercial farming /'kɒməɜːl ˈfɑː(r)mɪŋ/	the growing of crops for sale rather than as food for a family. noun		
compost /'kɒmpɒst/	a mixture of decaying plants and vegetables that is added to soil to improve it. noun [uncount]		
consumption /'kɒn'sʌmpʃ(ə)n/	the use of something such as fuel or energy, or the amount that people use. noun [count]	<i>The government is determined to reduce the UK's total energy consumption.</i>	
conservation /'kɒnsə'veɪʃ(ə)n/	the management of land and water in ways that prevent it from being damaged or destroyed. noun [uncount]	<i>a wildlife conservation project</i>	
corn /'kɔː(r)n/	wheat, or any similar crop of grain that is grown as food. noun [uncount]	<i>a sack of corn</i>	
cotton /'kɒt(ə)n/	a plant grown in warm regions that has white fibres in its fruit that are used for making cotton cloth. noun [uncount]	<i>fields of cotton</i>	
cow /'kəʊ/	an animal kept by farmers for its milk or meat. noun [count]	<i>There are cows in the field.</i>	
crop /'krɒp/	a plant that is grown for food. noun [count]	<i>They're all out planting the crops today.</i>	
crop rotation /'krɒp rəʊ'teɪʃ(ə)n/	the practice of regularly changing the type of crop that is grown on a particular area of land, in order to keep the soil healthy. noun [uncount]		
cultivate /'kʌltɪ'veɪt/	to grow crops or other plants. verb [transitive]	<i>Rice is cultivated throughout the coastal regions.</i>	
cultivation /'kʌltɪ'veɪʃ(ə)n/	the process of growing crops or other plants, or the use of land for growing crops or other plants. noun [uncount]	<i>Sugar cane cultivation is in decline on the island.</i>	
dairy farming /'deəri ˌfɑː(r)mɪŋ/	the business of keeping cows and selling their milk. noun [uncount]		
distribution /ˌdɪstrɪ'bjuːʃ(ə)n/	the process of giving something such as food, clothes, or money to a group of people, especially so that each person gets an equal share. noun [count/uncount]	<i>Oxfam organized the distribution of food and clothing in the disaster area.</i>	
domestic /də'mestɪk/	relating to people's homes and family life. adjective	<i>a cosy domestic scene</i>	
equipment /ɪ'kwɪpmənt/	the tools, machines, or other things that you need for a particular job or activity. noun [count]	<i>camping/lifting/safety equipment</i>	
estimate /'estɪ,meɪt/ /'estɪ,mət/	1 to say what you think an amount or value will be, either by guessing or by using available information to calculate it. verb [transitive] 2 an amount that you guess or calculate using the information available. noun [count]	<i>It's difficult to estimate the cost of making your house safe.</i> <i>According to official estimates, over 25% of carbon emissions come from the United States.</i>	
exploit /ɪk'splɔɪt/	to treat someone unfairly in order to get some benefit for yourself. verb [transitive]	<i>Children are being exploited in many of these factories.</i>	

Word	Definition	Example	Translation
exploitation /ˌɛksplɔɪ'teɪʃ(ə)n/	unfair treatment of someone, or the use of a situation in a way that is wrong, in order to get some benefit for yourself. noun [uncount]	<i>Working people will now be vulnerable to exploitation by unscrupulous employers.</i>	
export /'ɛkspɔː(r)t/	the practice or business of selling goods to another country. noun [uncount]	<i>a new law controlling the export of works of art</i>	
extensive farming /ɪk'stensɪv ˌfɑː(r)mɪŋ/	farming activity that takes place over a large area of land. noun [uncount]		
extract /ɪk'strækt/	to remove something from a particular place. verb [transitive]		
fabric /'fæbrɪk/	cloth, especially when it is used for making things such as clothes or curtains. noun [count/uncount]	<i>plain/patterned/floral fabric</i>	
factory farm /'fæktəri ˌfɑː(r)m/	a farm in which farm animals and birds are kept inside in small spaces and are made to grow or produce eggs very quickly. noun [count]		
fallow /'fæləʊ/	fallow land has been deliberately left for a time without any crops or animals on it, in order to improve the soil. adjective		
farm /fɑː(r)m/	1 to use land for growing crops or keeping animals. verb [transitive] 2 an area of land that is used for growing crops or keeping animals. noun [count]	<i>The land was farmed intensively.</i> <i>Patrick worked on a neighbouring farm.</i>	
farmer /'fɑː(r)mə(r)/	someone who owns or manages a farm. noun [count]	<i>a dairy/sheep/pig farmer</i>	
farmyard /'fɑː(r)mjɑː(r)d/	an area that is surrounded by the buildings on a farm. noun [count]		
feed /fiːd/	1 to give food to a person or an animal. verb [transitive] 2 food given to animals. noun [count/uncount]	<i>Hay is used as winter feed for the cows.</i>	
fertilization /'fɜː(r)təlaɪ'zeɪʃ(ə)n/	the process of fertilizing soil. noun [uncount]		
fertilize /'fɜː(r)təlaɪz/	to add a substance to soil in order to help plants to grow. verb [transitive]		
fibres crop /'faɪbə ˌkrɒp/	crops grown for their fibres in order to make paper, cloth, or rope, for example cotton. noun [count]		
fish farm /'fɪʃ ˌfɑː(r)m/	an enclosed area of water where fish are bred. noun [count]		
fleet /fliːt/	a group of vehicles, planes, boats, or trains, especially when they are owned by one organization or person. noun [count]	<i>the company's fleet of vehicles</i>	
fodder /'fɒdə(r)/	food for farm animals such as cows and horses. noun [uncount]		
food processing /'fuːd ˌprəʊsesɪŋ/	the manufacturing or packaging of food for human consumption. noun [singular]		
forage /'fɔrɪdʒ/	food for farm animals, especially crops grown for horses and cows. noun [uncount]		
fungicide /'fʌŋɡɪˌsaɪd/	a substance used for killing a fungus. noun [uncount]		
furrow /'fʌrəʊ/	a line that a farmer digs in the soil with a plough where he or she plans to plant a crop. noun [uncount]		
genetic modification /dʒə'netɪk ˌmɒdɪfɪ'keɪʃ(ə)n/	the practice or science of changing the genes of a living thing, usually so that it will develop a particular quality. For example, a crop can be changed so that it produces substances that fight disease. noun [uncount]		
globalization /ˌɡləʊbəlaɪ'zeɪʃ(ə)n/	the idea that the world is developing a single economy and culture as a result of improved communications and the influence of large companies that operate all over the world. noun [uncount]	<i>the globalization of western culture</i>	
GM /ˌdʒiː 'em/	genetically modified: used for describing crops whose genes have been artificially changed, or for describing foods made from these crops. adjective	<i>GM corn/wheat/potatoes</i>	

Word	Definition	Example	Translation
goat /gəʊt/	an animal similar to a sheep but with longer legs and a thinner coat. noun [count]		
grain /greɪn/	a seed or the seeds from cereal plants such as wheat, rice, or barley that are used for food, or the plants that they grow on. noun [count/uncount]	<i>bags of mixed grain</i>	
granary /ˈgrænəri/	a building where grain is kept. noun [count]		
grazing land /ˈgreɪzɪŋ ˌlænd/	land on which animals eat grass. noun [uncount]	<i>This is prime grazing land.</i>	
green manure /ˈɡriːn məˈnjuə/	a crop that is grown to be ploughed back into the soil as a fertilizer. noun [singular]		
growing season /ˈɡrəʊɪŋ ˌsiːzn/	the time of year during which plants grow and develop, especially farm crops. noun [count]		
harvest /ˈhɑː(r)vɪst/	1 the activity of collecting a crop, or the time when crops are collected. noun [count] 2 to collect a crop from the fields. verb [transitive]	<i>the grape harvest</i> <i>Winter wheat is planted in the autumn and harvested in early summer.</i>	
hay /heɪ/	long grass that has been cut and dried so that it can be used for feeding farm animals. noun [uncount]		
haystack /ˈheɪstæk/	a large pile of hay in a field, that is usually covered in order to store it. noun [count]		
hectare /ˈhekteə(r)/	a unit for measuring an area of land, equal to 10,000 square metres. noun [count]		
hedge /hedʒ/	a line of bushes or small trees growing close together around a garden or field. noun [uncount]	<i>We crawled through a gap in the hedge.</i>	
heifer /ˈheɪfə(r)/	a young cow that has not given birth to a calf. noun [count]		
hen /hen/	1 a female chicken. noun [count] 2 the female of any type of bird. noun [count]	<i>a hen pheasant</i>	
herbicide /ˈhɜː(r)bɪsaɪd/	a chemical used for killing weeds and other plants that are not wanted. noun [count/uncount]		
herd /hɜː(r)d/	1 a large group of animals of the same type that live and move about together. noun [count] 2 to make a group of animals move together to another place. verb [transitive]	<i>a herd of cattle</i> <i>Every summer he worked on his uncle's farm, herding sheep.</i>	
herring /ˈhɛrɪŋ/	a long thin silver sea fish. noun [count]	<i>He loves eating herrings.</i>	
high-yielding variety /ˈhaɪ ˌjiːldɪŋ vərɪəti/	a plant that produces a lot of a particular type of crop, for example rice or potatoes. noun [count]	<i>This tomato plant is a particularly high-yielding variety.</i>	
horticulture /ˈhɔː(r)tɪˌkʌltʃə(r)/	the activity of growing and studying garden plants. noun [uncount]	<i>He's studying horticulture at college.</i>	
husbandry /ˈhʌzbændri/	the activity of farming and caring for animals. noun [uncount]		
hydroponics /ˈhaɪdrəʊˈpɒnɪks/	a method of growing plants in water that has the necessary minerals in it instead of soil. noun [uncount]		
import /ɪmˈpɔː(r)t/	the process of buying and bringing in products from other countries. noun [uncount]	<i>controls on the import of meat</i>	
infertile /ɪnˈfɜː(r)taɪl/	infertile land is not very good for growing crops. adjective		
input /ɪnˈpʊt/	something that is needed for farming or industrial production to operate effectively, for example soil, rain, machines, or labour. noun [count]		
insecticide /ɪnˈsektiˌsaɪd/	a chemical used for killing insects. noun [uncount]		
intensive farming /ɪnˌtensɪv ˌfɑː(r)mɪŋ/	a method of farming that is designed to produce as much food as possible from a small area of land. noun [uncount]		

Word	Definition	Example	Translation
irrigate /'ɪrɪgeɪt/	to bring water to land through a system of pipes, ditches etc in order to make plants grow. verb [transitive]	<i>The fields here are well irrigated.</i>	
irrigation channel /,'ɪrɪ'geɪʃ(ə)n 'tʃænl(ə)/	a passage dug in the ground and used for bringing water to land in order to make plants grow. noun [count]		
labour /'leɪbə/	the workers in a particular country, industry, or company considered as a group. noun [uncount]	<i>the declining demand for labour in agriculture</i>	
lamb /læm/	a young sheep. noun [count]		
LEDC /el i: di: 'si:/	less economically developed countries		
legume /legju:m/	a seed such as a pea or bean that grows in a pod. noun [count]		
lift /lɪft/	to dig vegetables or other plants out of the ground. verb [transitive]	<i>The potatoes were lifted last week.</i>	
livestock /'laɪvstɒk/	animals such as cows, sheep, and pigs that are kept on farms. noun [plural]		
loam /ləʊm/	a type of soil that is extremely good for plants to grow in. It is a mixture of sand, silt, clay, and humus. noun [uncount]		
logging /'lɒɡɪŋ/	the act of cutting down trees for wood, usually in order to sell it at a profit. noun [uncount]	<i>There has been too much logging in this area.</i>	
machinery /mə'ʃi:nəri/	machines noun [count]	<i>agricultural/industrial machinery</i>	
maize /meɪz/	a tall plant that produces yellow seeds that are called sweet corn or corn when cooked and eaten. noun [uncount]		
manure /mə'njuə(r)/	solid waste from farm animals, often mixed with other substances and used on crops to help them to grow. noun [uncount]		
market garden /,'mɑ:kɪt 'gɑ:dən/	a small farm where fruit and vegetables are grown to be sold. noun [count]		
mastitis /mæ'staɪtɪs/	an illness affecting a woman's breast or a mammal's udder that makes it sore and swollen. noun [count]		
mechanization /,'mekənə'zeɪʃn/	the introduction of machines to do something that was previously done by people. noun [uncount]	<i>The mechanization of milking has brought many benefits.</i>	
MEDC /em i: di: 'si:/	more economically developed countries		
milk /mɪlk/	to take milk from a cow, goat, or sheep. verb [transitive]	<i>The cows are milked every morning.</i>	
mill /mɪl/	to crush grain into flour. verb [transitive]		
millet /'mɪlɪt/	a type of grain grown as food and for use as fodder. noun [uncount]		
mixed farming /,'mɪkst 'fɑ:(r)mɪŋ/	a system of farming that combines growing crops and keeping animals. noun		
monoculture /,'mɒnəʊ,kʌltʃə(r)/	the practice of growing only one crop in an area. noun [uncount]		
muck /mʌk/	dirt, or an unpleasant substance. noun [uncount]	<i>Wash your hands – they're covered in muck.</i>	
mulch /mʌltʃ/	decaying leaves or other plant material used for protecting the roots of plants and improving the soil. noun [count/uncount]	<i>He put a layer of mulch around the roses.</i>	
nitrate /'naɪtreɪt/	a chemical substance containing nitrogen, used for improving the quality of soil. noun [uncount]		
nitriy /'naɪtrɪ,faɪ/	to improve the quality of soil by adding compounds of nitrogen to it. verb [transitive]		
nitrogen /'naɪtrədʒ(ə)n/	a gas with no colour or smell that exists in large quantities in the air that we breathe. noun [uncount]		

Word	Definition	Example	Translation
nursery /ˈnɜː(r)s(ə)ri/	a place where young trees and other plants are grown. noun [count]	<i>He owns a successful nursery.</i>	
nutrient /ˈnjuːtriənt/	a substance in food that plants, animals, and people need to live and grow. noun [count]		
oat /əʊt/	a type of grain that people and animals eat. noun [count]		
olive /ˈɒlɪv/	a small black or green fruit that grows in Mediterranean countries and is eaten as food or used for its oil. noun [count]		
organic /ɔː(r)ˈɡæɪnɪk/	used for describing methods of farming and food production that do not use artificial chemicals. adjective	<i>organic farmers</i>	
organic fertilizer /ɔː(r)ˈɡæɪnɪk ˈfɜː(r)təlaɪz(ə)r/	a fertilizer that is made from natural organic material, for example manure, rather than from artificial chemicals. noun [uncount]		
organophosphate /ɔːɡæənəʊˈfɒs,feɪt/	an organic compound containing phosphorus that is used as a pesticide. Some organophosphates may be toxic. noun [uncount]		
output /ˈaʊt.pʊt/	something that a farm produces, for example crops, meat, or silk. noun [count]		
overgrazing /əʊvəˈɡreɪzɪŋ/	a situation in which land is damaged because the cows or other animals in it have been allowed to eat too much of the grass there, or have been allowed to feed on it for too long. noun [uncount]		
paddock /ˈpædək/	a small field, especially for keeping horses in. noun [count]	<i>There is a small paddock opposite the house.</i>	
paddy field /ˈpædi ˌfiːld/	a field of rice growing in water. noun [count]	<i>the paddy fields of Thailand</i>	
pasteurized /ˈpɑːstʃəraɪzɪd/	if a liquid such as milk is pasteurized, it has been heated to a temperature that kills all the harmful bacteria. adjective		
pastoral herding /ˈpɑːstərəl ˌhɜːdɪŋ/	this takes place when animals are moved periodically from place to place in search of food and water. phrase		
pasture /ˈpɑːstʃə(r)/	land covered with grass where sheep or cows are kept. noun [count]	<i>100 acres of pasture and woodland</i>	
pest /pest/	an insect or other small animal that damages plants or supplies of food. noun [count]	<i>The farmer had an awful pest problem.</i>	
pesticide /ˈpestɪsaɪd/	chemical used for killing insects that damage crops. noun [count]	<i>He's been spraying his crops with pesticide this week.</i>	
phosphate /ˈfɒs,feɪt/	a chemical that contains phosphorus, used especially for making plants grow. noun [count/uncount]		
phosphorus /ˈfɒsfərəs/	a chemical element, especially a form called white phosphorus that starts to burn by itself when air touches it. noun [uncount]		
plant /plɑːnt/	1 an organism that grows in soil or water and usually has green leaves. noun [count] 2	<i>a garden/pot/house plant</i> <i>I've planted a small apple tree in the garden.</i>	
plantation /plɑːnˈteɪʃ(ə)n/	a large farm where crops such as tea, cotton, and sugar cane are grown. noun [count]	<i>a sugar plantation</i>	
plough /plau/	1 a piece of equipment that farmers use for turning over the soil before putting seeds into it. noun [count] 2 to turn over the soil before putting seeds into it using a plough. verb [intransitive/transitive]	<i>The fields were being ploughed for winter wheat.</i>	
potassium /pəˈtæsiəm/	a soft white metal that is used, combined with other substances, for making soap and fertilizer. noun [uncount]		
potato /pəˈteɪtəʊ/	a very common hard round vegetable that has a brown, red, or yellow skin and is white or yellow inside. It grows under the ground and can be cooked in many different ways. noun [count]	<i>baked potatoes</i>	

Word	Definition	Example	Translation
pottery /'pɒtəri/	the activity of making pottery (=objects such as plates and cups that are made out of clay and baked in an oven so that they become hard). noun [uncount]		
primary product /'praɪməri 'prɒdʌkt/	a product such as wood, milk, or fish that is a basic raw material. noun [count]		
production /'prɒdʌkʃ(ə)n/	the process of making or growing things in large quantities, especially in a factory or on a farm, so that they can be sold. noun [uncount]	<i>improvements in energy production and distribution</i>	
propagate /'prɒpəgeɪt/	to make a plant produce more plants. verb [transitive]	<i>The plant is readily propagated from leaf cuttings.</i>	
quota /'kwɒtə/	an amount of something that someone is officially allowed to have or do. noun [count]	<i>The government is planning to introduce quotas on sugar production.</i>	
raise /reɪz/	to keep a particular type of animal, or to grow a particular crop. verb [transitive]	<i>She's been raising sheep for over 40 years.</i>	
ranch /'rɑːntʃ/	a very large farm where cows, horses, or sheep are kept. noun [count]		
rice /raɪs/	the plant that produces rice. It is often grown in fields called paddy fields or paddies. noun [uncount]	<i>long-grain/short-grain rice</i>	
root crop /'ruːt ,krɒp/	a crop that is grown so that its roots can be used for food, for example sugar beets or carrots. noun [count]		
rye /raɪ/	a crop that produces grain that is used for making bread and whisky. noun [uncount]		
season /'siːz(ə)n/	a time when plants grow, or when they produce flowers or fruit. noun [count]	<i>Summer is a season for strawberries.</i>	
seed /siːd/	a usually small, hard part produced by a plant, that can grow into a new plant of the same type. A seed is an ovule that has been fertilized and contains the plant embryo and its food. noun [count]	<i>sesame seeds</i>	
shear /'ʃiə(r)/	to cut the wool from a sheep. verb [transitive]		
shifting cultivation /'ʃɪtɪŋ 'kʌltɪ'veɪf(ə)n/	a method of farming used in tropical regions, in which an area of land is cleared and crops are grown on it until the soil is no longer good enough for growing them. The area is then not used until the soil has become good enough again. noun [uncount]		
silage /'saɪlɪdʒ/	grass and plants that are preserved and used for feeding farm animals. noun [uncount]		
silo /'saɪləʊ/	a tall round tower on a farm used for storing things such as grain, crops, and food for animals. noun [uncount]		
slash and burn /'slæʃ ənd bɜː(r)n/	slash and burn farming involves cutting down and burning trees and old plants in order to plant new crops. adjective	<i>slash and burn agriculture</i>	
sow /səʊ/	to plant seeds in the ground. verb [transitive]	<i>Sow the seeds thinly outdoors in spring.</i>	
spray /'spreɪ/	if you spray a liquid, or if it sprays, very small drops of it are forced out of a container through a small hole. verb [intransitive/transitive]	<i>The chemical is sprayed onto the crops once a week.</i>	
stock /'stɒk/	animals such as cows and pigs that are kept on a farm: livestock. noun [uncount]		
storage /'stɔːrɪdʒ/	the act of storing something. noun [uncount]	<i>The table can be folded flat for easy storage.</i>	
store /'stɔː(r)/	a supply of something that is kept to be used later. noun [count]	<i>a store of food for the winter</i>	
straw /'strɔː/	the yellow stems of dried crops such as wheat. noun [uncount]	<i>bales of straw</i>	
stubble /'stʌb(ə)l/	the ends of plants that are left above ground after a farmer cuts a crop such as wheat or barley. noun [uncount]	<i>The field was full of stubble after the harvest.</i>	

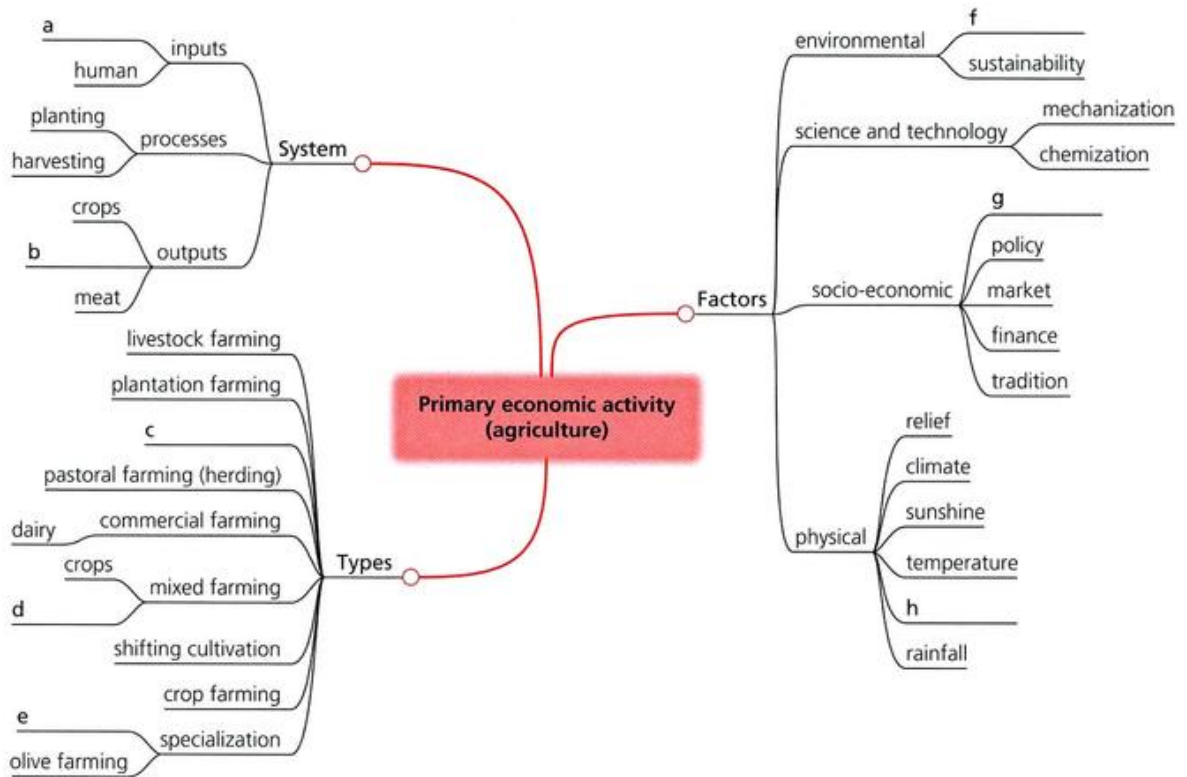
Word	Definition	Example	Translation
subsistence farming /səb'sɪstəns fɑ:(r)mɪŋ/	the activity of growing just enough food to live on, but not enough to sell. noun [uncount]		
sugar beet /'ʃʊgə ,bi:t/	a vegetable that grows under the ground and is used for producing sugar. noun [count/uncount]	<i>A lot of sugar beet is grown in East Anglia.</i>	
sugar cane /'ʃʊgə ,keɪn/	a tall tropical plant with thick stems that is used for producing sugar. noun [count/uncount]	<i>Sugar cane is grown only in tropical countries.</i>	
sunflower /'sʌn,flaʊə/	a very tall plant that has large yellow flowers with a round brown centre. Sunflowers produce seeds that are used for making cooking oil. noun [count]		
tenant farmer /ˌtenənt 'fɑ:mə(r)/	a farmer who rents land from someone else. noun [count]		
tend (a crop) /tend/	to take care of someone or something. verb [transitive]	<i>Eddie kept himself busy tending the garden.</i>	
terracing /'terəsɪŋ/	land divided into layers that look like steps, often so that they can be used for farming or for making a garden. noun [uncount]		
tillage /'tɪlɪdʒ/	the work of preparing land for crops to be planted. noun [uncount]		
tobacco /tə'bækəʊ/	the plant that produces leaves that are dried to make tobacco (=a substance that people smoke in cigarettes). noun [uncount]		
topsoil /'tɒp,sɔɪl/	the layer of soil that is near the surface of the ground. noun [uncount]	<i>There is a good depth of topsoil in this area.</i>	
tractor /'træktə(r)/	a vehicle used on farms, for example to pull machines. noun [count]	<i>He owns two tractors.</i>	
trawler /'trɔ:lə/	a boat used for fishing by pulling a large net through the water. noun [count]		
trough /trɒf/	a long narrow open container used for holding food or water for animals. noun [count]	<i>a cattle trough</i>	
turf /tɜ:(r)f/	short grass and the earth that is under it. noun [uncount]	<i>They laid turf to create a new lawn.</i>	
udder /'ʌdə(r)/	the part under the body of a cow and some other female animals, shaped like a small bag, in which milk is produced. noun [count]		
uncultivated /ʌn'kʌltɪ,veɪtɪd/	uncultivated land has not been used for growing crops or has not been changed in order to make it suitable for farming. adjective		
vertical integration /vɜ:tɪkəl ɪntɪ'greɪʃ(ə)n/	a situation in which a single company owns several businesses that, in combination, control all the stages in producing and selling a product. noun [uncount]		
vineyard /'vɪnjə(r)d/	a farm that grows grapes and produces wine. noun [count]	<i>They own a vineyard.</i>	
viticulture /'vɪtɪ,kʌltʃə/	the activity or science of growing grapes for making wine. noun [uncount]		
wheat /wi:t/	a tall plant that produces grain for making bread and other foods. noun [uncount]	<i>East Asian farmers grew 30 million tons of wheat last year.</i>	
wool /wʊl/	thick hair that grows on sheep and some other animals. noun [uncount]		

A Working with words

1 Primary economic activity word map

Write these words in the correct place on the word map.

labour soil type livestock viticulture physical wool conservation subsistence farming



2 Types of farming

Match the phrases with the definitions.

Phrases

- 1 shifting cultivation
- 2 intensive subsistence farming
- 3 pastoral or nomadic herding
- 4 commercial farming
- 5 mixed farming
- 6 plantation agriculture
- 7 livestock farming
- 8 specialized commercial farming

Definitions

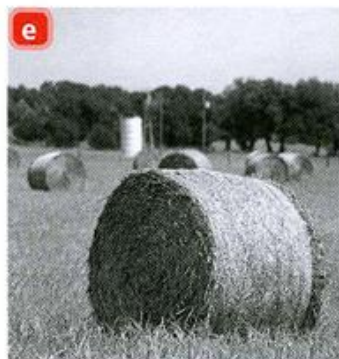
- a This was developed to produce single cash crops for export from tropical to temperate regions. Crop examples include tea, sugar cane and coffee.
- b This occurs in many countries around the world. Homes, families and animals are moved periodically from place to place in search of feed and water.
- c Animal breeding is common where the land is too dry for crops, the terrain too difficult to work with machines and where there is a grass covering.
- d The mediterranean climate is one of the most productive agricultural regions in the world. Grapes, citrus fruits and olives are all examples of this kind of crop farming which occurs in the Mediterranean.
- e This usually occurs where there are market forces demanding products the farms can offer. Other influences are land costs, environmental, location, crop productivity and labour.
- f This type of farming uses a small area of land but with a high input of labour per unit of land.
- g A traditional form of subsistence farming also known as 'slash and burn' where the land is used until exhausted and then another plot is found and cleared.
- h This kind of farm will grow crops and will also keep animals as a source of income. These farms usually produce their own seed and livestock and so can be self-sufficient.

1 2 3 4 5 6 7 8

3 The farming system

Label the pictures with these words and phrases.

spraying crops milking a cow cattle breeding ploughing bales of hay harvesting



B Working with sentences

4 The importance of farming

Read the sentences and choose the correct ending.

Endings

all over the world

other economic activity

undertaken by humans

subsistence farming

given over to farming

for humans to live

dedicated to farming to decrease

as more countries develop

- Farming is one of the oldest economic activities _____.
- Farming is more widely practised on Earth than any _____.
- Though the proportion of people in farming varies around the world, the number in MEDCs is less than in LEDCs _____.
- There is a tendency in a country's economic development for the proportion of economic activity _____.
- In the future we will see a reduction in the proportion of the world economy taken up by farming _____.
- It is unlikely that agriculture will decrease in importance in the future because the products are essential _____.
- According to current estimates about 30% of the surface of the Earth is _____.
- Some farmers grow food to live and this is known as _____.

5 Physical factors affecting farming

Match these words with the correct paragraph.

Temperature Sunshine hours Relief Climate Physical factors Soil type Rainfall

- _____ There are a number of physical factors which affect the success of agriculture around the world.
- _____ The specific climate in which farmland is located can have an effect on farming. The climate will determine the amount of water available through rainfall. It will also influence the temperature and number of sunshine hours in any day and affect the amount of wind over the area.
- _____ Most crops have an ideal temperature range within which they will grow. If the temperature rises above or falls below this temperature, then there is a risk of crop failure. In some regions the temperatures are so high or so low that very few crops, if any, can be grown.
- _____ The number of hours of sunshine in each day is an important factor in the success or failure of crops around the world. Grapes, for example, need to have many long sunny days during the ripening process. This is one reason why they grow well in Mediterranean countries.
- _____ Of course, all plants and animals need water to live. Some crops need little water to grow, but others need large amounts of water. The seasonal variability of rainwater can also be an influence since different parts of plants grow at different times of the year.
- _____ Generally speaking crops grow best in areas where the soil is deep and rich but also where drainage is good. On the other hand, less rich soils which retain rainwater and do not drain well do not lend themselves to crop growing.
- _____ Most forms of agriculture have been developed for flat or gently sloping land. Steeply sloping land does not lend itself to crop growing, though may be useful for keeping livestock. Relief also has an influence on the amount of rainfall and sunshine which can affect the success of crop growing.

6 Structure of the economy

Read each sentence. Some are correct, but some have a word which should not be there. Tick (✓) each correct sentence. If a sentence has a word which should not be there, write it next to the sentence.

- The economy of a country is made up of sectors which deal with several specific activities. _____
- Firstly, there are those areas of economy which deal with finding and assist extracting natural resources. _____
- These are known as primary economic activities, or the primary consumption sector. _____
- Secondly, there are those businesses which process these natural resources. _____
- These industries produce other items and benefit materials for sale to other industries, retail outlets or to the public. _____
- This sector of the economy is known as the secondary economy and all manufacturing co-operative industries are located in this sector. _____
- Lastly, tertiary economic activity, which is known as the service industry, provides a wide range of useful contribute services to the country. _____
- These include education, health care, transport, leisure and many others. _____
- There is also the quaternary industry which is made up of businesses providing hi-tech domestic services to the rest of the economy. _____
- They may be financial services, communications services, scientific research and others. _____

7 Crop farming

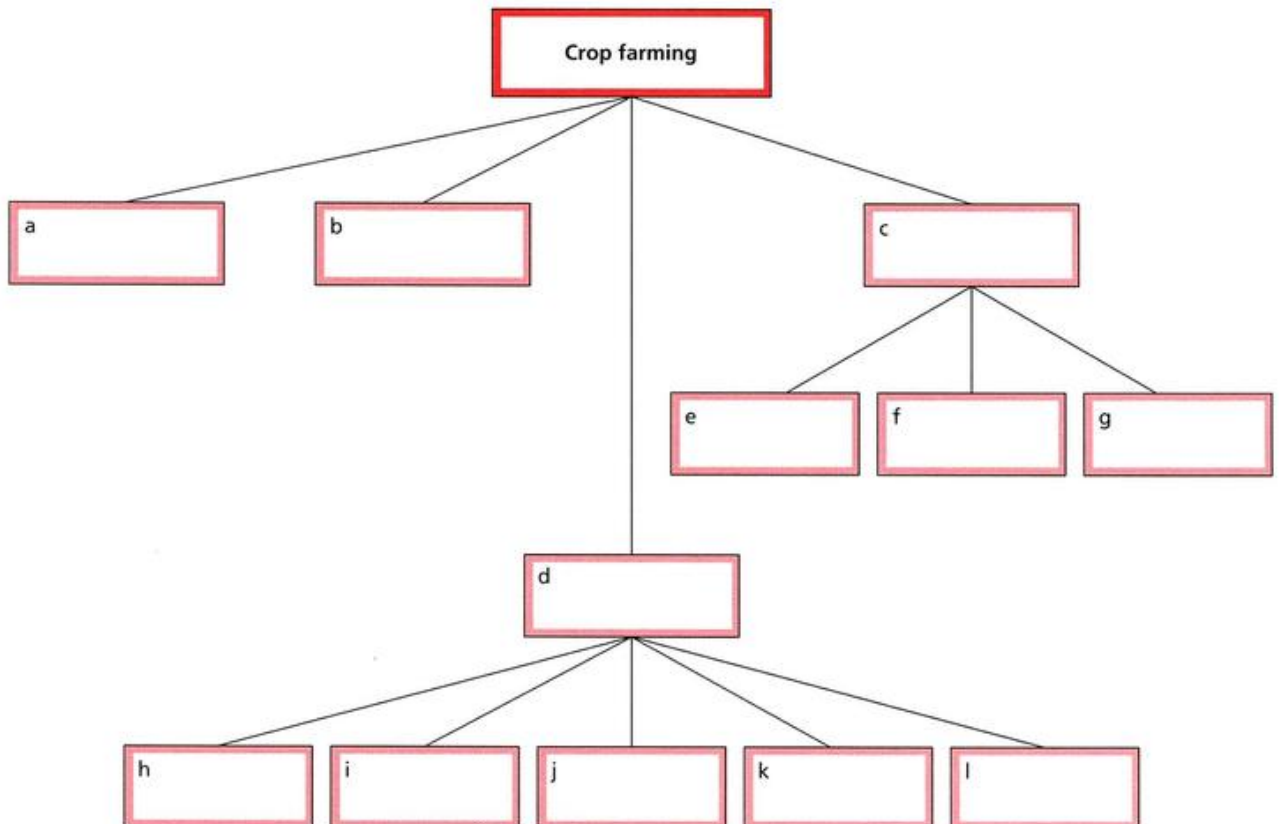
Read the text and sort the information into the diagram.

cereal crops fibre crops grain crops grain-fodder crops industrial crops legumes viticulture market gardening oil-yielding crops stimulation crops sugar crops tobacco crops

Crop farming provides for almost two-thirds of the world's food supply and can be divided into four main sectors of production. These include market gardening, viticulture, cereal crop growing and industrial crop growing. Market gardening usually involves the growing of flowers, fruits and vegetables close to towns and cities where the produce can be sold fresh. Viticulture refers to the growing of grapes for the production of wine and is widespread in Mediterranean countries where the climate is suitable.

Cereal crops take up approximately half of the world's arable land and are made up of three main crops: grains such as rice and wheat, grain-fodder such as corn which is used for feeding livestock, and legumes such as beans. The most important grain crop is wheat and the main cereal crops wheat, rice and corn make up approximately 80% of the total world production of cereal crops.

The industrial crop growing industry can be sub-divided into five main sectors. Tobacco is a labour-intensive industry which is the most valuable non-food cash crop in the world. Fibre crops such as cotton are labour-intensive and tend to be grown in areas with large population densities. Sugar cane and sugar beet are known as sugar crops and these are grown in tropical and sub-tropical climates. Stimulation crops are also grown in tropical climates and good examples of these are tea and coffee, which are also known as plantation crops. Oil-yielding crops such as sunflowers and olives produce vegetable oils for a variety of uses and grow in mid-latitude climates and sub-tropical climates such as the Mediterranean.

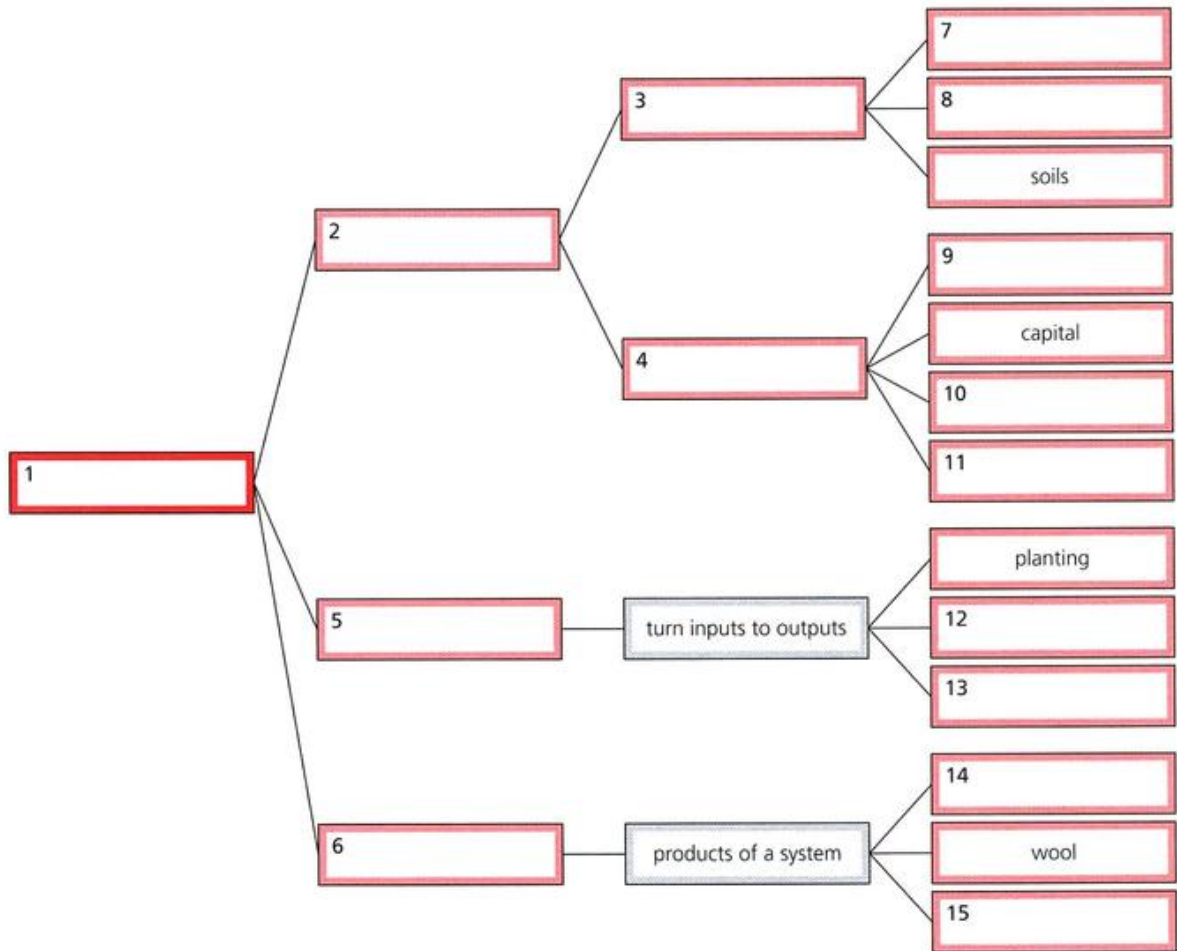


8 Agriculture as a system

Read the text and make notes in the diagram.

Agriculture, like other areas of economy, can be described as a system. It is a system in that it is made up of inputs, processes and outputs. Inputs in agriculture can be either physical or human. Physical inputs are climate, soils and relief. These differ from manufacturing in that here they are largely unpredictable. Human inputs in agriculture include labour, capital, seeds and machines.

Agriculture also contains a number of processes. These processes are activities which turn inputs into outputs. Some of these in farming are the planting of seeds, the harvesting of crops and the feeding of animals. Outputs of agriculture, or the products of the system, can be either for commercial purposes or for subsistence. Subsistence farming is where crops are used for feeding the farmer and family. Some of the products of agriculture include crops, meat and wool.



12 Natural resources

Word	Definition	Example	Translation
algae /ældʒi:/	plants that have no roots, stems, or leaves and grow in water or in other wet places. noun [plural]		
appliance /ə'plaiəns/	a machine or piece of equipment that you have in your home, for example a washing machine or refrigerator. noun [count]	<i>We stock a wide range of kitchen appliances.</i>	
aquifer /'ækwɪfə(r)/	a layer of earth or rock that contains water, or that water can pass through. noun [count]		
arid /'ærid/	very dry with few plants. adjective		
biomass /'baɪəʊ,mæs/	plant and animal substances used for fuel. noun [uncount]		
briquette /brɪ'ket/	a lump of coal dust that has been pressed together, used for example as fuel for barbecues. noun [uncount]		
bulldozer /'bʊldəʊzə(r)/	a heavy vehicle with a large curved open container at the front, used for moving earth and stones, destroying buildings etc, especially in order to make land ready for new building work. noun [count]		
burn /bɜː(r)n/	1 if a fire or flame burns, it produces light and heat. verb [intransitive] 2 if food burns, or if you burn it, it gets spoiled by being cooked for too long or at too high a temperature verb [intransitive/transitive]	<i>Homes were burning all over the village.</i> <i>Have you burnt the toast again?</i>	
by-product /baɪ 'prɒdʌkt/	a product that is made as a result of making another product. noun [count]	<i>the by-products of petroleum refining</i>	
carbon /'kɑː(r)bən/	a chemical element that is found in all living things, and can also exist as diamonds or coal. noun [uncount]		
catchment area /'kætfmənt ,eəriə/	the area of land around a river or lake that it gets its water from. noun [count]		
coal /kəʊl/	a hard black substance that is dug from the ground and burned as fuel to provide heat. noun [uncount]	<i>Put some more coal on the fire.</i>	
cod /kɒd/	a large sea fish that can be eaten. noun [count/uncount]		
commodity /kə'mɒdətɪ/	something that can be bought and sold, especially a basic food product or fuel. noun [uncount]		
conservation /kɒnsə(r)'veɪʃ(ə)n/	the management of land and water in ways that prevent it from being damaged or destroyed. noun [uncount]	<i>a wildlife conservation project</i>	
consume /kən'sjuːm/	to use a supply of something such as time, energy, or fuel. verb [transitive]	<i>The new light bulbs consume less electricity.</i>	
consumer /kən'sjuːmə(r)/	someone who buys and uses goods and services. The expression <i>the consumer</i> is often used for referring to consumers as a group. noun [count]	<i>He has always shown a shrewd understanding of what consumers want.</i>	
consumption /kən'sʌmpf(ə)n/	the use of something such as fuel or energy, or the amount that people use. noun [uncount]	<i>The government is determined to reduce the UK's total energy consumption.</i>	
contribute /kən'trɪbjʊːt/	to give money, goods, or your time and effort in order to achieve something, especially when other people are also helping. verb [intransitive/transitive]	<i>Many local businesses offered to contribute to the school rebuilding fund.</i>	
crude oil /kruːd ɔɪl/	oil in its natural state, before it has been refined for use. noun [uncount]		
cycle /'saɪkl/	a series of events that happen again and again in the same order or at the same times. noun [count]	<i>the cycle of hate and violence in the world</i>	
damage /'dæmɪdʒ/	physical harm caused to something so that it is broken, spoiled, or injured. noun [uncount]		

Word	Definition	Example	Translation
decrease /di:'kri:s/	to become less. verb [intransitive]	<i>The number of people visiting the park has decreased significantly.</i>	
deplete /di'pli:t/	to reduce the amount of something or the number of things. verb [transitive]	<i>Wars in the region have depleted the country's food supplies.</i>	
depletion /di'pli:f(ə)n/	a reduction in the amount of something or the number of things. noun [uncount]	<i>the depletion of forests in Uganda</i>	
depth /depθ/	the distance from the top to the bottom of something, for example the sea, a river, or a hole. noun [count/uncount]	<i>What's the depth of the water here?</i>	
destroy /di'stri:ɔ:/	to damage something so severely that it no longer exists or can never return to its normal state. verb [transitive]	<i>Half the world's rainforests have already been destroyed.</i>	
develop /di'veləp/	if people, animals, or plants develop, they change or grow as they get older. verb [intransitive]	<i>All children develop at different rates.</i>	
disaster /di'zɑ:stə(r)/	something very bad that happens and causes a lot of damage or kills a lot of people. noun [count/uncount]	<i>A series of disasters forced the company to close down.</i>	
discovery /di'skʌv(ə)ri/	the process of learning something that was not known before, or of finding someone or something that was missing or hidden. noun [count/uncount]	<i>The award recognizes distinction in exploration, discovery, and research.</i>	
distribution /ˌdɪstrɪ'bju:ʃ(ə)n/	the way in which something is shared among people or spread over an area. noun [uncount]	<i>Brazil has a very unequal distribution of wealth.</i>	
ditcher /'dɪtʃ(ə)r/	a special machine with very wide tracks, used for digging drains across a peat bog. noun [count]		
diversify /daɪ'vɜ:(r)si,faɪ/	to develop additional products or activities. verb [intransitive/transitive]		
domestic /də'mestɪk/	1 relating to a particular country. adjective 2 relating to people's homes and family life. adjective	<i>domestic politics</i> <i>domestic appliances</i>	
drift net /'drɪft .net/	a very large net for catching fish that hangs upright in the sea. noun [count]		
drill /drɪl/	to make a hole using a drill. verb [intransitive/transitive]		
echo-sounder /'ekəʊ ,saʊnd(ə)r/	an instrument used to detect objects underwater by the use of reflected sound waves. They are used by fishing boats to detect shoals of fish. noun [count]		
efficient /'ɪfɪʃ(ə)nt/	something that is efficient works well and produces good results by using the available time, money, supplies etc in the most effective way. adjective	<i>The new machine is far more efficient than the old one.</i>	
electricity /ɪ,lek'trɪsəti/	a form of energy that can produce light, heat, and power for machines, computers, televisions etc. noun [uncount]	<i>The machines run on electricity.</i>	
energy /'enə(r)dʒi/	electricity and other forms of power used for making things work. noun [uncount]		
environment /ɪn'vaɪrənmənt/	the place in which people live and work, including all the physical conditions that affect them. noun [count]	<i>We need to create a safe working environment for all employees.</i>	
environmental /ɪn,vaɪrənmənt(ə)/	relating to the natural world and the effect that human activity has on it. adjective	<i>The Minister discussed environmental issues.</i>	
evaporation /ɪ,væpə'reɪf(ə)n/	a process in which a liquid becomes a vapour without being boiled. noun [uncount]		
evidence /'eɪd(ə)ns/	facts or physical signs that help to prove something. noun [uncount]	<i>Evidence shows that global warming is definitely occurring.</i>	
expensive /ɪk'spensɪv/	something that is expensive costs a lot of money. adjective	<i>He always wears expensive clothes.</i>	
exploit /ɪk'splɔɪt/	to treat someone unfairly in order to get some benefit for yourself. verb [transitive]	<i>Children are being exploited in many of these factories.</i>	
exploitation /ˌeksplɔɪ'teɪʃ(ə)n/	the process of making use of something so that you gain as much as possible from it. noun [count]	<i>commercial/economic/industrial exploitation</i>	
exploration /ˌeksplə'reɪʃ(ə)n/	a journey to a place to learn about it or to search for something valuable such as oil. noun [count/uncount]	<i>the future of space exploration</i>	
explore /ɪk'splɔ:(r)/	to travel around an area in order to learn about it, or in order to search for something valuable such as oil. verb [intransitive/transitive]		

Word	Definition	Example	Translation
extract /ɪk'strækt/	to remove something from a particular place. verb [transitive]		
extractive industry /ɪk'stræktɪv 'ɪndəstri/	an industry that removes non-renewable resources from the Earth. noun [count]		
factory ship /'fæktri ʃɪp/	a large fishing boat that carries equipment to process and freeze fish that are caught. noun [count]		
finite /'faɪnɪt/	existing only in limited numbers or amounts, or continuing only for a limited time or distance. adjective	<i>The world's finite resources must be used wisely.</i>	
fishing fleet /'fɪʃɪŋ ,fli:t/	all the boats used for fishing from one port, area, or country, or for a particular type of fish. noun [count]	<i>Spain has Europe's largest fishing fleet.</i>	
fishmeal /'fɪʃ,mɪ:l/	a powder of dried fish that you use to feed animals or to fertilize the soil to help plants to grow. noun [uncount]		
fish quotas /'fɪʃ ,kwɒtəs/	the amount of fish that countries are allowed to catch in a year. noun [count]	<i>The UK fishing fleet is likely to reach its annual quota after only six months.</i>	
fish stocks /'fɪʃ ,stɒks/	the total amount of fish that is available for countries to use. noun [count]	<i>Time is vital if fish stocks are to recover.</i>	
gas /gæs/	a gas that is burned as a fuel, for example to heat a house or cook food. noun [uncount]	<i>Can you smell gas?</i>	
gas guzzler /'gæs ,gʌzələ(r)/	a car that is expensive to drive because it uses too much petrol. noun [uncount]		
generate /'dʒenəreɪt/	to produce power. verb [transitive]	<i>75% of France's electricity is generated by nuclear reactors.</i>	
geothermal /'dʒi:əu'θɜ:m(ə)l/	relating to the heat at the centre of the Earth. adjective	<i>geothermal energy</i>	
grader /'greɪdə(r)/	a machine used for levelling the surface of a peat bog to make harvesting easier. noun [count]		
harm /'hɑ:(r)m/	injury, damage, or problems caused by something that you do. noun [count]	<i>projects that lead to environmental harm</i>	
harrow /'hærəʊ/	a piece of farm equipment used for breaking large lumps of soil into smaller pieces before planting crops. noun [count]		
harvest /'hɑ:(r)vɪst/	to collect a crop from the fields. verb [intransitive/transitive]		
haul /'hɔ:l/	to pull or carry something that is heavy from one place to another with a lot of effort. verb [transitive]		
hydrocarbon /'haɪdrəu'kɑ:(r)bən/	a chemical substance that contains only hydrogen and carbon, for example methane. noun [count]		
hydroelectric /'haɪdrəu'ɪlektɪk/	using water power to produce electricity. adjective	<i>a hydroelectric power station</i>	
impact /'ɪmpækt/	an effect, or an influence. noun [count]	<i>Her paper discusses the likely impact of global warming on climate change.</i>	
infinite /'ɪnfɪnət/	very great, and seeming to have no limit. adjective	<i>The possibilities are infinite.</i>	
intervention /'ɪntə(r)'venʃ(ə)n/	a situation in which someone becomes involved in a particular issue, problem etc in order to influence what happens. noun [count/uncount]	<i>We do not need further government intervention.</i>	
laborious /'ləʊəriəs/	a laborious job or process is long, difficult, and often boring. adjective	<i>We eventually began the laborious task of sorting through his papers.</i>	
locate /'ləʊ'keɪt/	to find out the exact place where someone or something is. verb [transitive]	<i>Engineers are still trying to locate the fault.</i>	
location /'ləʊ'keɪʃ(ə)n/	the place or position where someone or something is or where something happens. noun [count]	<i>We have not found a suitable location for the new offices.</i>	
maintain /'meɪn'teɪn/	to make something stay the same. verb [transitive]	<i>Regular inspections ensure that high safety standards are maintained.</i>	
manufacturing /'mænʃə'fæktʃərɪŋ/	the business of making goods in large quantities in a factory. noun [uncount]		

Word	Definition	Example	Translation
method /'meθəd/	a way of doing something, especially a planned or established way. noun [count/uncount]	<i>It was a handmade rug produced by traditional methods.</i>	
miller /'mɪlə(r)/	a machine used to harvest peat. noun [count]		
mining /'maɪnɪŋ/	the process of getting coal or metal from under the ground. noun [uncount]	<i>Mining is one of the country's main industries.</i>	
monofilament /'mɒnə'fɪləmənt/	a single strand of a synthetic fibre such as nylon, often used for fishing lines and nets. noun [count]		
motorized /'məʊtəraɪzd/	fitted with an engine, often as an extra benefit. adjective	<i>a motorized wheelchair</i>	
multinational /,mʌlti'næʃ(ə)nəl/	involving people from many different countries, especially soldiers. adjective	<i>a multinational peacekeeping force</i>	
natural /'nætʃ(ə)rəl/	existing in nature and not produced or caused by people. adjective	<i>This cloth is made from natural fibres.</i>	
non-finite /,nɒn'faɪnaɪt/	see: infinite		
non-renewable /,nɒn rɪ'nju:əb(ə)l/	non-renewable types of energy exist in limited amounts, and when these are all used there will be none left. adjective	<i>We continue to consume vast quantities of non-renewable fossil fuels.</i>	
nuclear /'nju:kliə(r)/	relating to energy produced by changing the structure of the central part of an atom. adjective	<i>nuclear power/energy</i> <i>a nuclear power plant</i>	
oil /ɔɪl/	a thick dark smooth liquid from under the ground, used for making petrol and other fuels. noun [uncount]	<i>The Middle Eastern countries produce most of the world's oil.</i>	
oilfield /ɔɪl'fi:ld/	an area where there is oil under the land or under the bottom of the sea. noun [count]		
oil rig /ɔɪl ,rɪɡ/	a tall structure fitted with equipment for getting oil or gas out of the ground or from under the bottom of the sea. noun [count]		
oil spill (spillage) /ɔɪl ,spɪl/	1 the act of spilling oil, usually from an oil tanker. noun [uncount] 2 an amount of oil that has been spilled (=accidentally poured out of its container). noun [count/uncount]		
oil tanker /ɔɪl ,tæŋkə(r)/	a large ship that carries oil. noun [count]		
overfishing /əʊvə(r)'fɪʃɪŋ/	fishing that damages a river or an area of sea because too many fish are caught. noun [uncount]		
overuse /əʊvə(r)'ju:z/	to use something so much that it is no longer effective. verb [transitive]		
peat bog /'pi:t ,bɒɡ/	a peatland which receives water only from rain and/or snow falling on its surface. noun [count]		
peatlands /'pi:t,lænds/	areas with a naturally accumulated peat layer at the surface. noun [count]		
petroleum /'pə'traʊliəm/	oil found under the ground or under the bottom of the sea and used for making petrol for cars and chemical products. noun [uncount]		
pipe /paɪp/	to send liquid or gas through a pipe from one place to another. verb [transitive]		
pipeline /'paɪp,lain/	a long underground pipe that carries water, gas etc from one place to another. noun [count]	<i>a 500-kilometre oil pipeline</i>	
poach /pəʊtʃ/	to illegally catch or kill an animal or fish on someone else's property. verb [intransitive/transitive]		
pollute /'pɒ'lju:t/	to make air, water, or land too dirty and dangerous for people to use in a safe way. verb [transitive]	<i>The oil spillage has polluted the harbour.</i>	
pollution /'pɒ'lju:ʃ(ə)n/	the process of damaging the air, water, or land with chemicals or other substances. noun [uncount]	<i>the pollution of local rivers</i>	
power /'paʊə(r)/	energy obtained from oil, coal, the sun etc, used for operating equipment and machines. noun [uncount]	<i>solar power</i>	
power station /'paʊə(r) ,steɪʃ(ə)n/	a large building that contains machines which produce power, especially electricity. noun [count]		

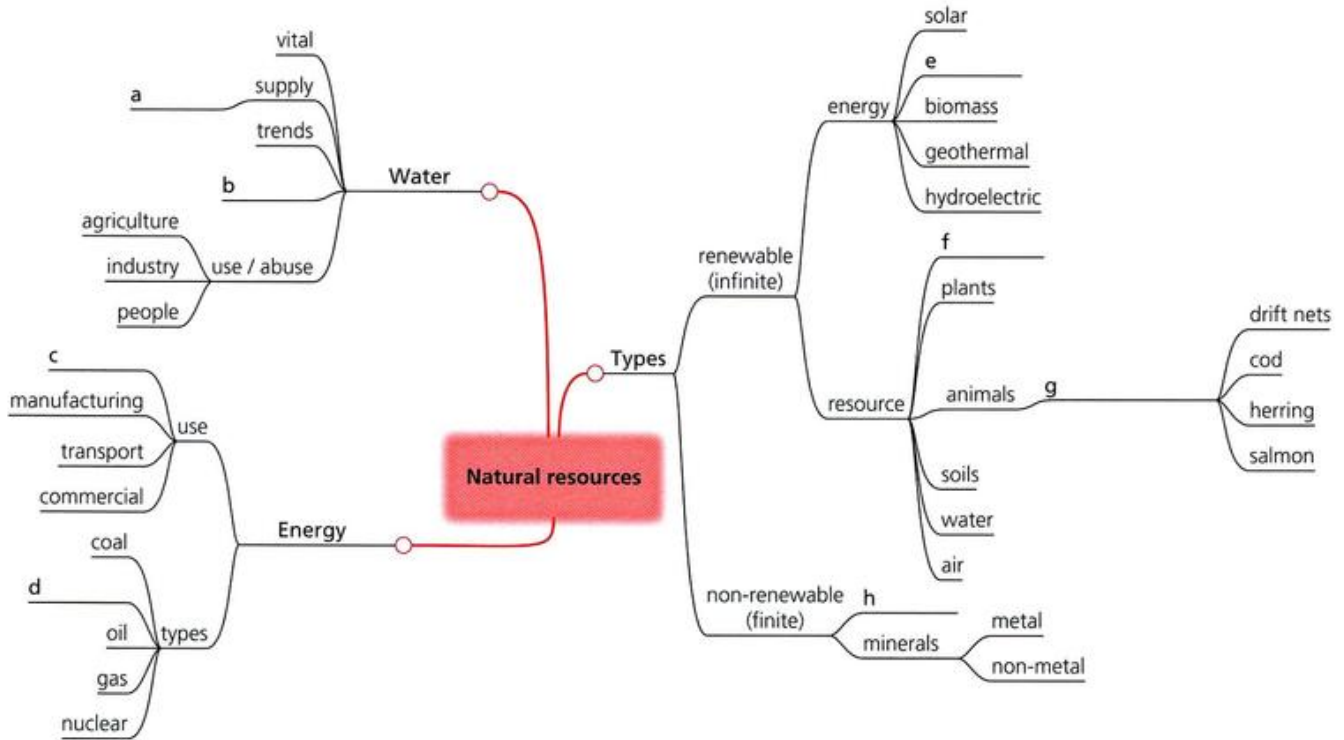
Word	Definition	Example	Translation
pumping station /ˈpʌmpɪŋ ˌsteɪʃ(ə)n/	a building containing machinery used to pump water out of the ground. noun [count]		
purification /ˌpjuːərɪfɪˈkeɪʃ(ə)n/	making something clean by removing dirty or harmful substances from it. noun [uncount]		
renew /rɪˈnjuː/	to arrange for something to continue for a longer period of time. verb [transitive]	<i>to renew a licence/passport/lease</i>	
renewable /rɪˈnjuːəb(ə)l/	a renewable contract, agreement etc can be continued for a longer period of time. adjective	<i>It's a three-year contract, renewable for a further 12 months.</i>	
reserve /rɪˈzɜː(r)v/	a supply of something that a country, an organization, or person can use. noun [count]	<i>Norway's oil reserves</i>	
reservoir /ˈrezəˌvɔː/	a lake, often an artificial one where water is stored so that it can be supplied to houses, factories etc. noun [count]		
resources /rɪˈzɜː(r)sɪz/	things such as coal, trees, and oil that exist in nature and can be used by people. noun [plural]	<i>Many of these countries are rich in timber and mineral resources.</i>	
ridger /rɪdʒə(r)/	a machine used to gather dry milled peat into ridges. noun [count]		
river basin /rɪvə ˌbeɪsn/	a large area of land whose surface water all flows into a particular river or lake. noun [count]		
scarce /skeəs/	if something is scarce, there is not very much of it. adjective	<i>Fresh water and medicines were scarce in the disaster area.</i>	
slean /sliːn/	a special type of shovel used in the past to cut peat. noun [count]		
solar energy /ˌsəʊlə ˈenədʒi/	energy that uses the radiation of the Sun's light and heat. noun [uncount]		
sonar /ˈsəʊnɑː(r)/	a piece of equipment on a ship that measures the depth of water and shows the position of objects under the water. noun [uncount]		
source /sɔː(r)s/	a person, place, or thing that provides something that you need or want. noun [count]	<i>a light/power/energy source</i>	
supertanker /ˈsuːpəˌtæŋkə(r)/	a very large ship used for carrying oil or other liquids. noun [count]		
supply /səˈplaɪ/	an amount or quantity of something that is available to use. noun [count]	<i>A limited oil supply has made gas prices rise.</i>	
trawler /ˈtrɔːlə(r)/	a boat used for fishing that pulls a large net through the water. noun [count]		
trend /trend/	a gradual change or development that produces a particular result. noun [count]	<i>We've seen a trend towards more violent films this year.</i>	
unexploited /ˌʌnɪksˈplɔɪtəd/	undeveloped or unused. adjective	<i>unexploited natural resources</i>	
unrefined /ˌʌnrɪˈfaɪnd/	unrefined products such as sugar and oil have not been changed from their natural state. adjective		
vapour /ˈveɪpə(r)/	very small drops of water or other liquids in the air that make the air feel wet. noun [count/uncount]		
water table /ˈwɔːtə(r) ˌteɪbl/	the level below the Earth's surface where water is found. noun [count]		
water tower /ˈwɔːtə(r) ˌtaʊə(r)/	a tower used for storing and supplying water in a particular area. noun [count]		
well /wel/	a deep hole that is dug in the ground where there is a supply of water, oil, or gas. noun [count]		
winch /wɪntʃ/	a piece of equipment that uses a rope or chain for lifting or pulling things or people. noun [count]		
wind turbine /ˈwɪnd ˌtɜːbaɪn/	a large machine like a windmill used for producing electricity from the wind. noun [count]		

A Working with words

1 Natural resources word map

Write these words in the correct place on the word map.

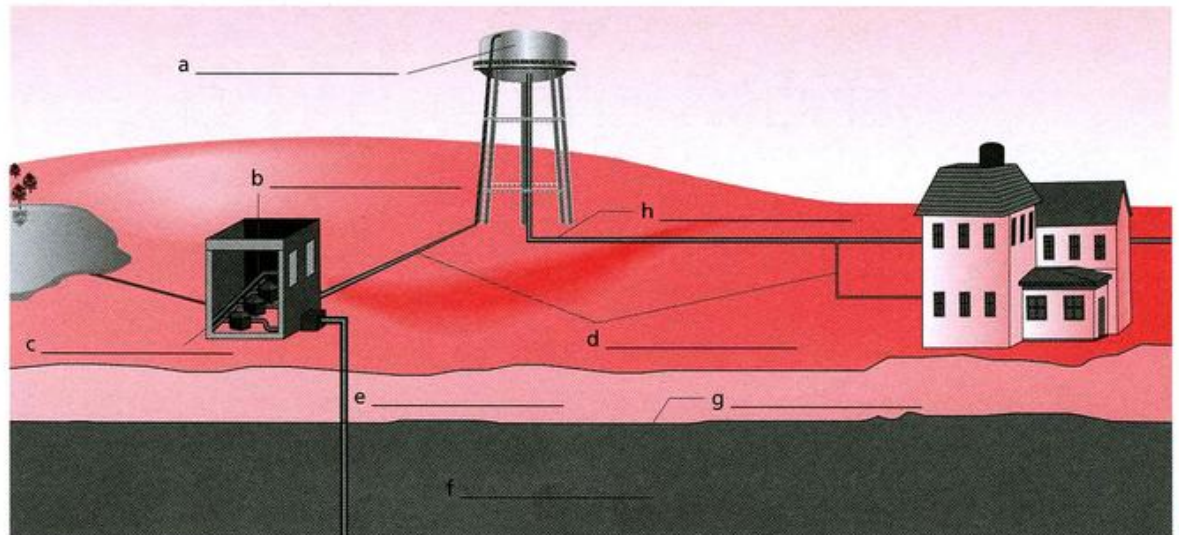
cycle domestic fossil fuels land overfishing peat purification tidal



2 Water supply

Label the picture with these words.

pumping station distribution to tower and town well / borehole water tower or reservoir
aquifer water table chemical purification flows to homes and factories



3 Importance of water

Read the text. Some of the sentences contain incorrect words. These are underlined. Replace them with one of these words.

available cycle hydroelectric maintain renewable supplies surface tidal vital

Water is a energetic natural resource. It is needed to identify human and animal life and to grow food. Because it can be used over and over again it is called a unexploited resource. Nature constantly renews the Earth's water supply by a process called the water stocks. The Earth has a tremendous amount of water and almost all of it, 97%, is salt water. Only about three per cent of the water on Earth is fresh water – and most of it is not easily motorized to people. About two per cent of this fresh water is locked in glaciers and ice caps. About half of one per cent of this water is beneath the Earth's location. Rivers and lakes contain only about one-fiftieth of one per cent of the Earth's water.

All living things consist mostly of water. Your body is about 65% water. Local county councils and city corporations provide water effects to homes, shops and industry. Each of these locations needs water for many necessary activities. We also get energy from water in the form of global energy from the sea and some rivers and chemical energy from large rivers with dams.

energetic > _____

identify > _____

unexploited > _____

stocks > _____

motorized > _____

location > _____

effects > _____

global > _____

chemical > _____

B Working with sentences

4 Depletion of fish stocks

Match the beginnings and endings of the sentences.

Beginnings

- 1 Fish is a renewable resource, but overfishing
- 2 Improved technology
- 3 Huge fishing trawlers, with factory ships and transport ships,
- 4 Equipment used to catch large amounts of fish
- 5 Much of the catch is wastefully
- 6 All this has led to serious
- 7 Conservation methods are being employed
- 8 Large areas of seas have been closed
- 9 Fishery protection vessels work

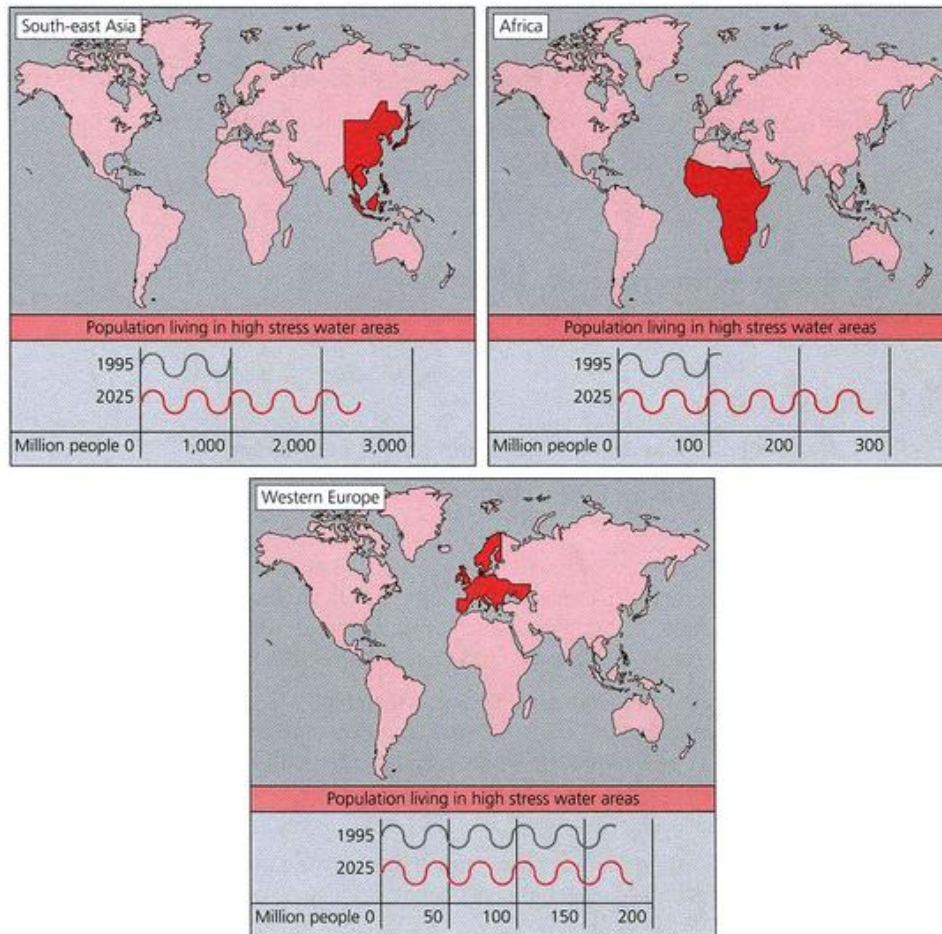
Endings

- a overfishing and depletion of fish stocks.
- b has made fishing fleets over-efficient.
- c in an effort to allow cod stocks to recover.
- d includes sonar, motorized winches and big nets.
- e to prevent poaching.
- f and fish quotas have been reduced.
- g capture vast fish catches.
- h can lead to the depletion of fish stocks.
- i made into fishmeal or fertilizers.

1 2 3 4 5 6 7 8 9

5 Water trends

Look at the pictures and decide which sentences are true and which are false.



- 1 The area which is likely to have the greatest increase in water demand in 2025 is Western Europe.
- 2 South-east Asia is expected to have a population increase of over 200% by 2025.
- 3 Africa is predicted to have a population increase of nearly 200% by 2025.
- 4 Africa may find it most difficult to cope with extra demand because of the already great demands on water resources and the lack of adequate water distribution infrastructure.
- 5 South-east Asia will have over twice as much pressure from population growth on water supplies by 2025.
- 6 South-east Asia will have approximately an extra 2 billion people to supply with water by 2025.
- 7 Although Western Europe is a high stress water region, it will only see a small population increase and has a well-developed infrastructure to cope with extra demand.

6 Renewable and non-renewable energy

Read each sentence. Some are correct, but some have a word which should not be there. Tick (✓) each correct sentence. If a sentence has a word which should not be there, write it next to the sentence.

- 1 Some of the energy we use is renewable and some is non-renewable. _____
- 2 Renewable energy can be used open repeatedly without being used up. _____
- 3 Wind energy can be cleanly captured with huge turbines on wind farms on land or on water. _____
- 4 Tidal energy is collected from the wave movements in the sea and some river estuaries. _____
- 5 Hydroelectric power is produced by capturing the energy created by outward falling water. _____
- 6 Solar power comes from the energy from the rays of the sun. _____

- 7 All of these are examples of renewable or non-finite energy. _____
- 8 Some sources of energy are non-renewable or finite. _____
- 9 These are fuels that must be burned in order to release their energy and once burnt through, they cannot be used again. _____
- 10 Finite resources include oil, gas, coal, olive, and peat and they will eventually be used up. _____
- 11 Much of our energy now comes in the form of electricity and is called a secondary source of energy, because it is generated from original fuel sources. _____

C Working with texts

7 Overfishing

Read the text and make notes on the problem of overfishing.

The overall problem with the fishing industries of rich countries is that they have become too efficient in catching fish and too wasteful in their use. The causes and effects of this are given below.

The most important factor is the improvement of fishing technology. In fishing fleets today, some trawlers are as tall as a seven-storey building and as long as a football field. These 'super-trawlers' often travel together in huge fleets. The fleets include factory ships, which process the fish while at sea, and refrigerated transport ships, which carry the processed fish to the markets. This system allows trawlers to fish without pause for months on end.

Secondly, also important is the improvement in equipment. Modern boats are so well equipped that it is very difficult for fish to escape them. They use echo-sounders and sonar equipment to locate fish and powerful motorized winches to haul huge catches on board. Some boats in the Pacific have been known to use almost invisible monofilament nets of more than 40 km long. These 'walls of death' have killed dolphins, seals and even sea birds, as well as fish.

Thirdly, modern processing methods allow much of the world's fish catches to be converted into fishmeal, which is used widely as animal feed. Fish has also been wastefully converted into fertilizer and nutritious fish oil has even been used to make paint!

Overfishing, in short, has come from improved technology which has led to ever-increasing fish catches. As a result, many sea areas are now seriously overfished and suffering from stock depletion. In northern European waters, for example, a fish is now 20 times less likely to reach adulthood than was the case 60 years ago.

A Introduction	1
B Improved technology	Fleets
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	Equipment
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C Overfishing	11
D Depletion	12

Oil: for and against

Read the text and sort the arguments for and against oil into the correct column.

Oil is the world's most popular source of energy and is the world's most important trading commodity. Petrol has many advantages as a fuel. There is a plentiful supply of oil with enough to last for another fifty to a hundred years. Having said that, oil is a finite source of energy. This means that there is only a certain amount of it in the ground to extract. Many people predict that, unless energy is conserved or much more oil is discovered, the present world's oil supply could be used up by the end of the 21st century. It is a relatively clean fuel to burn. It gives off few fumes or smoke and so to a certain extent may be considered environment-friendly.

There have, however, been numerous infamous occasions of catastrophic oil spills from damaged ships at sea which create great environmental pollution. As a result coastal wildlife, such as seagulls, are killed and beaches are damaged. It is an efficient fuel which gives off great heat when burnt. It is easy to handle and transport. Huge oil tankers can transport millions of litres at a time. It is easily stored in domestic tanks and is piped directly to domestic burners in people's homes. Numerous by-products such as synthetic fabrics, paint, dyes and other chemicals are manufactured from oil.

For	Against

13 Secondary economic activity

Word	Definition	Example	Translation
advance /əd'vɑ:ns/	progress or an instance of progress in science, technology, human knowledge etc. noun [count/uncount]	<i>In spite of all its advances, medical science still knows little about the brain.</i>	
assemble /ə'sembl/	to build something, for example furniture, by putting all its parts together. verb [transitive]		
attract /ə'trækt/	to make someone interested in something so that they do it or come to see or hear it. verb [transitive]	<i>The show attracts viewers from all walks of life.</i>	
automated /'ɔ:tə,meɪtɪd/	using machines or done by machines, instead of people. adjective	<i>a fully automated assembly line</i>	
benefit /'benɪfɪt/	an advantage you get from a situation. noun [count/uncount]	<i>Consider the potential benefits of the deal for the company.</i>	
blast furnace /'blɑ:st fɜ:nɪs/	a furnace in which combustion is intensified by a blast of air, used for the production of steel. noun [count]		
brand /brænd/	a product or group of products that has its own name and is made by one particular company. The word for a machine or vehicle made by one particular company is a <i>make</i> . noun [count]	<i>We stock all leading brands.</i>	
breadwinner /'bred,wɪnə(r)/	the person who earns the money to support a family. noun [count]		
bulk carrier /'bʌlk ,kæriə(r)/	a ship that carries large amounts of a product. noun [count]		
bulky /'bʌlki/	too big to be carried or stored easily. adjective	<i>The TV was too bulky to fit into the boot of her car.</i>	
burden /'bɜ:(r)d(ə)n/	a serious or difficult responsibility that you have to deal with. noun [count]	<i>Unemployment places a heavy burden on the welfare state.</i>	
cable /'keɪbl/	thick wire used for carrying electricity or electronic signals. noun [count/uncount]		
cancel /'kæns(ə)l/	to say that a legal agreement or obligation is now ended. verb [transitive]	<i>There has been a call for Third World debt to be cancelled.</i>	
capable /'keɪpəb(ə)l/	very good at doing a job. adjective	<i>The staff all seem very capable.</i>	
capital /'kæpɪt(ə)l/	money or property that someone invests or uses to start a business. noun [uncount]		
capitalism /'kæpɪt(ə)lɪzəm/	an economic system in which property and businesses are owned by individual people, not by the government. noun [uncount]		
career /'kæriə(r)/	a job or series of related jobs that you do, especially a profession that you spend a lot of your working life in. noun [count]	<i>Choosing a career can be a very difficult decision.</i>	
cargo /'kɑ:(r)gəʊ/	things that are being sent by ship, plane, train, or truck. noun [count/uncount]	<i>The ship and all its cargo sank.</i>	
cement /sə'ment/	a grey powder used in building that becomes very hard when you mix it with sand and water. noun [uncount]		
charcoal /'tʃɑ:(r),kəʊl/	a black substance made from burnt wood, used as a fuel, especially for cooking food outside. You can also use sticks of charcoal for drawing. noun [uncount]		
closure /'kləʊʒə(r)/	the process of making a business or institution stop operating permanently. noun [count/uncount]	<i>an increase in hospital closures</i>	
clothing /'kləʊðɪŋ/	clothes. noun [uncount]	<i>a piece of clothing</i>	
coalfield /'kəʊl,fi:ld/	an area where there are layers of coal under the ground that are suitable for mining. noun [count]		

Word	Definition	Example	Translation
collapse /kə'leɪps/	to suddenly fail or stop existing. verb [intransitive]	<i>The country's economy is collapsing.</i>	
communications /kə'mju:nɪkeɪʃ(ə)nz/	a system for sending information. noun [plural]	<i>satellite communications</i>	
communism /'kɒmjʊ,nɪz(ə)m/	a political and economic system in which individual people cannot own property or industries and in which people of all social classes are treated equally. noun [uncount]	<i>The period of communism is over in Eastern Europe.</i>	
company /'kʌmp(ə)ni/	an organization that provides services, or that makes or sells goods for money. noun [count]	<i>Max works for a large oil company.</i>	
compete /kəm'pi:t/	to try to be more successful than other companies or people in business. verb [intransitive]	<i>We have to compete in a commercial environment.</i>	
component /kəm'pəʊnənt/	one of the different parts that a machine or piece of equipment consists of. noun [count]	<i>car components</i>	
computer assembly /kəm'pjʊ:tər ə'sembli/	the process of building computers by putting all their parts together. noun [uncount]		
concrete /'kɒŋkri:t/	1 a hard substance used in building by mixing cement, sand, small stones, and water. noun [uncount] 2 based on facts and information. adjective	<i>ugly concrete tower blocks</i> <i>Do you have any concrete evidence to support these allegations?</i>	
conditions /kən'dɪʃ(ə)nz/	the situation or environment in which something happens or exists. noun [plural]	<i>Demand will remain low unless there is a change in economic conditions.</i>	
construction industry /kən'strʌkʃn ɪndəstri/	the trade of building something large or complicated such as a bridge or road, and the people who work in it. noun [uncount]		
contract /'kɒntrækt/	a written legal agreement between two people or businesses that says what each must do for the other or give to the other. noun [count]	<i>After six months she was offered a contract of employment.</i>	
convenient /kən'vi:niənt/	easy to do, or not causing problems or difficulties. adjective	<i>If it's convenient, call me tomorrow before noon.</i>	
cost /kɒst/	the amount of money that is needed in order to buy, pay for, or do something. noun [uncount]	<i>A rise in interest rates will increase the cost of borrowing.</i>	
cotton /'kɒt(ə)n/	cloth made from the white fibres of a plant called a cotton plant. noun [uncount]		
co-worker /'kəʊ,wɜ:kə(r)/	someone who works with you, especially someone with a similar position or status in an organization. noun [count]		
decline /dɪ'klaɪn/	to become less or worse. verb [intransitive]	<i>The number of people buying their own homes has declined.</i>	
dependent on /dɪ'pendənt ɒn/	if one thing is dependent on another, it is affected by the other thing and changes if the other thing changes. adjective	<i>Your pay is dependent on your work experience.</i>	
direction /dɪ'rekʃ(ə)n/	the general development or progress of someone or something. noun [count/uncount]	<i>He was determined to change the direction of the business.</i>	
dismiss /dɪ'smɪs/	to force someone to leave their job. verb [transitive]	<i>Edwards claimed that he had been unfairly dismissed from his post.</i>	
distributed /dɪ'strɪbjʊtɪd/	spread or shared in a particular way. adjective	<i>randomly distributed data</i>	
dominate /'dɒmɪ,neɪt/	to control something or someone, often in a negative way, because you have more power or influence. verb [transitive]	<i>She tends to dominate the conversation.</i>	
earnings /'ɜ:nɪŋz/	1 the amount of money that someone earns. noun [plural] 2 the profit made by a company. noun [plural]		
economic /i:kə'nɒmɪk/	relating to the economy of a particular country or region. adjective	<i>Economic growth is slowing down.</i>	
economical /i:kə'nɒmɪk(ə)l/	not costing or spending much money. adjective	<i>It would be more economical to switch the machine off at night.</i>	
education /edʒʊ'keɪʃ(ə)n/	the activity of educating people in schools, colleges, and universities, and all the policies and arrangements concerning this. noun [uncount]	<i>Education is a major concern for voters.</i>	

Word	Definition	Example	Translation
efficient /ɪfɪj(ə)nt/	something that is efficient works well and produces good results by using the available time, money, supplies etc in the most effective way. adjective	<i>The new machine is far more efficient than the old one.</i>	
electronics /ˌelɛk'trɒnɪks/	the science and technology that uses or produces electronic equipment. noun [uncount]	<i>the electronics industry</i>	
emergent (or emerging) /ɪ'mɜ:(r)ʒ(ə)nt/	just beginning to exist or be noticed. adjective	<i>an emerging consensus that global warming is a reality</i>	
engineering /ˌendʒɪ'nɪərɪŋ/	the activity of designing things such as roads, railways, bridges, or machines. noun [uncount]		
enterprise /ˈentə(r)praɪz/	a large or important project, especially one that is new or different. noun [count]	<i>They are involved in an exciting scientific enterprise.</i>	
entrepreneur /ˌɒntrəprəʊ'nɜ:(r)/	someone who uses money to start businesses and make business deals. noun [count]		
equipment /ɪ'kwɪpmənt/	the tools, machines, or other things that you need for a particular job or activity. noun [uncount]	<i>camping/lifting/safety equipment</i>	
establish /ɪ'stæblɪʃ/	to make something start to exist or start to happen. verb [transitive]	<i>A proper procedure for complaints should be established.</i>	
ferrous /'ferəs/	containing or connected with iron. adjective		
finance /'fʌnəns/	money that is used to pay for something such as a large project. noun [uncount]	<i>Where will the finance for this project come from?</i>	
flexible /'fleksəb(ə)l/	able to make changes or deal with a situation that is changing. adjective	<i>A more flexible approach to childcare arrangements is needed.</i>	
footloose /'fʊt,lʊ:s/	if an industry is footloose, it can be situated in a wide variety of locations. adjective		
free market /fri: 'mɑ:(r)kɪt/	an economic system in which things such as prices and pay are set as a result of competition between different businesses and are not controlled by a government. noun [count]		
fulfilled /fʊl'fɪld/	happy and satisfied, especially because you are doing something important or using your abilities. adjective		
full-time /fʊl taɪm/	done for the number of hours that people normally work in a complete week. adjective	<i>It is hard to combine study with a full-time job.</i>	
fumes /fju:mz/	smoke or gas that has an unpleasant smell, especially harmful smoke or gas. noun [uncount]	<i>Traffic fumes raised pollution to record levels yesterday.</i>	
function /'fʌŋkʃ(ə)n/	the job that something is designed to do. noun [count/uncount]	<i>The function of advertising is to create a unique image for your company.</i>	
fund /fʌnd/	an amount of money that you collect, save, or invest. noun [count]	<i>a fund to buy instruments for young musicians</i>	
furnace /'fɜ:(r)nɪs/	a large enclosed container in which you burn fuel, used for heating a building or for an industrial process such as making metal liquid. noun [count]		
goods /gʊdz/	objects produced for sale. noun [plural]	<i>a shop specializing in leather goods</i>	
grant /gra:nt/	an amount of money that the government or an organization gives someone for a specific purpose. noun [count]	<i>a research grant</i>	
hazardous /'hæzə(r)dəs/	dangerous, especially to people's health or safety. adjective	<i>hazardous driving conditions</i>	
heavy industry /'hevi 'ɪndəstri/	industry that uses large heavy machines to produce materials such as coal or steel or large objects such as cars or ships. noun [uncount]		
high tech /ˌhaɪ 'tek/	using the most modern or advanced technology available. adjective	<i>high tech computer companies</i>	
income /'ɪnkʌm/	money that someone gets from working or from investing money. noun [count/uncount]	<i>Most of the villagers rely on farming for income.</i>	

Word	Definition	Example	Translation
industrial revolution /ɪn,dʌstriəl revə'lju:ʃ(ə)n/	the period in the 18th and 19th centuries in Europe and the US when machines began to be used for producing goods and many new industries developed.		
industrialized /ɪn'dʌstriəlaɪzd/	an industrialized country or society has a lot of industry. adjective		
industrialist /ɪn'dʌstriəlɪst/	someone who owns or manages a large and important industrial company. noun [count]		
influence /ɪnfluəns/	the effect that a person or thing has on someone or something. noun [count/uncount]	<i>He couldn't hope to exert any real influence in the new department.</i>	
input /ɪnpʊt/	something is needed for farming or industrial production to operate effectively, for example soil, rain, machines, or labour. noun [count]		
institute /ɪn'stɪtju:t/	an organization that does a particular type of research or educational work. noun [count]	<i>the Institute of Cancer Research</i>	
instrument /ɪn'strʊmənt/	a tool or piece of equipment used in science, medicine, or technology. noun [count]	<i>scientific instruments such as microscopes</i>	
integrated steelworks /ɪntɪ'greɪtɪd 'sti:l,wɜ:ks/	a steel mill that carries out all stages of the steel-making process. noun [plural]		
invest /ɪn'vest/	to use your money with the aim of making a profit from it, for example by buying property or buying shares in a company. verb [transitive]	<i>How much do you have to invest?</i>	
investment /ɪn'ves(t)mənt/	money used in a way that may earn you more money, for example money used for buying property or shares in a company. noun [count/uncount]	<i>Her investments were mainly in technology stocks.</i>	
iron /aɪə(r)n/	a chemical element that is a hard heavy metal used especially for making steel. noun [uncount]		
ironworks /aɪə(r)n,wɜ:(r)ks/	a factory that produces iron from iron ore, or that makes things from iron. noun [count]		
laboratory /lə'bɒrət(ə)ri/	a building or large room where people do scientific and medical experiments or research. noun [count]	<i>our new research laboratory</i>	
labour /leɪbə(r)/	the workers in a particular country, industry, or company considered as a group. noun [uncount]	<i>the declining demand for labour in agriculture</i>	
lease /li:s/	a legal contract in which you agree to pay to use someone else's building, land, or equipment for a specific period of time. noun [count]		
light industry /laɪt ɪndəstri/	industry in which small goods are produced, for example things that you use in the house. noun [uncount]		
limited company /lɪmɪtɪd ˌkʌmp(ə)ni/	a company whose owners are legally responsible for only a limited amount of its debts. noun [count]		
loan /ləʊn/	an amount of money that a person, business, or country borrows, especially from a bank. noun [count]	<i>an interest-free loan</i>	
local /'ləʊk(ə)l/	in or related to the area that you live in, or to the particular area that you are talking about. adjective	<i>Ask for the book in your local library.</i>	
locality /ləʊ'kæləti/	a particular area or district. noun [count]	<i>She needs a job in the locality.</i>	
management /'mænɪdʒmənt/	the control and operation of a business or organization. noun [uncount]	<i>In this company we have a new approach to management.</i>	
managerial /ˌmænə'dʒɪəriəl/	relating to the job of a manager, especially in a company. adjective	<i>Nick has some managerial experience.</i>	
manual /'mænjʊəl/	involving the use of your hands. adjective		
manufacture /ˌmænju'fæktʃ(ə)r/	1 to make goods in large quantities in a factory. verb [transitive] 2 the process of making goods in large quantities in a factory. noun [uncount]	<i>The firm manufactures women's clothing.</i> <i>The company is engaged in the manufacture of computer hardware.</i>	

Word	Definition	Example	Translation
manufacturing /ˌmænʃʊˈfæktʃəriŋ/	the business of making goods in large quantities in a factory. noun [uncount]	<i>manufacturing industries</i>	
marketing /ˈmɑː(r)kɪtɪŋ/	the ways in which a company encourages people to buy its products by deciding on price, type of customer, and advertising policy. noun [uncount]	<i>the firm's new director of marketing</i>	
mechanized /ˈmekənaɪzd/	a process that is mechanized is done using machines but was previously done by people or animals. adjective		
metallurgy /məˈtælədʒi/	the scientific study of metals and how they are used. noun [uncount]		
metalwork /ˈmet(ə)l,wɜː(r)k/	the skill of making things out of metal. noun [uncount]		
modernize /ˈmɒdəˌnaɪz/	if something modernizes or you modernize it, it becomes less old-fashioned as a result of new methods, equipment or ideas. verb [intransitive/transitive]		
munitions /mjuːˈnɪʃ(ə)nz/	military weapons and equipment such as guns, bullets, and bombs. noun [plural]		
nationwide /ˌneɪʃ(ə)nˈwaɪd/	in all parts of a country. adjective, adverb	<i>a nationwide protest/strike</i>	
non-integrated works /ˌnɒn ˈɪntɪɡreɪtɪd wɜːks/	a steel mill that doesn't process from raw materials, and doesn't therefore need to be located near supplies of raw material. noun [plural]		
operation /ˌɒpəˈreɪʃ(ə)n/	a company, or a part of a large company. noun [count]	<i>The company has recently expanded its UK operation.</i>	
opportunity /ˌɒpə(r)ˈtjuːnəti/	a chance to do something, or a situation in which it is easy for you to do something. noun [count/uncount]	<i>I think this trip sounds like a wonderful opportunity.</i>	
ore /ɔː(r)/	rock or earth from which metal can be obtained. noun [count/uncount]	<i>a company that mines and smelts iron ore</i>	
output /ˈaʊt.pʊt/	the amount of something that a person, organization, system etc produces. noun [count/uncount usually singular]		
packaging /ˈpækɪdʒɪŋ/	the boxes, bottles, plastic etc used for wrapping products so that they can be sold. noun [uncount]	<i>All this unnecessary packaging creates so much waste.</i>	
perishable /ˈperɪʃəb(ə)l/	perishable food decays after a short time, especially if it is not kept cold. adjective		
point of sale /pɔɪnt əv ˈseɪl/	the place where a product or service is sold. noun [count]		
practice /ˈpræktɪs/	a way of doing something, especially as a result of habit, custom, or tradition. noun [count/uncount]	<i>It is good practice to check your work before handing it in.</i>	
precision /prɪˈsɪʒn/	very exact and accurate. adjective	<i>precision machinery</i>	
profitable /ˈprɒfɪtəb(ə)l/	making a profit. adjective	<i>a profitable business/company/ investment</i>	
pylon /ˈpaɪlən/	one of a series of very tall metal structures used for holding the wires that carry electric power high above the ground. noun [count]		
raw materials /ˌrɔː məˈtɪəriəlz/	substances such as coal or iron that are in their natural state before being processed or made into something. noun [plural]		
relocate /ˌriːləʊˈkert/	to move to a different place, or to make someone do this. verb [intransitive/transitive]	<i>I left my job because the company relocated. The authorities have relocated thousands of families from the flooded areas.</i>	
secondary /ˈsekənd(ə)ri/	less important than something else. adjective	<i>He only played a secondary role.</i>	
semi-skilled /ˌsemi ˈskɪld/	a semi-skilled job needs some basic skills. Someone who does this kind of job is called a semi-skilled worker. adjective		
shipyard /ˈʃɪpjɑː(r)d/	a place where ships are built or repaired. noun [count]		

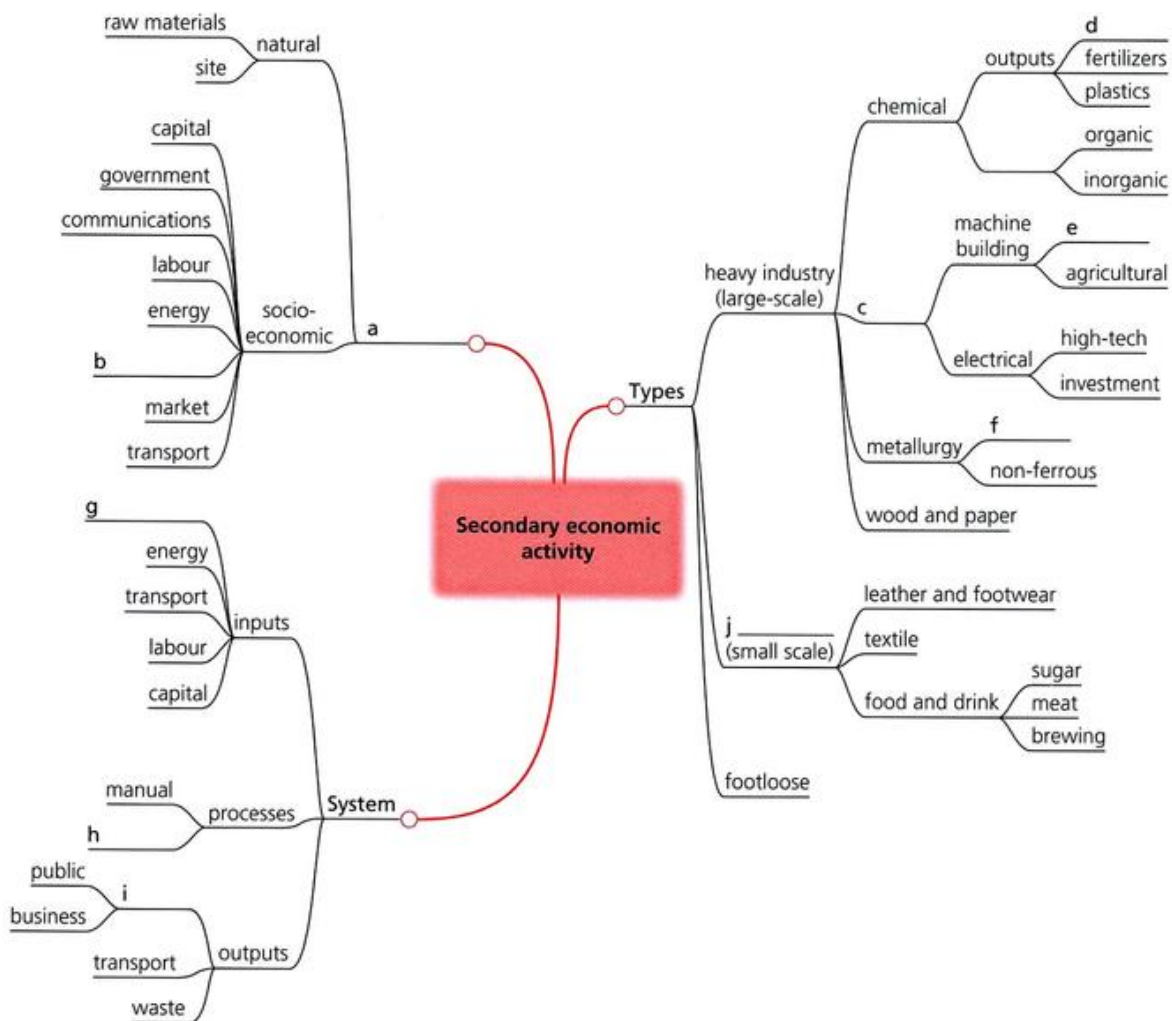
Word	Definition	Example	Translation
skilled /skild/	having the ability and experience to do something well. adjective	<i>a skilled craftsman</i>	
specialized /speʃəlaɪzd/	designed for a particular purpose. adjective	<i>specialized tools</i>	
start-up /stɑ:(r)t 'ʌp/	the process of starting a business or other activity. noun [count]		
steam /sti:m/	power that is created when water is heated. noun [uncount]	<i>The equipment was originally powered by steam.</i>	
steel /sti:l/	a strong metal made from a mixture of iron and carbon. noun [uncount]		
steelworks /'sti:l,wɜ:(r)ks/	a factory where steel is made and steel products are produced. noun [count]		
strategic /strə'ti:dʒɪk/	carefully planned in order to achieve a particular goal, especially in war, business, or politics. adjective strategically adverb		
subsidy /'sʌbsədi/	an amount of money that the government or another organization pays to help to reduce the cost of a product or service. noun [count]	<i>The government pays subsidies to farmers to produce particular crops.</i>	
tele-communications /telɪkə,mju:nɪ'keɪʃ(ə)nz/	the science and technology of sending information by telephone, radio, or television. noun [uncount]	<i>a decade of great advances in telecommunications</i>	
textile /'tekstaɪl/	1 woven or knitted cloth. noun [count] 2 in making textiles [only before noun]	<i>the textile industry</i>	
tiger economy /'taɪgə(r) 'ɪkɒnəmi/	the very successful economy of one of the smaller Asian countries such as South Korea or Singapore. noun [count]		
trading /'treɪdɪŋ/	the business of buying and selling goods. noun [uncount]		
training /'treɪnɪŋ/	the process of training people or being trained for a profession or activity. noun [uncount]	<i>Counselling is a difficult job requiring skill and training.</i>	
uneconomic /ˌʌni:kə'nɒmɪk/	not capable of producing a profit. adjective	<i>Backward farming methods made grain production uneconomic in the region.</i>	
union /'ju:njən/	an organization that represents the workers in a particular industry and tries to improve pay, conditions etc. noun [count]	<i>We encourage all employees to join a union.</i>	
unprofitable /ˌʌn'prɒfɪtəb(ə)l/	an unprofitable business does not make enough money. adjective	<i>The government stopped funding unprofitable industries.</i>	
unskilled /ʌn'skɪld/	working at a job that does not need much education, training, or experience. adjective	<i>unskilled workers</i>	
utility /'ju:tɪlɪti/	a public service such as gas, water, or electricity that is used by everyone. noun [count] [usually plural]	<i>utility companies</i>	
vicinity /'vɪsɪnəti/	the area near a particular place. noun [singular]	<i>a university somewhere in the vicinity of London</i>	
warehouse /'weə,haʊs/	a big building where large amounts of goods are stored. noun [count]		
workforce /'wɜ:(r)k,fɔ:(r)s/	the total number of people who work in a particular company, industry, or area. noun [uncount]	<i>The Government is encouraging women back into the workforce.</i>	

A Working with words

1 Secondary economic activity word map

Write these words in the correct place on the word map.

acids education and training engineering factors ferrous light industry
 machine raw materials sale goods transport



2 Light industry

Complete the sentences with these words.

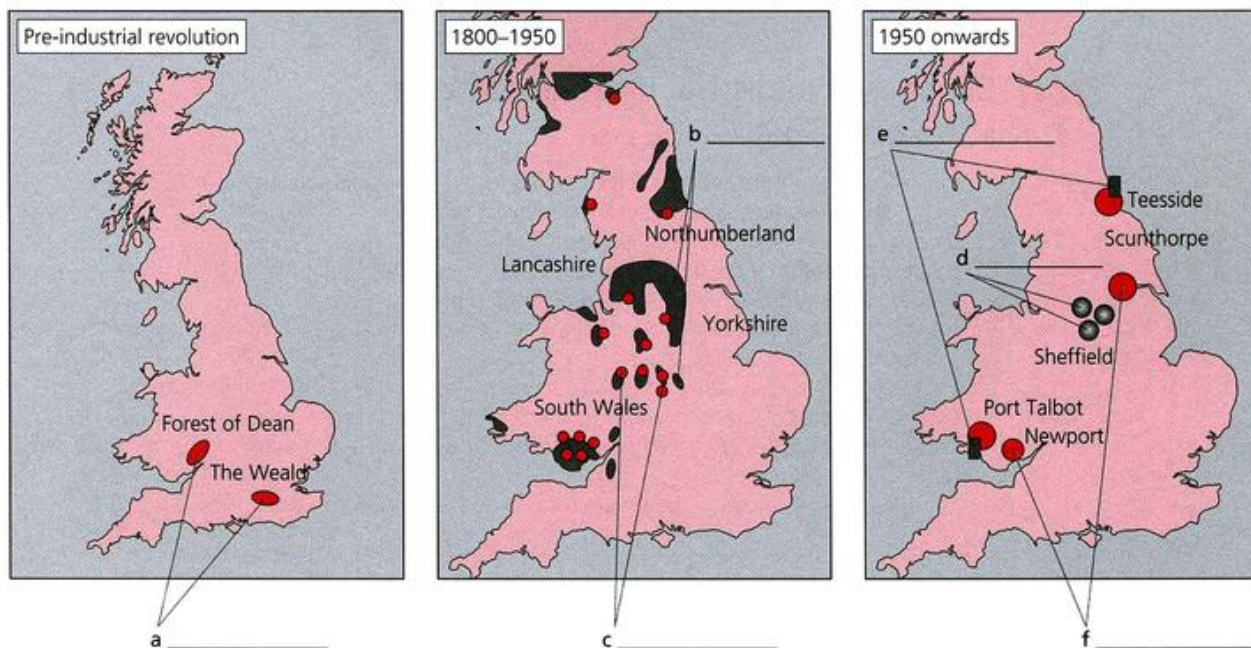
availability clothing cotton economy food processing labour light industry raw materials

- The food and drink industries are part of what is known as the _____ sector of the secondary economy.
- Generally speaking, these areas of the _____ are located in many different places.
- They are influenced by factors such as markets, transport, labour and the availability of _____.
- The food and drink industry includes flour production, oil production, the sugar industry, meat industry, wine and brewing and also the _____ and canning industry.
- Another light industry is the textile industry, producing _____, footwear and leather goods.
- Textile industries are largely dependent on raw materials and the _____ of labour.
- Branches of the textile industry include wool production, the _____ industry, silk, linen and the carpet industry.
- These industries have moved in the last century from areas where salaries are high to areas with plenty of cheap _____ such as China and India.

3 British iron and steel

Label the maps with these words.

coalfield forests for charcoal integrated steelworks iron manufacturing major oil terminal non-integrated steelworks



B Working with sentences

4 Factory location influences

Match these words and phrases with the correct paragraph.

Resource materials Markets Services Labour Transport facilities
Capital Government grants Personal factors

- 1 _____ A young workforce is desirable for most industries and the majority of young people live in cities and towns. Factories, therefore, are located in industrial estates on the edges of towns and cities close to their source of labour.
- 2 _____ Some may be provided by personal funds. The remainder is loaned by banks to companies to pay wages and for the purchase of materials in their early years.
- 3 _____ Carrying raw materials to the factories and the finished goods out to retail outlets and other industries is vital for the success of any factory. Access to wide, well surfaced routes, and airports or ports is therefore essential.
- 4 _____ Decisions made for personal reasons to set up a factory will always have to take into account all the factors previously mentioned. The availability of local facilities, such as a university, secondary schools and sports facilities may sway a decision in the end.
- 5 _____ These include electricity and water, telecommunications, and support services for factory maintenance.
- 6 _____ Because finished products (outputs) are generally more bulky than raw materials, it is more economical to be located nearer to markets than to sources of raw materials. Markets may be local or international. Access to foreign markets may be difficult. For this reason many foreign multinational companies set up in a EU member state to gain access to the EU's large market.
- 7 _____ Funding is normally available to companies setting up in industrial estates. These areas are specially designed for industry only. Additional grants are available to factories that set up in disadvantaged areas, or in small towns in rural regions. This policy ensures that jobs and salaries are well distributed throughout the land.
- 8 _____ Factories that use a lot of large and bulky inputs must locate close to the source of these materials. Because they are bulky, they are expensive to transport. So to make profit, a company needs to keep costs, like transport, as low as possible. If the bulky inputs have to be imported, then the factory needs to be close to a port.

5 Changes in industrial location patterns

Put the sentences in the correct order.

- a Because of this industries are no longer tied to the old, traditional locations.
- b In the past industry was tied to waterside locations.
- c It can come by electricity cables carried on steel pylons.
- d It has also brought industry to rural towns and to areas of high emigration.
- e Modern transport facilities are available in these places.
- f New industries are located around towns and cities rather than forming a linear pattern along rivers or being clustered around coalfields.
- g Then it changed to coalfield sites as coal was needed for the generation of steam.
- h Nowadays, power may be brought to sites that industry prefers.
- i These new industries are called footloose, and this change has made the source of power less important than before.
- j This was because water wheels were rotated by fast-moving streams.

1 2 3 4 5 6 7 8 9 10

6 The British iron and steel industries

Read the text and decide which sentences are true and which are false.

Before 1750 the location of the British iron and steel industries was based on resources and where they could be found. Britain's first iron mills were located near sources of wood and iron ore: in the south near the Forest of Dean, in the Weald in Sussex and in Kent. These industries needed charcoal, made from wood, and fast-flowing water to rotate water wheels for industrial power.

From 1750 to 1850 the location of the iron and steel industries was based on the availability of coal. The industrial revolution was based on the steam engine, fuelled by coal. Iron mills no longer used charcoal and changed location to be nearer to coalfields. Britain had large quantities of coal widely scattered throughout England, Scotland and Wales. These coalmining areas then became large industrial regions. Coalfields that also had local deposits of iron ore, such as in South Wales, became the most important industrial areas. Large cities grew up around all these coalfield areas and Britain became the first industrialized nation in the world.

After 1850, steel was manufactured commercially from iron for the first time. This increased the demand for iron and steel products; more jobs were created, and the cities grew faster than before. By the early twentieth century a number of factors created new location patterns in the iron and steel industries. These included the fact that most iron deposits in Britain had been used up, which meant that ore had to be imported. Also new and more efficient energy sources were available, such as gas and oil, and better methods of producing iron and steel products could be carried out in modern, planned factories. So new factories were located on the coast at ports where raw material and fuel could be unloaded. These new, more efficient factories are called integrated steelworks. Two important integrated steelworks in Britain are at Port Talbot in Wales and Teesside in England.

- 1 The first iron mills were located in the north of England.
- 2 These earliest industries relied on charcoal and fast rivers to power the mills.
- 3 The industrial revolution occurred thanks to the invention of the steam engine.
- 4 Britain had large quantities of coal mainly in the south.
- 5 Britain followed Russia as an industrialized nation.
- 6 After 1850 plastics were manufactured commercially for the first time.
- 7 By 1850 most of the iron deposits had been used up.
- 8 By the early 20th century iron ore had to be imported to Britain.
- 9 New factories were located on the coasts.

C Working with texts

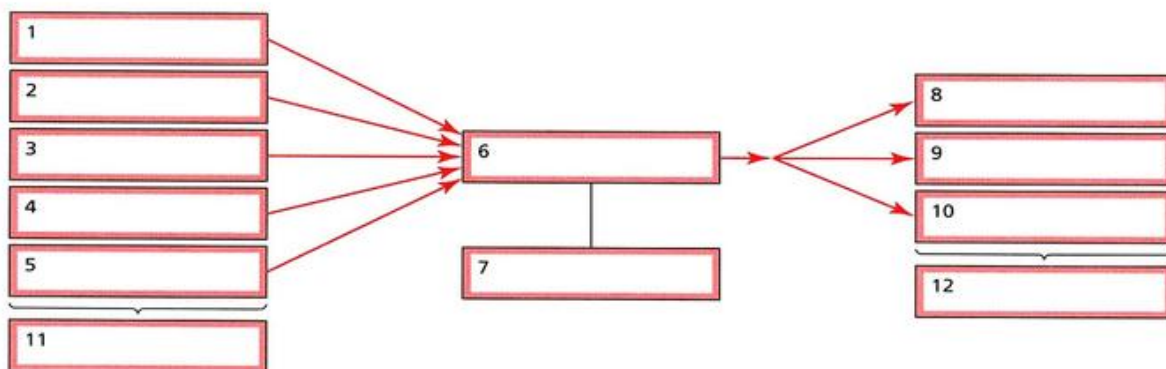
7 Manufacturing as a system

Read the text and sort the information into the correct place on the diagram.

goods for sale to the public products for sale to other businesses transport to points of sale
transport by sea, air, road or rail raw materials labour finance energy inputs outputs
processes waste – liquids, solids, gases

Manufacturing industries can be described as individual systems. These industries all have inputs, processes and outputs. Firstly, there is a need for finance to invest in the manufacturing industry in question. Secondly, there is a need for input of raw materials to be processed into other products. In order for this to happen, there is a need for another input, the third, and that is labour. Fourthly, the whole of this process can only take place if there is an input of energy to keep the whole activity moving. Finally, there is a need for transport, by sea, air, road or rail, to bring raw materials to the factory for processing.

Once the inputs are all in place, there are a number of processes which occur in the manufacturing industry. Some of the processes are done by people manually and others are done by machines. In many manufacturing industries, chemical processes occur and materials are heated or mixed with other materials. During the process of manufacturing there may be waste produced in the form of gases released or there may be solid or liquid waste created. Outputs from the manufacturing process can be divided into three groups: there are items produced for sale to other industries or businesses; there are products made for sale to the public and there are also outputs in the form of transport for taking goods to the points of sale.



8 Differences between light and heavy industries

Read the text and sort the information into the correct columns in the correct order.

1 light raw materials 2 not people-friendly 3 large sites 4 lower demand for space
5 far from where people live 6 ships 7 near to housing 8 textiles
9 heavy bulky goods 10 environmentally friendly

Heavy industries use heavy, bulky goods to manufacture heavy products whereas light industries use lighter raw materials to make lighter products. Steel, which is heavy, is used to make ships, which are heavy. On the other hand, textiles, such as clothes, are made from light materials like cotton and synthetic materials. Heavy industries also need large sites for manufacturing, holding raw materials, waste treatment plants and storage of goods. Light industries do not demand as much space as heavy industries. Generally, they are environmentally friendly and so are often planned near to residential areas for access to a labour supply. Heavy industries are not people-friendly and so are planned far from residential areas.

A Heavy industry	B Light industry

14 Tertiary economic activity

Word	Definition	Example	Translation
accommodation /ə,kɒmə'deɪʃ(ə)n/	a place for someone to stay, live, or work in. noun [uncount]	<i>The hotel provides accommodation for up to 100 people.</i>	
activity /æktɪvəti/	things that people do. noun [uncount]		
adverse /ədvs:z/	negative, unpleasant, or harmful. adjective	<i>an adverse reaction from the public</i>	
afford /ə'fɔ:(r)d/	if you can afford something, you have enough money to be able to pay for it. This word usually follows 'can', 'could', or 'be able to'. verb [transitive]	<i>I'm not sure how they are able to afford such expensive holidays.</i>	
airport /eə(r),pɔ:(r)t/	a place where planes arrive and leave, consisting of runways (long roads where planes land and take off) and large buildings for passengers called terminals. noun [count]		
all-inclusive /ɔ:l ɪn'klu:sɪv/	including everyone or everything, especially all the costs, charges, and services that make up the total price of something. adjective	<i>a package tour at an all-inclusive price of £350</i>	
ambience /æmbɪənz/	the character of a place or the feeling you have about it. noun [count/uncount]	<i>The pub had a comfortable ambience.</i>	
amenity /ə'mɪ:nəti/	something that makes it comfortable or enjoyable to live or work somewhere. noun [count] [usually plural]	<i>Amenities include a gym, a pool, and a jacuzzi.</i>	
annual /ænjuəl/	happening once a year. adjective	<i>an annual conference/festival/holiday</i>	
atmospheric /æt'mɒs'ferɪk/	creating a special mood or feeling. adjective [usually before noun]	<i>It's a great piece of atmospheric film-making.</i>	
attract /ə'trækt/	to make someone interested in something so that they do it or come to see or hear it. verb [transitive]	<i>The show attracts viewers from all walks of life.</i>	
attraction /ə'trækʃ(ə)n/	somewhere or something you can visit that is interesting or enjoyable. noun [count]	<i>The town's most popular attraction is the Marine Science Museum.</i>	
barber /'bɑ:(r)bə(r)/	someone whose job is to cut men's hair. noun [count]		
bargain /'bɑ:(r)ɡɪn/	something you buy that costs much less than normal. noun [count]	<i>You should be able to pick up a few good bargains.</i>	
boast /bəʊst/	to have something good, often an attractive feature that other people admire. verb [transitive never progressive]	<i>The island boasts the highest number of tourists in the area.</i>	
brash /bræʃ/	behaving and talking in a loud and confident way that annoys other people. adjective	<i>a brash young salesman</i>	
bricklayer /'brɪk'leɪə(r)/	someone whose job is to build walls using bricks. noun [count]		
builder /'bɪldə(r)/	someone whose job is to repair and build houses. noun [count]		
cable car /'keɪbl ,kɑ:(r)/	a small vehicle that hangs from a cable, used for taking people up and down mountains. noun [count]		
campsite /'kæmpsaɪt/	a place where people on holiday can stay in tents or other temporary shelters, usually with toilets and a supply of water. noun [count]	<i>We stayed in a campsite near Bath last year.</i>	
caravan /'kærəvæn/	a vehicle that people can live and travel in on holiday. noun [count]	<i>a caravan holiday</i>	
carpenter /'kɑ:(r)pɪntə(r)/	someone whose job is to make things from wood or repair things that are made of wood. noun [count]		
charter /'tʃɑ:(r)tə(r)/	to hire a boat, plane, or bus, especially for use by a group of people. verb [transitive]		

Word	Definition	Example	Translation
choice /tʃɔɪs/ climber /'klaɪmə(r)/	the opportunity or right to choose between different things. noun [uncount] [usually singular]	<i>Our aim is to provide greater choice for consumers.</i>	
coastline /'kəʊst.laɪn/ comfort /'kʌmfə(r)t/	the land along a coast, especially when seen from the sea or the air. noun [count]	<i>Brittany's rugged coastline</i>	
comparison /'kʌmpərəɪs(ə)n/ competition /'kɒmpə'tɪʃ(ə)n/	a pleasant way of life in which you have everything you need. noun [uncount]	<i>Now he can live in comfort for the rest of his life.</i>	
competitive /'kæmpə'tetɪv/ construction worker /'kɒn'strʌkʃ(ə)n ,wɜ:kə(r)/	the process of considering how things or people are similar and how they are different. noun [count/uncount]	<i>It is very difficult to make comparisons across other schools.</i>	
cost-effective /'kɒst ɪ'fektɪv/ costly /'kɒs(t)li/	the activities of companies that are trying to be more successful than others. noun [uncount]	<i>Competition has intensified in recent months.</i>	
cruise /'kru:z/ cultural heritage /'kʌltʃ(ə)rəl ,herɪtɪdʒ/	a competitive activity is one in which companies or teams are competing against each other. adjective	<i>He gave up playing competitive football at the age of 24.</i>	
custom /'kʌstəm/ delights /'dɪlɪts/	someone who works on building sites. noun [count]	<i>They have been investing in costly new equipment.</i>	
destination /'destɪ'neɪʃ(ə)n/ disco /'dɪskəʊ/ discover /'dɪ'skʌvə(r)/	giving the most profit or advantage in exchange for the amount of money that is spent. adjective	<i>a journey on a ship for pleasure, especially one that involves visiting a series of places. noun [count]</i>	<i>a need for the Asian community to preserve their cultural heritage</i>
disposable income /'dɪs.pəʊzəb(ə)l ɪ'nkʌm/ domestic /'dɒmestɪk/	something people do that is traditional or usual. noun [count/uncount]	<i>local customs and traditions</i>	
ecotourism /'i:kəʊ,tʊərɪz(ə)m/ entertainment /'entə(r)'teɪnmənt/	something that gives you pleasure or happiness. noun [count]	<i>Enjoy the delights of rural Spain.</i>	
facility /'fæ'sɪləti/ feature /'fi:tʃə(r)/	the place where someone or something is going. noun [count]	<i>a popular holiday destination</i>	
ferry /'feri/ fragile /'frædʒaɪl/	a place or event where people dance to popular music. noun [count]	<i>We went to the disco at the weekend.</i>	
	to find out something that you did not know before. verb [transitive]	<i>The two men decided to discover the truth for themselves.</i>	
	money that you have left to spend after you have paid your bills. noun [uncount]		
	relating to the country being talked about, and not other countries. adjective	<i>You go to the same terminal for domestic and international flights.</i>	
	the business of creating and selling holidays that give people the chance to learn about a natural environment, and cause as little damage to the environment as possible. noun [uncount]		
	performances that people enjoy. noun [count/uncount]	<i>A jazz band provided the entertainment, while people ate and drank under the stars.</i>	
	something such as a room or piece of equipment that is provided at a place for people to use. noun [count]	<i>The hotel has excellent leisure facilities.</i>	
	an important part or aspect of something. noun [count]	<i>Each room has its own distinctive features.</i>	
	1 a boat that makes short regular journeys between two or more places noun [count] 2 to carry people or goods between two or more places. verb [transitive]	<i>There is no ferry service to the island in the winter. Passengers were ferried to the island in a small plane.</i>	
	easy to break or damage. adjective		

Word	Definition	Example	Translation
funicular railway /fju:'nikjələ(r) 'reilwei/	a railway with carriages that are pulled up a steep slope by a cable. noun [count]		
growth /grəʊθ/	an increase in the number, size, or importance of something. noun [uncount]		
guidebook /'gaid,bʊk/	a book for tourists that provides information about a place. noun [count]	<i>This guidebook about China is very well-written.</i>	
hairstresser /'heə,dresə(r)/	someone whose job is to cut people's hair. noun [count]		
health care /'helθ ,keə/	the services that look after people's health. noun [uncount]	<i>Homeless people need better access to health care.</i>	
high-rise /'haɪ raɪz/	a high-rise building is very tall with many floors or levels. adjective		
hill-walking /'hɪl ,wɔ:kɪŋ/	the sport or leisure activity of walking in hills. noun [uncount]		
historic /'hɪ'stɔrɪk/	a historic place is important because it is old and interesting or impressive. adjective	<i>the historic city of York</i>	
holiday /'hɒlɪdeɪ/	a period of time when you do not work or study and do things for pleasure. noun [count]	<i>They're going to Jamaica for their holidays.</i>	
holidaymaker /'hɒlɪdeɪ,meɪkə(r)/	a person who is visiting a place for their holiday. noun [count]		
hostel /'hɒst(ə)l/	a building where people living away from home can stay and get meals at low prices. noun [count]		
hotelier /'həʊ'teliə/	the owner or manager of a hotel. noun [count]	<i>John is a hotelier at Holiday Inn.</i>	
housekeeper /'haʊs,ki:pə(r)/	1 someone whose job is to clean someone else's house and sometimes cook their meals. noun [count] 1a someone whose job is to clean the rooms in a hotel or manage the staff who do this. noun [count]		
indoor /'ɪndɔ:(r)/	done or used inside a building. adjective	<i>an indoor swimming pool</i>	
influence /'ɪnfluəns/	the effect that a person or thing has on someone's decisions, opinions, or behaviour or on the way something happens. noun [count/uncount]	<i>Without his famous father's influence, he would never have got the job.</i>	
infrastructure /'ɪnfra'strʌktʃə(r)/	the set of systems within a place or organization that affect how well it operates, for example the telephone and transport systems in a country. noun [count/uncount]		
international /ˌɪntə'næʃn(ə)l/	involving several countries or existing between countries. adjective		
job-share /'dʒɒb ʃeə(r)/	to share the work from a single job with another person, so that each of you works for part of the day or week. verb [intransitive]		
lakeside /'leɪk,sɑɪd/	the land that surrounds a lake. noun [singular]	<i>a hotel situated on the lakeside</i>	
landscape /'lændʃkeɪp/	an area of land that is beautiful to look at or that has a particular type of appearance. noun [count]	<i>a green, rural landscape</i>	
leisure /'leɪʒə(r)/	activities that you do to relax or enjoy yourself. noun [uncount]	<i>My busy schedule leaves little time for leisure.</i>	
leisure industry /'leɪʒə(r) 'ɪndʌstri/	the industry built around activities that people do to relax or enjoy themselves. noun [uncount]		
litter /'lɪtə(r)/	things such as pieces of paper that people have dropped on the ground in a public place, making it untidy. noun [uncount]	<i>The park and river are full of litter.</i>	
location /'ləʊ'keɪʃ(ə)n/	the place or position where someone or something is or where something happens. noun [count]	<i>We have not found a suitable location for the new offices.</i>	
machinist /'mæʃɪ:nɪst/	someone whose job is to use a machine, especially a sewing machine. noun [count]		

Word	Definition	Example	Translation
marina /məˈrɪnə/	an area of water beside the land, that is designed for keeping small private boats in. noun [count]		
mechanic /mɪˈkænik/	someone whose job is to repair vehicles and machines. noun [count]		
monument /ˈmɒnjumənt/	a structure built in a public place to celebrate an important person or event. noun [count]		
museum /mjuːˈzi:əm/	a building where many valuable and important objects are kept so that people can go and see them. noun [count]	<i>a science/folk/history museum</i>	
natural /ˈnætʃ(ə)rəl/	existing in nature and not produced or caused by people. adjective	<i>areas of great natural beauty</i>	
nightlife /ˈnaɪtˌlaɪf/	evening entertainment in places such as nightclubs and bars. noun [uncount]	<i>London is characterized by a vibrant nightlife.</i>	
noisy /ˈnɔɪzi/	making a lot of noise. adjective	<i>noisy neighbours</i>	
nurse /nɜːs/	someone who is trained to look after ill or injured people, usually in a hospital. noun [count]		
off-season /ɒf ˈsiːzn/	the period of the year when there is least business or activity. noun [singular]		
overcrowded /ˌəʊvə(r)ˈkraʊdɪd/	containing too many people or things. adjective	<i>an overcrowded city/prison/classroom</i>	
package holiday /ˈpækɪdʒ ˌhɒlɪdeɪ/	a holiday arranged by a travel company for a fixed price that includes the cost of your hotel and transport, and sometimes meals and entertainment. noun [count]		
park /pɑː(r)k/	in a town, an open public area with grass and trees, often with sports fields or places for children to play. noun [count]	<i>Alice took the kids to the park to play.</i>	
peaceful /ˈpiːsf(ə)l/	not involving war or violence. adjective	<i>talks aimed at finding a peaceful solution to the crisis</i>	
peak /piːk/	a peak time, period etc is when the largest number of people are doing or using something. adjective [only before noun]	<i>Travelling at peak times is more expensive.</i>	
physiotherapist /fɪziəʊˈθerəpɪst/	someone whose job is to treat injuries using special physical exercises. noun [count]		
pier /piə(r)/	a structure built out from the land over water and used for getting on and off boats. noun [count]		
pipe-layer /ˈpaɪp ˌleɪə(r)/	someone whose job is to lay pipes. noun [count]		
plant driver /ˈplɑːnt ˌdraɪvə(r)/	someone whose job is to drive large machines and equipment used in industry. noun [count]		
plasterer /ˈplɑːstərə(r)/	someone whose job is to put plaster (=a substance that is spread onto walls and ceilings to form a hard smooth surface) on walls or ceilings. noun [count]		
pleasant /ˈplez(ə)nt/	enjoyable or attractive in a way that makes you feel pleased and satisfied. adjective	<i>Well, this is a pleasant surprise!</i>	
popular /ˈpɒpjələ(r)/	a popular activity, place, thing etc is one that many people like. adjective	<i>This hotel is very popular with tourists.</i>	
preserve /prɪˈzɜːv/	to take care of a place or building in order to prevent it from being harmed or destroyed. verb [transitive]	<i>The society works to preserve the district's historic buildings.</i>	
purpose-built /ˌpɜːpəs ˈbɪlt/	designed to be suitable for one particular purpose. adjective	<i>a purpose-built exhibition centre</i>	
radiographer /ˌreɪdɪˈɒgrəfə(r)/	someone whose job is to take x-ray photographs of someone's body as part of a medical treatment. noun [count]		
rapidly /ˈræpɪdli/	happening, moving, or acting quickly. adverb		
receptionist /rɪˈsepʃ(ə)nɪst/	someone who works in reception at a hotel or office. noun [count]		
recreational /ˌrekriˈeɪʃ(ə)n(ə)l/	done or used for enjoyment. adjective	<i>recreational activities/facilities</i>	
remote /rɪˈmaʊt/	far away from other cities, towns, or people. adjective	<i>My grandparents were from a remote village in China.</i>	

Word	Definition	Example	Translation
resort /rɪ'zɔ:(r)t/	a place that many people go to for a holiday. noun [count]	<i>a ski/seaside/mountain resort</i>	
retirement /rɪ'taɪə(r)mənt/	the time when you stop working, especially because you have reached the age when you are officially too old to work, or the act of doing this. noun [count/uncount]	<i>I am now approaching retirement.</i>	
roofer /'ru:fə(r)/	someone whose job is to build or repair the roofs of buildings. noun [count]		
rural /'rʊərəl/	relating to the countryside, or in the countryside. adjective	<i>people who live in remote rural areas</i>	
sanctuary /'sæŋktʃuəri/	a place where you can be safe and comfortable. noun [count/uncount]	<i>All she wanted was the sanctuary of her own room.</i>	
scenery /'si:nəri/	natural things such as trees, hills, and lakes that you can see in a particular place. noun [uncount]	<i>Switzerland has some spectacular scenery.</i>	
scenic /'si:nɪk/	providing beautiful views of nature. adjective	<i>a scenic cruise down the Nile</i>	
seaside /'si:saɪd/	an area that is near the sea, especially one where people go for a holiday. noun [singular]	<i>This was their first holiday together at the seaside.</i>	
season /'si:z(ə)n/	one of the four periods into which the year is divided according to the weather. noun [count]	<i>She likes to paint the changing seasons in the garden.</i>	
seasonal /'si:z(ə)nəl/	available only during a particular time of year. adjective	<i>The work was well paid but seasonal.</i>	
secretary /'sekrətəri/	someone in an office who works for someone else and does jobs such as arranging meetings, making phone calls, and preparing letters. noun [count]		
sector /'sektə(r)/	a part of a country's economic or business activity. noun [count]	<i>They tend to work as managers, especially in the small business sector.</i>	
sightseer /'saɪt,si:ə(r)/	a tourist who is travelling around a place and looking at interesting things. noun [count]		
site /saɪt/	an area of land where something is being built or could be built. noun [count]	<i>a construction site</i>	
ski-lift /'ski:lɪft/	a machine that carries people to the top of a slope so they can ski down. noun [count]		
skyline /'skɑɪlaɪn/	the shapes made by buildings or mountains when you see them against the sky. noun [count]	<i>From across the river we saw the full sweep of the Manhattan skyline.</i>	
souvenir /'su:və'nɪə(r)/	something that you buy during a holiday or at a special event to remind you later of being there. noun [count]	<i>She kept the tickets as a souvenir of the evening.</i>	
star /stɑ:(r)/	a sign shaped like a star that is given to a hotel or restaurant to show which group it belongs to according to its quality or importance. noun [count]	<i>How many stars does the hotel have?</i>	
sunbathe /'sʌn,beɪð/	to sit or lie in the sun so that your skin becomes darker. verb [intransitive]	<i>We spent the holiday sunbathing and relaxing on the beach.</i>	
sunny /'sʌni/	bright with light from the sun. adjective	<i>It was a beautiful sunny day.</i>	
sunshine hours /'sʌnʃaɪn ɔʊə(r)s/	the number of hours of sunshine recorded in a particular period. noun [plural]		
surrounding /'sə'raʊndɪŋ/	near or all around a place. adjective	<i>The hotel is ideally located for visiting the city and the surrounding area.</i>	
theatre /'θiətə(r)/	a building, room, or outside area used for performing plays. noun [count]	<i>the open-air theatre in London's Regents Park</i>	
tourism /'tuəɪz(ə)m/	the business of providing services for people who are travelling for their holiday. noun [uncount]		
tour guide /'tuə(r) ɡaɪd/	someone whose job is to show tourists around a place and explain its history. noun [count]		
tourist trap /'tuəɪst træp/	a place that is visited by many tourists and is therefore crowded and expensive. noun [count]		
travel agent /'træv(ə)l eɪdʒ(ə)nt/	someone whose job is to help people plan holidays and make travel arrangements. noun [count]		

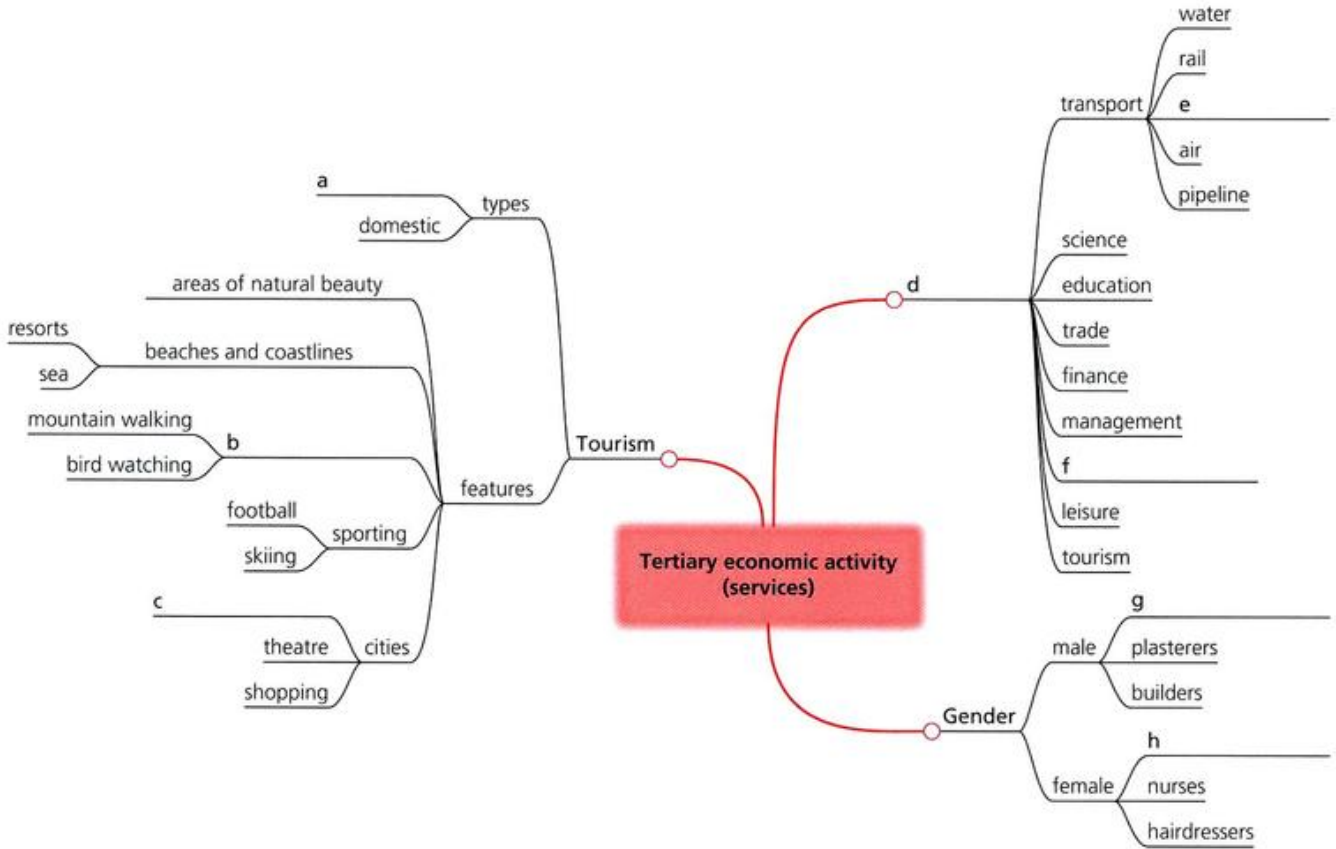
Word	Definition	Example	Translation
trip /trɪp/	an occasion when you go somewhere and come back again. noun [count]	<i>a fishing/camping/sightseeing trip</i>	
unspoilt /ʌn'spɔɪlt/	an unspoilt place has not been changed in ways that make it less beautiful or enjoyable. adjective	<i>the unspoilt beauty of the castle</i>	
upgrade /ʌp'ɡreɪd/	to improve the quality of a service or product. verb [transitive]		
utility /ju:'tɪləti/	a public service such as gas, water, or electricity that is used by everyone. noun [count] [usually plural]		
view /vju:/	the ability to see something from a particular place. noun [count/uncount]	<i>We had a spectacular view of the mountains from our room.</i>	
viewpoint /'vju:ˌpɔɪnt/	a place from which you can see or watch something. noun [count]		
visit /'vɪzɪt/	to go and see someone and spend some time with them. verb [intransitive/transitive]	<i>Lee wants to visit his mother in hospital.</i>	
visitor /'vɪzɪtə(r)/	someone who visits a place or a person. noun [count]	<i>The National Parks are attracting more visitors than ever.</i>	
waterfall /'wɔ:tə(r),fɔ:l/	a place where water flows over the edge of a cliff, rock, or other steep place onto another level below. noun [count]	<i>Niagara Falls is the biggest waterfall.</i>	
water sports /'wɔ:tə(r) spɔ:(r)ts/	sports that you play in or on water. noun [plural]		
wealthy /'welθi/	a wealthy person, organization, or country is one that has a large amount of money, land, and other valuable things. adjective		
weekend break /'wi:k'end breɪk/	a short holiday taken over a weekend. noun [count]		
well-known /'wel 'nəʊn/	known by many people or by the people involved in a particular situation. adjective	<i>It's a well-known fact that he shares business interests with them.</i>	
windsurfing /'wɪndʒɜ:(r)fɪŋ/	a sport in which you move across water standing on a flat board with a sail that you can move. noun [uncount]	<i>Mike likes windsurfing.</i>	
winter sports /'wɪntə(r) spɔ:(r)ts/	sports that are done on snow or ice, for example skiing and skating. noun [count]		
working holiday /'wɜ:(r)kɪŋ 'hɒlɪdeɪ/	a holiday during which you work, for example doing unpaid work to benefit the community in which you are staying. noun [count]		
world-famous /'wɜ:(r)ld 'feɪməs/	known by people in all parts of the world. adjective	<i>the world-famous Beverly Hills Wilshire Hotel</i>	
yachting /'jɒtɪŋ/	the activity of racing or sailing a yacht. noun [uncount]	<i>They always go yachting during the summer.</i>	

A Working with words

1 Tertiary economic activity word map

Write these words in the correct place on the word map.

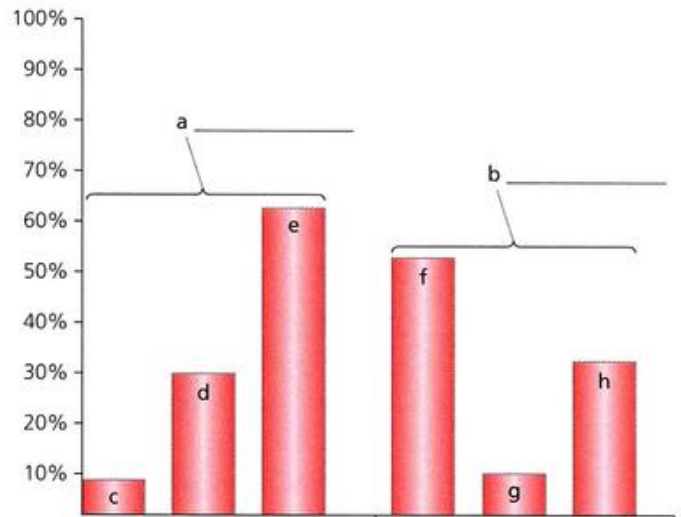
bricklayers health care international
nightlife recreational road secretaries sectors



2 Employment proportions in LEDCs and MEDCs

Label the graph with these words and phrases.

Primary Primary
Proportions of employment in a LEDC
Proportions of employment in a MEDC
Secondary Secondary
Tertiary Tertiary



3 Why tourism has grown

Underline the correct word in each sentence.

- World tourism has grown (rapidly / remotely) in recent years.
- Tourism is now one of the world's (managing / leading) economic activities.
- There are a number of reasons for the (rising / growth) of tourism.
- Many people in developed countries have become (wealthier / more valuable).
- Those with disposable (incomes / revenues) spend some of their money on holidays.
- Most people now work a five-day week and enjoy at least two paid (work-free / job-free) weeks in summer.
- This gives people the free time they need to go on (weekend changes / weekend breaks) and on longer summer holidays.
- Improved transport has allowed tourists to travel long distances quickly and in (comfort / company).
- Air travel, for instance, allows people to travel to holiday (destinations / objectives) in a relatively short time.

B Working with sentences

4 Males and females in service industries

Look at the information and decide which sentences are true and which are false.

Occupation	Females as a percentage of total
bricklayers	0.3
plasterers	0.4
roofers	0.5
mechanical plant drivers	0.5
carpenters	0.6
road construction workers	0.6
motor mechanics	0.6
builders	0.8
pipe layers	0.9
rail construction workers	0.9

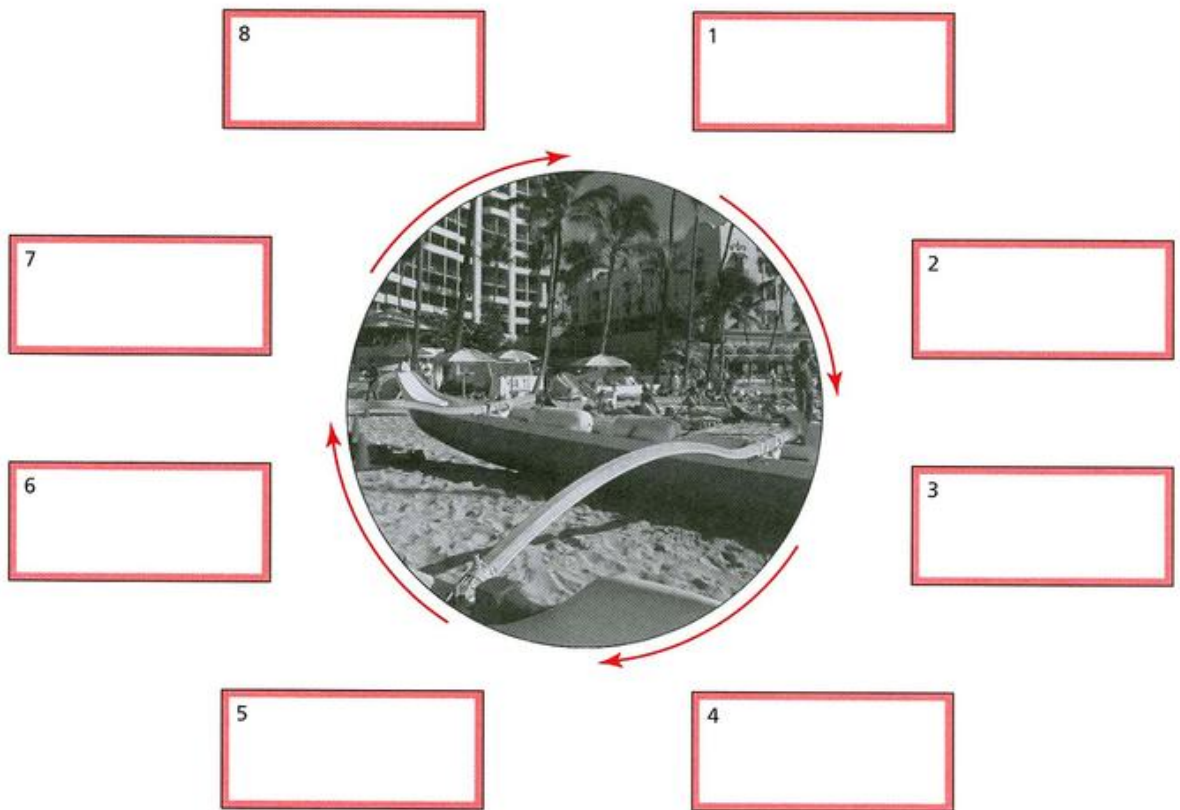
Occupation	Males as a percentage of total
secretaries	1.8
housekeepers	2.9
receptionists	3.0
radiographers	6.7
nurses	7.6
physiotherapists	8.8
educational assistants	9.5
sewing machinists	11.4
hairdressers and barbers	12.7
catering assistants	13.3

- Just over 11% of all sewing machinists are male.
- The occupation with the largest male percentage shown in the data is bricklaying.
- 92.4% of all nurses are female.
- 99.2% of all motor mechanics are male.
- Only 0.8% of all builders are women.
- Just over 90% of all educational assistants are female.
- In those sectors dominated by females, the occupation with the largest proportion of males is secretarial work.
- 97% of all receptionists are female.
- Less than 1% of all roofers are women.
- In those professions dominated by males, the largest proportion of females is found in bricklaying.

5 Organizing a holiday

The text describes how you organize a holiday. The steps have been mixed up. Place these sentences in the correct order on the diagram.

- a The travel agent charts a flight for you and other holiday makers going to the same destination.
- b You are met by a tour guide who ferries you and others to your hotel by special bus.
- c After looking at the facilities on offer, price, available flights from nearest airport to your chosen destination, the distance from destination airport to the hotel, distance from beach to hotel, hotel facilities, transport facilities within the resort – you would then decide on a particular resort.
- d On the morning after your arrival your tour guide meets all your group and gives you some tips and support services so that your stay will be a happy one.
- e On the day of your departure, your special bus ferries you back to the airport for your return flight.
- f On a specific date you fly to your destination. The flight arrives at the nearest airport to your hotel.
- g Visit a travel agent and get some brochures about places you wish to visit.
- h The travel agent contacts the tour operator by fax or e-mail. The tour operator informs your hotel by fax or e-mail and reserves an apartment.



6 Tourism and holidays

Match the beginnings and endings of the sentences.

Beginnings

- 1 Tourism is a significant tertiary economic activity
- 2 People usually take paid time off work
- 3 Resorts are always at their busiest
- 4 Some people like to do active holidays
- 5 Some people like to have a passive holiday
- 6 Package holidays are organized holidays where groups of people
- 7 Eco-tourism has developed with the awareness
- 8 Holidays can be all-inclusive
- 9 Some holidays are self-catering

Endings

- a like skiing or mountain walking.
- b that holidays can have an effect on local areas and communities.
- c travel together and stay in the same place.
- d and is one of the world's largest industries.
- e which means that you cook your own food.
- f where all of the food and drink is included in the price.
- g and spend their time lying in the sunshine on a beach.
- h and most crowded during peak holiday periods.
- i for a holiday once or twice a year.

1 2 3 4 5 6 7 8 9

C Working with texts

7 Tourism and development, Majorca, Spain

Read the text and make notes in the table.

The main types of transport that link one place to another include road, rail, sea and air. Communications include TV and radio, telephone and fax, e-mail and other computer links, and printed matter. Transport refers to the movement of people and goods between places. Communications refers to the exchange of ideas and information, as well as the movement of people and goods between places. Tourism can lead to the development of both transport and communications in a region.

Firstly, large-scale tourism creates a need for good transport and communication links to and within tourist areas. Secondly, profits from tourism provide the money to pay for the development of such links. Finally, even the prospect of job-creation and profits from tourism may encourage governments to invest in transport and communication links in potential tourist areas.

Before mass tourism, Majorca was a quiet and remote island. Now Palma airport is the busiest in Spain. Fleets of car ferries carry visitors to and from Portugal, Italy, France and other countries. Narrow country roads have been upgraded and replaced, in places, with motorways. Computer and telephone lines carry tens of millions of messages to and from the island each year.

Introduction	1
	2
Development	3
	4
	5
Majorca examples	6
	7
	8
	9

8 For and against tourism

Read the arguments about tourism and sort them into the correct columns, for or against.

- 1 Roads, electricity, water and sewage services have all been greatly improved.
- 2 The tourist boom has provided lots of work in the building trade.
- 3 Tourism is largely a seasonal business, with a very busy peak during the summer period. At other times of the year, many seasonal workers are without work.
- 4 These services are overused during the peak tourist season. Roads are overcrowded. Swimming pools use so much water that water is in short supply to local farms. The Mediterranean Sea is polluted annually with the sewage of up to 90 million tourists.
- 5 Land values have risen so rapidly here that only rich property developers and other wealthy outsiders can afford to buy land. Because of this, local people are gradually losing ownership of their own locality. High land values also mean that fewer public parks or other community amenities are being developed for local people.
- 6 I used to be a small farmer and was quite poor. I made a lot of money selling my land at a very high price to the property developers.
- 7 This used to be a lovely, peaceful place. Now it is noisy, brash and full of litter, and has lost its own distinctive character.
- 8 The cost of living has risen too, especially the cost of food, housing and entertainment. This is particularly hard for those local people who do not make their money from tourism.
- 9 The high-rise hotels that have been built are extremely ugly. Many of them are poorly finished, and building work seems to be going on all the time! The long unplanned lines of these hotels dominate the skyline and spoil our beautiful scenery.
- 10 This place used to be far too dull! Now there's plenty of entertainment available.
- 11 This was once an area of high unemployment. Most local people have now found jobs in hotels, restaurants and souvenir shops.
- 12 Tourism has brought lots of foreign money to the area. Peoples' standards of living have risen as a result.

Issues	For	Against
A Jobs		
B Construction		
C Ambiance		
D Services		
E Standard of living		
F Cost of land		

15 Wealth, aid and development

Word	Definition	Example	Translation
affordable /ə'fɔ:(r)dəb(ə)l/	cheap enough for ordinary people to afford. adjective	<i>affordable childcare</i>	
agreement /ə'gri:mənt/	an arrangement or decision about what to do, made by two or more people, groups, or organizations. noun [count]	<i>Our agreement was that you would pay by the first of the month.</i>	
aid /eid/	money, food, or other help that an organization or government gives to a country or area where people need it, for example because of a war or flood. noun [uncount]	<i>The UN provided emergency economic aid to the refugees.</i>	
aid agency /ˈeɪd ˌeɪdʒ(ə)nəsi/	an organization that gives money, food, or other help to people who have been affected by situations such as wars or floods. noun [count]		
AIDS /eɪdz/	acquired immune deficiency syndrome: a serious disease that destroys the body's immune system and usually causes death. noun [uncount]		
assist /ə'sɪst/	to help someone or something. verb [intransitive/transitive]	<i>These measures were designed to assist people with disabilities.</i>	
assistance /ə'sɪst(ə)n(s)/	help given to someone or help that allows something to be done. noun [uncount]	<i>financial/military assistance</i>	
attitude /ˈætɪ.tʃu:d/	someone's opinions or feelings about something, especially as shown by their behaviour. noun [count/uncount]	<i>an unhealthy social environment that encourages negative attitudes</i>	
awareness /ə'weə(r)nəs/	knowledge or understanding of a subject, issue, or situation. noun [uncount] [singular]	<i>There was a general lack of awareness about safety issues.</i>	
banana republic /bə'nɑ:nə rɪ'pʌblɪk/	an insulting word for a tropical country that is considered to have a weak economy, a dishonest or cruel government, and public services that do not work. noun [count]		
bilateral /baɪ'læt(ə)rəl/	a bilateral agreement or activity is one that involves two groups or countries. adjective	<i>bilateral negotiations/talks</i>	
borrow /'bɒrəʊ/	to receive and use something that belongs to someone else, and promise to give it back to them later. verb [transitive]	<i>Can I borrow your calculator?</i>	
budget /'bʌdʒɪt/	the amount of money a person or organization has to spend on something. noun [count]	<i>Two-thirds of their budget goes on labour costs.</i>	
cancel /'kæns(ə)l/	to say that a legal agreement or obligation is now ended. verb [transitive]	<i>There has been a call for Third World debt to be cancelled.</i>	
cash crop /'kæʃ ˌkrɒp/	a crop that farmers grow so that they can sell it, rather than using it themselves. noun [count]		
champion /'tʃæmpɪən/	to publicly support or defend a set of beliefs, political aims, or a group of people. verb [transitive]	<i>champion a cause</i>	
channel /'tʃæn(ə)l/	to use money or supplies for a particular purpose. verb [transitive]	<i>The company has channelled £1.2 million into developing new products.</i>	
charitable /'tʃærɪtəb(ə)l/	intended to help people who are poor or ill, or who need advice and support. adjective	<i>a charitable organization/institution/trust</i>	
charity /'tʃærəti/	an organization to which you give money so that it can give money and help to people who are poor or ill, or who need advice and support. noun [count]	<i>The Children's Society is a registered charity.</i>	
child labour /'tʃaɪld ˈleɪbə(r)/	the employment of children, especially children who are legally too young to work. noun [uncount]	<i>We should stop buying goods made by child labour.</i>	
colonialism /kə'ləʊniə,lɪz(ə)m/	a situation in which one country rules another. noun [uncount]		
colony /'kɒləni/	a country that is controlled by another country. noun [count]	<i>a former British colony</i>	
commodity /'kɒmədəti/	something that can be bought and sold, especially a basic food product or fuel. noun [count]		

Word	Definition	Example	Translation
competition /ˌkɒmpə'tɪʃ(ə)n/	the activities of companies that are trying to be more successful than others. noun [uncount]	<i>Competition has intensified in recent months.</i>	
conquer /'kɒŋkə(r)/	to take control of land or people using soldiers. verb [intransitive/transitive]	<i>The tribes were easily conquered by the Persian armies.</i>	
contribute /kən'trɪbjʊ:t/	to give money, goods, or your time and effort in order to achieve something, especially when other people are also helping. verb [intransitive/transitive]	<i>Many local businesses offered to contribute to the school rebuilding fund.</i>	
control /kən'trəʊl/	a law, agreement, or method that limits something. noun [count/uncount]	<i>an international agreement on arms control</i>	
corporation /ˌkɔː(r)pə'reɪʃ(ə)n/	a large company or business organization. noun [count]	<i>American tobacco corporations</i>	
crippling /'krɪplɪŋ/	causing severe damage or problems. adjective		
crisis /'kraɪsɪs/	an urgent, difficult, or dangerous situation. noun [count/uncount]	<i>a period of economic/financial/political crisis</i>	
debt /det/	an amount of money that you owe. noun [count]	<i>By this time we had debts of over £15,000.</i>	
dependent /dɪ'pendənt/	if you are dependent on someone or something, you need them in order to live or succeed. adjective		
desertification /dɪˌzɜː(r)tɪfɪ'keɪʃ(ə)n/	the process by which land becomes so dry that it cannot be used for farming. noun [uncount]		
developed /dɪ'veləpt/	a developed country, region, or economy has a lot of industries and business activity. adjective	<i>We spend less on health care than most other developed nations.</i>	
developing /dɪ'veləpɪŋ/	a developing country is poor and does not have many industries. adjective	<i>Children in many developing countries lack basic medical care.</i>	
dictator /dɪk'teɪtə(r)/	someone who uses force to take and keep power in a country. noun [count]	<i>a military dictator</i>	
discriminate /dɪ'skrɪmɪˌneɪt/	to treat someone unfairly because of their religion, race, or other personal features. verb [intransitive]	<i>Employers are not allowed to discriminate on the basis of gender.</i>	
disease /dɪ'ziːz/	an illness that affects people or animals, especially one that is caused by infection. noun [count/uncount]	<i>a disease of the nervous system</i>	
distribute /dɪ'strɪbjʊ:t/	to give something such as food, clothes, or money to a group of people, especially so that each person gets an equal share. verb [transitive]	<i>The two men were convicted of distributing anti-government leaflets.</i>	
donate /dəʊ'neɪt/	to give something such as money or goods to an organization, especially to a school, hospital, political party, or charity. verb [intransitive/transitive]	<i>The centre was bought with money donated by former Beatle, George Harrison.</i>	
donor /'dəʊnə(r)/	someone who gives things such as money or goods to an organization, especially one that helps people. noun [count]	<i>The museum was saved by an anonymous donor.</i>	
drought /draʊt/	a long period of time when there is little or no rain and crops die. noun [count/uncount]		
earnings /'ɜː(r)nɪŋz/	1 the amount of money that you earn. noun [plural] 2 the profit made by a company. noun [plural]	<i>The company reported that earnings were down last quarter.</i>	
eliminate /ɪ'lɪmɪˌneɪt/	to get rid of something that is not wanted or needed. verb [transitive]	<i>Many infectious diseases have been virtually eliminated.</i>	
emergency /ɪ'mɜː(r)dʒ(ə)nsl/	an unexpected situation involving danger in which immediate action is necessary. noun [count/uncount]	<i>We always carry a medical kit for emergencies.</i>	
empire /'empaɪə(r)/	a number of countries that are ruled by one person or government. noun [count]	<i>the Roman empire</i>	
equal opportunity /ˌiːkwəl ɒpə'tjuːnəti/	a situation in which people have the same opportunities in life as other people, without being treated in an unfair way because of their race, sex, religion, or age. noun [count/uncount]		
equal rights /ˌiːkwəl 'raɪts/	a situation in which everyone in a society has the same rights, despite differences in their race, sex, religion, or age. noun [plural]		
essential /ɪ'senʃ(ə)l/	completely necessary. adjective	<i>In a large organization, good internal communication is essential.</i>	

Word	Definition	Example	Translation
ethical /eθɪk(ə)l/	involving the principles used for deciding what is right and what is wrong. adjective	<i>ethical issues/standards/objections</i>	
ethnic /eθnɪk/	relating to a group of people who have the same culture and traditions. adjective	<i>The country's population consists of three main ethnic groups.</i>	
ethnicity /eθ'nɪsətɪ/	the fact that someone belongs to a particular ethnic group. noun [count/uncount]		
ethnic minority /eθnɪk maɪ'nɔrətɪ/	a group of people with the same culture and traditions who live in a place where most people have a different culture and different traditions. noun [count]		
expenditure /ɪk'spendɪtʃə(r)/	money spent by a government, organization, or person. noun [count/uncount]	<i>Expenditure should ideally not exceed income.</i>	
exploitation /ɪk'splɔɪtʃ(ə)n/	unfair treatment of someone or the use of a situation in a way that is wrong, in order to get some benefit for yourself. noun [uncount]		
exploitative /ɪk'splɔɪtətv/	treating people unfairly in order to get some benefit for yourself. adjective		
fair /feə(r)/	reasonable and morally right. adjective	<i>We aim to provide healthy food at fair prices.</i>	
fair trade /feə(r), treɪd/	the principle of charging a price for goods that does not put producers in developing countries (poorer countries with less industry) at a disadvantage. noun [uncount]		
famine /'fæmɪn/	a serious lack of food that continues for a long time and causes many people in a country to become ill or die. noun [count/uncount]		
fluctuate /'flʌktʃu,eɪt/	to change frequently. verb [intransitive]	<i>The price fluctuates between 50 pence and £1 per kilo.</i>	
free trade /'fri: 'treɪd/	a system of international trade in which companies do not have to pay high taxes on the goods bought from or sold in other countries. noun [uncount]	<i>a free trade agreement/zone</i>	
funding /'fʌndɪŋ/	money that a government or organization provides for a specific purpose. noun [uncount]	<i>an increase in the funding of health care</i>	
GDP /dʒɪ: di: 'pi:/	Gross Domestic Product: the total value of the goods and services that a country produces in a year, not including income received from money invested in other countries. noun [count]		
GNP /dʒɪ: en 'pi:/	Gross National Product: the total value of all the goods and services that a country produces in a year, including income received from money invested in other countries, but not income paid to foreign investors. noun [count]		
help /help/	to give someone support or information so that they can do something more easily. verb [intransitive/transitive]	<i>If you are finding that difficult, I could help you.</i>	
human rights /hju:mən 'raɪts/	the rights that everyone should have in a society, including the right to express opinions or to have protection from harm. noun [plural]	<i>We must continue to stand up for human rights.</i>	
impact /'ɪmpækt/	an effect, or an influence. noun [count]	<i>Tougher environmental laws could have negative impacts on economic growth.</i>	
incentive /ɪn'sentv/	something that makes you want to do something or to work harder, because you know that you will benefit by doing this. noun [count/uncount]	<i>They want to stimulate growth in the region by offering incentives to foreign investors.</i>	
inequality /ɪnɪ'kwɒlətɪ/	a situation in which people are not equal because some groups have more opportunities, power, money etc than others. noun [count/uncount]	<i>There are great inequalities in health care across the country.</i>	
isolationism /aɪ'səleɪʃ(ə)nɪz(ə)m/	a country's policy of not having political or economic relationships with other countries. noun [uncount]		
labour-intensive /'leɪbə(r) ɪn'tensɪv/	a labour-intensive industry or process needs a lot of people to do the work. adjective		
literacy /'lɪt(ə)rəsi/	the ability to read and write. noun [count]	<i>Teachers have been asked to concentrate on literacy and numeracy.</i>	

Word	Definition	Example	Translation
loan /ləʊn/	an amount of money that a person, business, or country borrows, especially from a bank. noun [count]	<i>Kenya was still paying off a multimillion-dollar loan to the IMF.</i>	
loss /lɒs/	money that a person, company, organization etc loses when it spends more than it earns. noun [count/uncount]	<i>company losses in excess of £25 million</i>	
malnourished /ˌmæl'naʊrɪʃt/	weak or ill because you do not eat enough or do not eat enough of the right foods. adjective	<i>malnourished children</i>	
malnutrition /ˌmælnju'trɪʃ(ə)n/	a medical condition in which you are weak or ill because you do not eat enough or do not eat enough of the right foods. noun [uncount]	<i>Some children suffer from malnutrition.</i>	
medicine /ˌmed(ə)s(ə)n/	substance that you take to treat an illness, especially a liquid that you drink. noun [count/uncount]	<i>cough medicine</i>	
misdirected /ˌmɪsdɑː'rektɪd/	if something is misdirected, it has been used wrongly or for the wrong purpose. adjective	<i>misdirected funds</i>	
multilateral /ˌmʌltɪ'læt(ə)rəl/	involving three or more groups, especially the governments of three or more countries. adjective	<i>a multilateral agreement/treaty</i>	
NGO /ˌen dʒi: 'əʊ/	Non-governmental Organization: an organization that is not owned by the government, but may work with government departments. noun [count]		
official /ə'fɪʃ(ə)l/	done by people in authority. adjective	<i>There will be an official investigation into last week's accident.</i>	
oppressed /ə'prest/	suffering from unfair and cruel treatment by a more powerful person or government. adjective		
overseas /ˌəʊvə(r)'si:z/	happening or existing in a country across the sea from your country. adjective	<i>a large number of overseas visitors</i>	
owe /əʊ/	if you owe someone money, you have to give them a particular amount of money because you have bought something from them or have borrowed money from them. verb [transitive]	<i>Tell me how much I owe, and I'll give it to you.</i>	
poverty /'pɒvə(r)tɪ/	a situation in which someone does not have enough money to pay for their basic needs. noun [uncount]	<i>There are many areas where the problems of poverty and unemployment still persist.</i>	
pressure group /'preʃə(r), 'gru:p/	an organized group of people who try to persuade people and influence political decisions about a particular issue. noun [count]	<i>an anti-smoking pressure group</i>	
prevention /ˌpri'venʃ(ə)n/	the act of preventing something, or things that people do in order to prevent something. noun [uncount]	<i>crime prevention projects</i>	
pricing policy /'praɪsɪŋ ,pɒləsɪ/	decisions that a company makes about the prices it charges for goods or services. noun [uncount]	<i>The banks are revising their pricing policy.</i>	
profit margin /'prɒfɪt ,mɑ:ʒɪn/	the difference between how much money you get when you sell something and how much it costs you to buy or make it. noun [count]		
prosper /'prɒspə(r)/	to be successful, especially by making a lot of money. verb [intransitive]	<i>The business continues to prosper.</i>	
prosperity /'prɒ'sperətɪ/	the situation of being successful and having a lot of money. noun [uncount]	<i>a time of national prosperity</i>	
protectionism /'prɒ'tekʃ(ə)nɪz(ə)m/	a system in which a country helps its own industries by putting taxes on foreign goods. noun [uncount]		
quota /'kwɒtə/	an amount of something that someone is officially allowed to have or do. noun [count]	<i>The government is planning to introduce quotas on sugar production.</i>	
recipient /rɪ'sɪpiənt/	someone who receives something. noun [count]		
redistribute ˌrɪ:dɪ'strɪbjʊ:t/	to change the way that something is shared between people, especially land or money. verb [transitive]		
reduce /rɪ'dju:s/	to lower the price of something. verb [transitive]	<i>All children's shoes are now reduced to £10 a pair.</i>	
refugee /ˌrefjuːdʒi:/	someone who leaves their country because of a war or other threatening event. noun [count]	<i>Thousands of refugees have entered the camps along the borders in recent days.</i>	

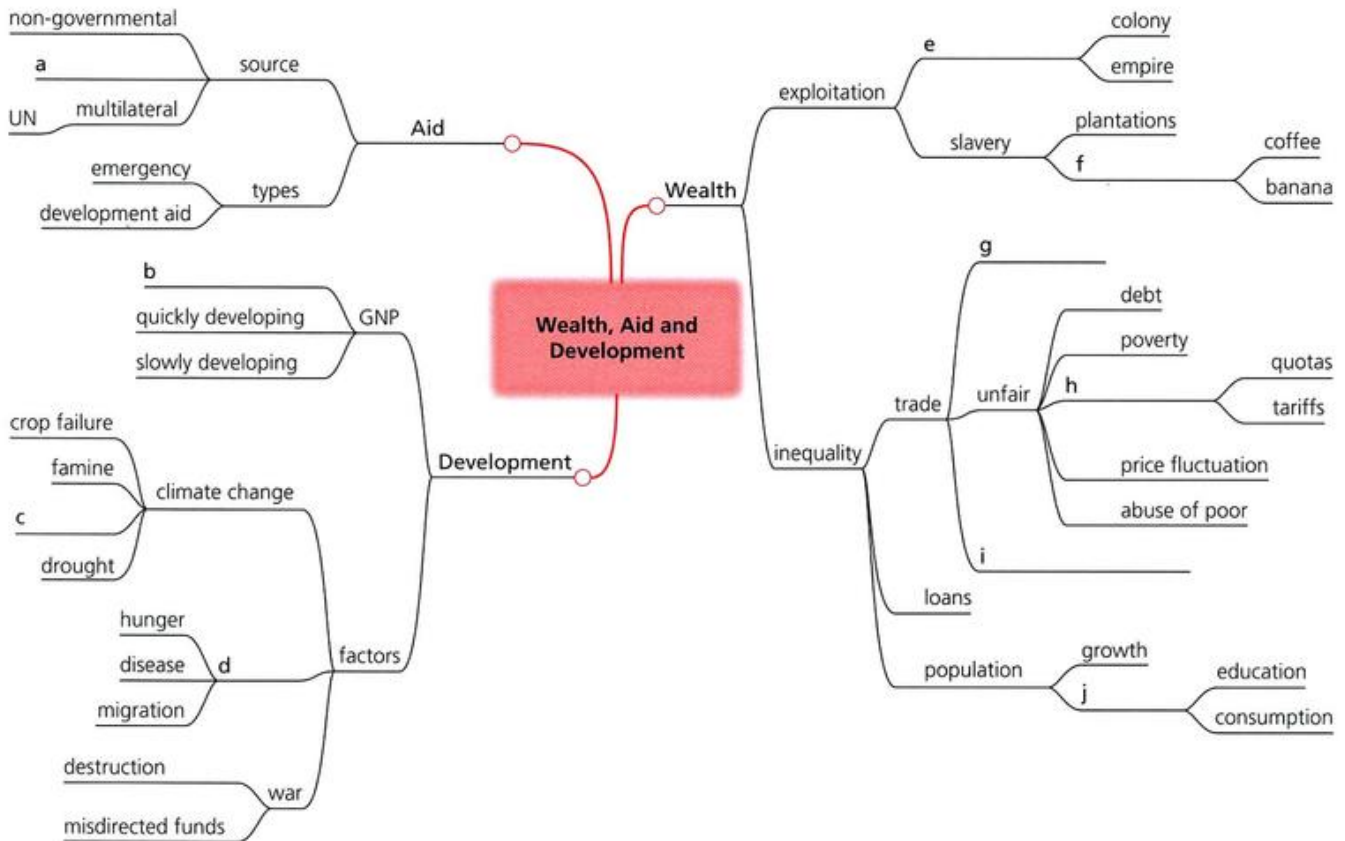
Word	Definition	Example	Translation
relief /rɪ'li:f/	food, clothes, and money given to people who are in urgent need of help, for example because of a war or other bad situation. noun [uncount]	<i>flood/disaster/earthquake relief</i>	
repayment /rɪ'peɪmənt/	the process of paying someone money that you have borrowed from them. noun [uncount]		
shortage /'ʃɔ:(r)tɪdʒ/	a lack of something that you need or want. noun [count/uncount]	<i>Refugees are facing serious food and fuel shortages.</i>	
slave /sleɪv/	someone who belongs by law to another person and who has to obey them and work for them. noun [count]		
slavery /'sleɪvəri/	the system of owning people as slaves. noun [uncount]	<i>Ancient civilizations were based on slavery.</i>	
small-scale /,smɔ:l 'skeɪl/	smaller or less important than other things of the same kind. adjective	<i>a small-scale operation/attack</i>	
spending /'spendɪŋ/	money that is spent, especially by a government or a large organization. noun [uncount]	<i>Its main aim was to control government spending on social programmes.</i>	
stable /'steɪb(ə)l/	not changing frequently and not likely to suddenly become worse. adjective	<i>People have become accustomed to a stable economic situation.</i>	
standard of living /'stændəd əv 'lɪvɪŋ/	the type of life that a person or society has according to the amount of money they have. noun [singular]	<i>Japan has a very high standard of living.</i>	
state /steɪt/	a nation or country. noun [count]		
sustainable development /sə'steɪnəbl dɪ'veləpmənt/	the development of a country or region that does not use more natural resources than can be replaced and so does not harm the environment. noun [uncount]		
sweatshop /'swetʃɒp/	a factory where people work very hard in bad conditions and earn very little money. noun [count]		
tariff /'tærɪf/	a tax that a government charges on goods that enter or leave their country. noun [count]		
tax /tæks/	an amount of money that you have to pay to the government that it uses to provide public services and pay for government institutions. noun [count]	<i>Income tax payments are due on the 15th of April.</i>	
trader /'treɪdər/	someone who buys and sells things. noun [count]		
transnational /,trænz'næʃ(ə)nəl/	affecting or involving several different countries. adjective	<i>a transnational programme to protect the environment</i>	
unfair /ʌn'feə(r)/	not fair or reasonable. adjective	<i>Farmers complained of unfair competition from cheap imported food.</i>	
voluntary /'vɒlənt(ə)ri/	a voluntary action is done because you choose to do it, and not because you have to. adjective	<i>Some 30,000 workers took voluntary redundancy.</i>	
volunteer /ˌvɒlən'tɪə(r)/	someone who is not paid for the work that they do. noun [count]	<i>The organization is appealing for volunteers.</i>	
war /wɔ:(r)/	fighting between two or more countries or groups that involves the use of armed forces and usually continues for a long time. noun [count/uncount]	<i>The negotiations failed, and war now seemed inevitable.</i>	
welfare state /ˌwelfeə(r) 'steɪt/	the system by which a country looks after its citizens by providing them with education, medical care, or money if they are unable to work. noun [singular]		
write off /raɪt 'ɒf/	to say officially that someone does not have to pay an amount of money. verb [transitive]	<i>The US government agreed to write off debts of \$170 billion.</i>	
WTO /ˌdʌb(ə)lju:ti: 'əʊ/	the World Trade Organization		

A Working with words

1 Wealth word map

Write these words in the correct place on the word map.

bilateral cash crops colonialism control desertification developed countries
fair trade population protectionism World Trade Organization



2 How coffee-producing countries are exploited

Underline the correct word in each sentence.

- There are a number of ways that coffee producing countries are exploited. One way is through (fairground / unfair) profit margins.
- As in colonial times, only a tiny part of the (profits / profiteroles) from coffee goes to producers from developing countries.
- More than 80 per cent of the profits go to multinational processing companies and to (traders / traitors) from developed countries.
- Another way these countries face exploitation is through (protectionism / preventionism).
- Developed countries artificially protect their multinational companies from free (completion / competition) from developing countries.
- The US government forced Brazil to abandon its plans to process beans itself by threatening to (cut / cup) US aid to Brazil.
- In this way, the huge profits of (multinational / multifunctional) companies were protected.
- Lastly, coffee producers are at the mercy of falling and (fictional / fluctuating) coffee prices.
- Over the past 20 years, the price of processed coffee has (grown / groaned) steadily.
- But over the same period the price of raw coffee beans has actually (deepened / decreased) on the world market.
- The price of coffee beans has also been allowed to rise and fall wildly. This makes it impossible for coffee-producing countries to (plan / pick) their economies properly.

B Working with sentences

3 Measuring development

Match the beginnings and endings of the sentences.

Beginnings

- 1 One way of measuring development is by calculating
- 2 The result of the calculation of GNP
- 3 The GNP per person is equal to
- 4 Gross National Product per person is often used to tell
- 5 The rate of economic development in a country
- 6 A weakness of Gross National Product is that it suggests that
- 7 Gross National Product takes no account of
- 8 Gross National Product calculates only the average wealth of a country's people and
- 9 Countries may enjoy a high GNP but the majority of the wealth

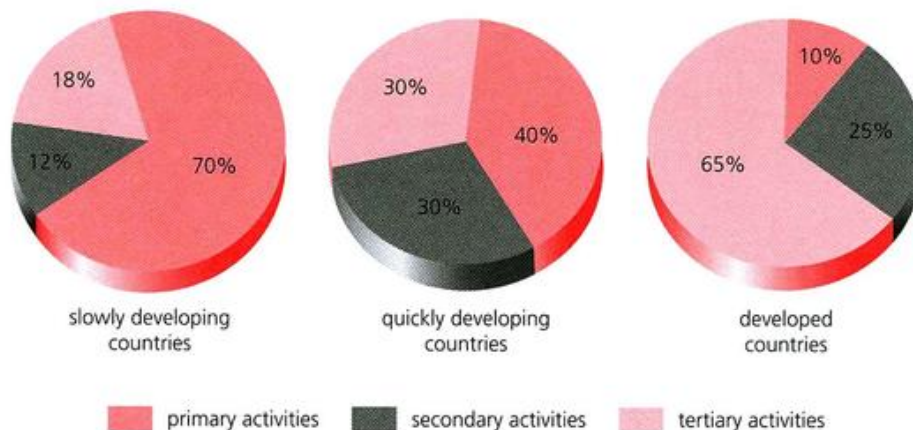
Endings

- a gives us the average earnings per person.
- b can also be seen by comparing the Gross National Product per person over several years.
- c ignores the fact that this wealth is often very unequally distributed.
- d the cultural or spiritual development of a people.
- e economic wealth is the only way to measure human development.
- f the total earnings in one year divided by the total population.
- g is controlled by a small percent of the people.
- h Gross National Product (GNP) per person.
- i the stage of economic development reached by a country.

1 2 3 4 5 6 7 8 9

4 Variations in economic activity around the world

Look at the charts and decide which sentences are true and which are false.

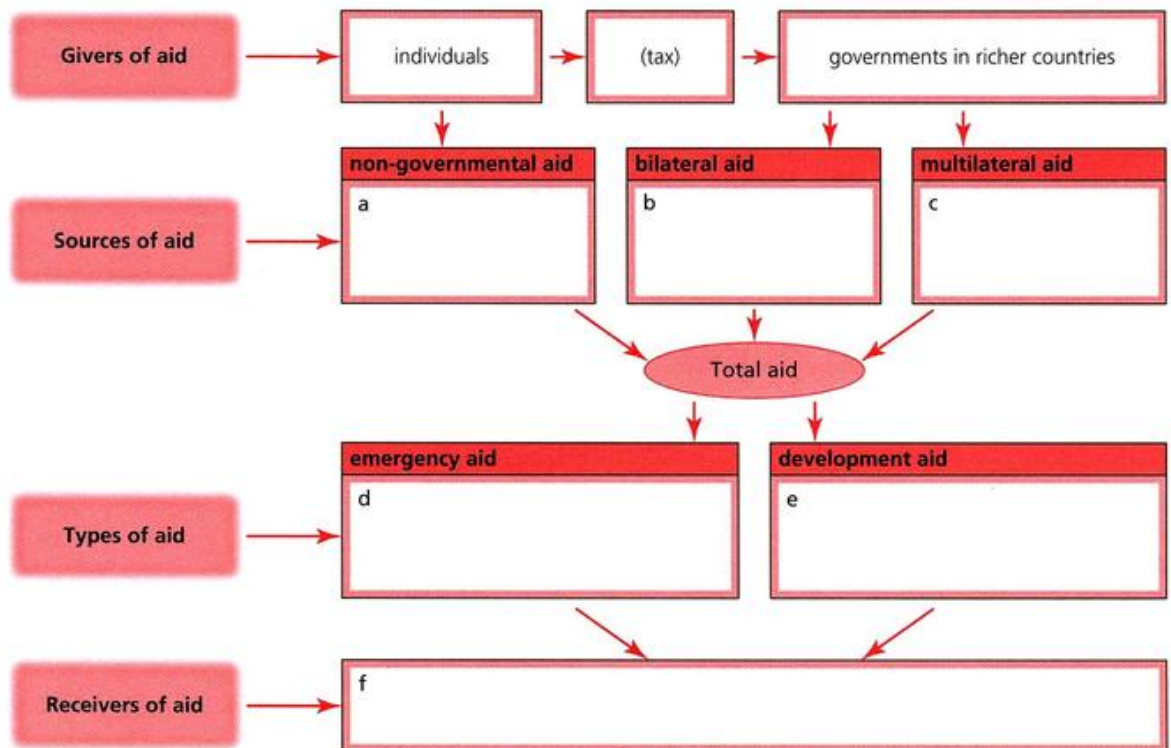


- 1 In slowly developing countries, most workers are employed in primary economic activity, usually agriculture.
- 2 The largest sector of developed countries is in tertiary economic activity.
- 3 The secondary sector in quickly developing countries is smaller than in slowly developing countries.
- 4 In quickly developing countries, manufacturing industry is usually a very important employer.
- 5 Primary economic activity in developed countries accounts for a larger proportion of economic activity as a whole when compared to slowly developing countries.
- 6 The secondary sector in quickly developing countries is proportionately bigger than the combined secondary sectors in slowly developing and developed countries.
- 7 The numbers of people employed in primary activities is small all over the world.
- 8 Tertiary activities or service industries usually dominate the economies of developed countries.

5 International aid

Read the sentences and put them in the correct place on the diagram. Some sections contain more than one sentence.

- 1 This aid is given by one government to another.
- 2 Its immediate purpose is to prevent people from dying.
- 3 These bodies then distribute the aid to developing countries.
- 4 Examples are volunteer specialists (teachers, nurses, etc), machinery, money.
- 5 This 'long-term' aid is aimed at improving agriculture, industry, roads, schools and hospitals in developing countries.
- 6 A famous example of this type of organization is Oxfam.
- 7 Governments and individuals in poorer countries.
- 8 Examples of this kind of aid are food, shelter and medicine.
- 9 This is given in times of crisis, such as after earthquakes or floods or during famines.
- 10 This is provided by voluntary groups called NGOs.
- 11 Governments contribute money to international bodies such as the United Nations.



6 Economic development around the world

Read the sentences and place them in the correct section below in the correct order.

- 1 These countries have low but rising GNPs.
- 2 These countries are the poorest in the South.
- 3 These are the rich countries of the North.
- 4 Most South American, North African and East Asian countries are in this group.
- 5 Most of these developed countries enjoy high GNPs and most (though not all) of their people enjoy relatively high living standards.
- 6 These developing countries have very low (and often falling) GNPs per person.
- 7 Most people work in farming or other primary activities.
- 8 There is very little manufacturing industry and most exports are poorly priced raw materials.
- 9 Public services, such as schools and hospitals, are well-developed in most of these countries.
- 10 Public health and education services are generally poor.
- 11 Some such as Taiwan and South Korea, developed so rapidly that they have been said to possess 'tiger' economies.
- 12 Many people suffer from malnutrition and from the diseases which accompany it.
- 13 Some developed countries (such as the USA or Germany) are much wealthier than others (such as Russia and Poland).
- 14 This group of countries includes Mali and Ethiopia.
- 15 More and more people now find employment in manufacturing industry, but their wage levels and working conditions are often poor.
- 16 In recent times, many of these countries of the South have industrialized rapidly.
- 17 They control 85 per cent of the world's trade and use up 80 per cent of the world's resources.

Developed countries

Quickly developing countries

Slowly developing countries

Opinions on aid

Read the text and make notes on the arguments for and against aid.

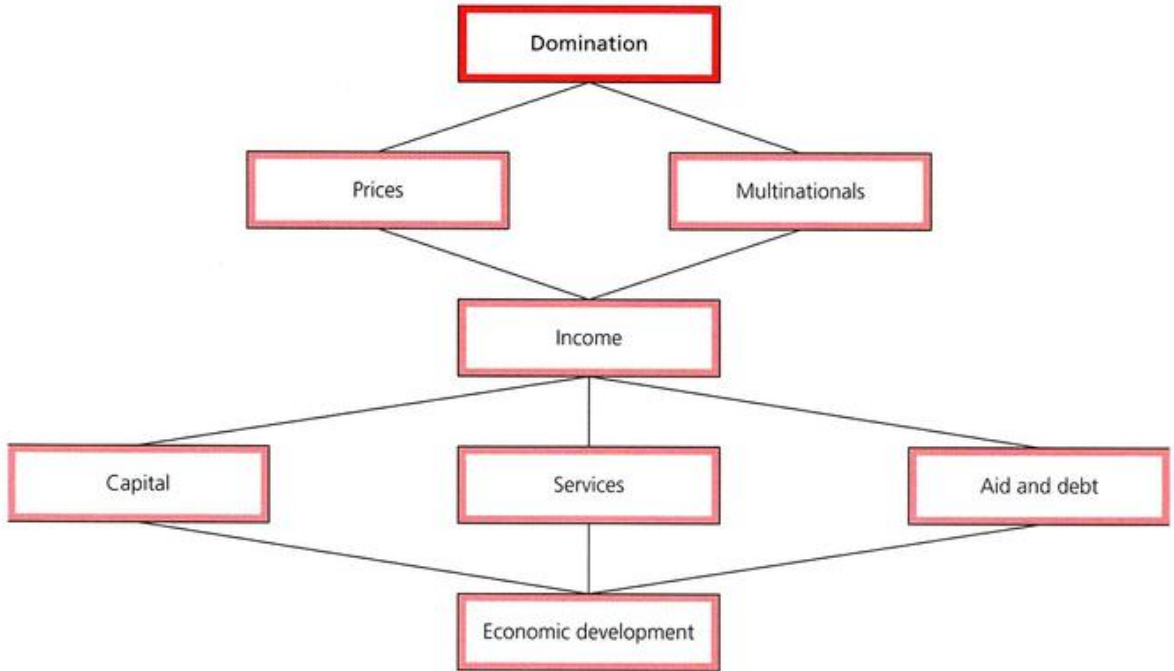
There are mixed opinions about the role of aid in solving the problems of world poverty. Arguments in favour of aid include the fact that emergency aid saves lives in times of catastrophe such as famine, earthquakes, tsunamis, etc. Development aid helps communities by improving water supplies, building sanitation infrastructure, building new roads, constructing housing and improving education. Aid that is targeted at specific groups, for example as in literacy courses for women, can have good long-term effects. Aid creates friendly links between countries and acts as a limited means of spreading the world's wealth a little more evenly.

Of course, there are a number of arguments which people express against aid. It can make receivers dependent on donors or those who give the funding. This can reduce the independence of receiving countries. Bilateral aid is sometimes tied. This means it is given with conditions attached which favour the interests of donor countries. Fair trade is much more important than aid in overcoming poverty in developing countries. Aid from developed countries may be used to draw attention away from the exploitation of poor people by unfair trading practices. Also, because aid flows from the North to the South, some people in the North may feel that they are somehow superior to people from developing countries.

Arguments for aid	Arguments against aid
1	5
2	6
3	7
4	8

8 Unfair trade

Put the text in the correct order. Use the diagram to help you.



- a Governments and people from developing countries receive very little income. Because of this
- b they lack the capital to improve agriculture or develop industry of their own,
- c Developing countries get low and fluctuating prices for their raw materials, while manufactured products from rich countries fetch high prices. This position is supported by powerful international trade bodies such as the World Trade Organization.
- d and therefore they may be forced to ask for international aid or to borrow money abroad and so fall into international debt. This makes them even more dependent on developed countries and banks.
- e All this makes it difficult for poorer states to develop economically.
- f they cannot improve education, public health or other social services,
- g The domination of world trade by the North has made it difficult for many developing countries and people to grow economically.
- h Many multinational companies (transnational corporations) set up factories in developing countries. But these powerful companies often force governments to change their employment laws, for example to reduce salaries, allow longer working hours and discourage trade unions. Some multinational companies make use of 'sweatshop' conditions to produce luxury goods very cheaply from virtual slave labour.

1 2 3 4 5 6 7 8

16 Environment

Word	Definition	Example	Translation
accountability /əˈkaʊntəˈbɪləti/	a position where people have the right to criticize you or ask you why something happened. noun [uncount]	<i>the accountability of the government to the public</i>	
acid rain /ˈæsɪd ˈreɪn/	rain that contains a high level of acid that can damage the environment. The acid forms when harmful gases from industry and vehicles mix with water in the atmosphere. noun [uncount]		
acidic /əˈsɪdɪk/	containing acid (=a chemical substance with a pH value of less than 7). adjective	<i>acidic soil</i>	
acidify /əˈsɪdɪˈfaɪ/	to become an acid, or cause a substance to become an acid. verb [intransitive/transitive]		
affect /əˈfekt/	to change or influence something. If something affects something else, it has an effect on it. verb [intransitive]	<i>Did the newspapers really affect the outcome of the election?</i>	
afforestation /əˈfɔːrɪˈsteɪʃ(ə)n/	the process of planting many trees on an area of land. noun [uncount]		
alkaline /ˈælkəˌlaɪn/	containing an alkali or consisting of an alkali (=a chemical substance with a pH value of more than 7). adjective		
asthma /ˈæsmə/	a medical condition that makes it difficult to breathe. noun [uncount]	<i>Her grandmother suffered from asthma.</i>	
atmosphere /ˈætməˌsfiə(r)/	the air round the Earth or round another planet. noun [count]	<i>Saturn's moon, Titan, has an atmosphere mainly made of nitrogen.</i>	
biodegradable /ˌbaɪəˈɒdɪˈɡreɪdəb(ə)l/	decaying naturally in a way that is not harmful to the environment. adjective		
biodiversity /ˌbaɪəˈɒdɪˈvɜː(r)səti/	the variety of types of living thing in a particular region. noun [uncount]		
biomass /ˌbaɪəʊˌmæs/	plant and animal substances used for fuel. Biomass fuels produce less carbon dioxide than fossil fuels such as coal and oil. noun [uncount]		
biome /ˌbaɪəʊm/	a region that is classified by its climate and the types of animals and plants that are living in it. The rainforest and the tundra are biomes. noun [count]		
biosphere /ˌbaɪəʊˌsfɪə(r)/	the parts of the Earth's surface and atmosphere where living things can exist. noun [singular]		
breathe /briːð/	to take air into your lungs through your nose or mouth and let it out again. verb [intransitive/transitive]	<i>He held her so tightly she could hardly breathe.</i>	
bronchitis /ˈbrɒŋˈkaɪtɪs/	an illness affecting your bronchial tubes in which you cough and find breathing difficult. noun [count]		
burn /bɜː(r)n/	to damage or destroy something with fire. verb [transitive]		
cancer /ˈkænsə(r)/	a serious illness caused by a group of cells in the body increasing in an uncontrolled way. noun [count/uncount]	<i>Some cancers are easier to treat than others.</i>	
canopy /ˈkænəpi/	the highest leaves and branches in a forest. noun [singular]		
carbon dioxide /ˈkɑː(r)bən daɪˈɒksaɪd/	gas without colour or smell, produced when you breathe out or when substances containing carbon are burnt. noun [uncount]		
carbon emissions /ˈkɑː(r)bən rɪˈmɪʃ(ə)nɪs/	carbon dioxide and carbon monoxide that vehicles and factories produce and send into the atmosphere. noun [plural]		
catalytic converter /kætəˈlɪtɪk kənˈvɜːtə(r)/	a piece of equipment fitted to a car that reduces the amount of poisonous gases that it sends into the air. noun [count]		

Word	Definition	Example	Translation
causal /'kɔ:z(ə)l/	if there is a causal connection or relationship between two events, one event causes the other. adjective	<i>They long ago established a causal link between smoking and lung cancer.</i>	
cause /'kɔ:z/	an event, thing, or person that makes something happen. noun [count]	<i>The major cause of these accidents is drivers going too fast.</i>	
cfc /ˌsi: ef 'si:/	chlorofluorocarbon: a gas used in refrigerators and in some aerosols. cfc's can damage the ozone layer of the Earth's atmosphere. noun [count]		
chemical dumping /'kemɪk(ə)l 'dʌmpɪŋ/	the process of getting rid of used or waste chemicals in a particular area, or the illegal activity involved in this process. noun [uncount]		
climate change /'klaɪmət 'tʃeɪndʒ/	important and possibly harmful changes that some scientists believe are taking place in the world's weather because of increased pollution in the atmosphere. noun [uncount]		
coal /'kəʊl/	a hard black substance that is dug from the ground and burned as fuel to provide heat. noun [uncount]	<i>Put some more coal on the fire.</i>	
concentrated /'kɒns(ə)n,treɪtɪd/	concentrated liquids or substances have been made stronger by having water removed. adjective	<i>concentrated fruit juice</i>	
consequence /'kɒnsɪkwəns/	a result or effect of something. noun [count]	<i>She said exactly what she felt, without fear of the consequences.</i>	
conservation /'kɒnsə(r)'veɪʃ(ə)n/	the management of land and water in ways that prevent them from being damaged or destroyed. noun [uncount]	<i>a wildlife conservation project</i>	
conservationist /'kɒnsə(r)'veɪʃ(ə)nɪst/	someone who works to protect the environment from damage or destruction. noun [count]		
contaminated /'kɒn'tæmɪ,neɪtɪd/	made dirty, polluted, or poisonous by the addition of a chemical, waste, or infection. adjective	<i>contaminated food/water/blood</i>	
controversy /'kɒntrəvɜ:(r)si/	a disagreement, especially about a public policy or a moral issue that a lot of people have strong feelings about. noun [count/uncount]	<i>The election ended in controversy, with allegations of widespread vote-rigging.</i>	
critic /'krɪtɪk/	someone who does not like something and states their opinion about it. noun [count]	<i>Critics say the plan is short-sighted and dangerous.</i>	
cyanide /'saɪənaɪd/	a very poisonous chemical. noun [uncount]		
damage /'dæmɪdʒ/	physical harm caused to something so that it is broken, spoiled, or injured. noun [uncount]	<i>Mr Charlton surveyed the damage caused by the bulldozer.</i>	
dangerous /'deɪndʒərəs/	likely to harm or kill someone, or to damage or destroy something. adjective	<i>a dangerous dog</i>	
deadly /'dedli/	able or likely to kill people. adjective	<i>This is a potentially deadly disease.</i>	
debate /'deɪbeɪt/	a discussion in which people or groups state different opinions about a subject. noun [count/uncount]	<i>There has been intense debate over political union.</i>	
decommission /ˌdi:kə'mɪʃ(ə)n/	to stop using something such as a weapon, ship, or nuclear power station. verb [transitive]		
deforestation /ˌdi:frɪ'steɪʃ(ə)n/	the process of cutting down and removing trees, especially from large areas of land. Deforestation is bad for the environment, as there are fewer trees to take in carbon dioxide and this can lead to an increase in global warming. It also involves the destruction of habitats and can cause soil erosion. noun [uncount]		
degradation /ˌdeɪgrə'deɪʃ(ə)n/	the process by which the land or the environment becomes damaged or polluted. noun [uncount]	<i>environmental degradation</i>	
desertification /ˌdɪzɜ:(r)'tʃɪfɪkəɪʃ(ə)n/	the process of land becoming so dry that it cannot be used for farming. This is often the result of human activities such as overgrazing and deforestation. noun [uncount]		
destroy /'dɪstrɔɪ/	to damage something so severely that it no longer exists or can never return to its normal state. verb [transitive]	<i>Half the world's rainforests have already been destroyed.</i>	
devastate /'devəsteɪt/	to seriously damage or completely destroy something. verb [transitive]	<i>Western India was devastated by a huge earthquake.</i>	

Word	Definition	Example	Translation
dioxin /daɪ'ɒksɪn/	a poisonous chemical produced during the process of making chemicals for killing plants. noun [count]		
discharge /'dɪstʃɑːdʒ/	liquid or gas that comes out of a place, or the process of coming out into water or the air. noun [count/uncount]	<i>The authorities are particularly concerned about discharges from nuclear power stations.</i>	
disposal /'dɪspəʊz(ə)l/	the process of getting rid of something. noun [uncount]	<i>the disposal of nuclear waste at sea</i>	
droplet /'drɒplət/	a very small drop of liquid. noun [count]		
ecological /iːkə'lɒdʒɪk(ə)l/	relating to the environment and the way organisms affect each other. adjective	<i>The oil that leaked from the damaged ship caused a massive ecological disaster.</i>	
ecology /'iːkɒlədʒi/	the study of the environment and the way organisms affect each other. noun [uncount]	<i>the ecology of the wetlands</i>	
ecosystem /'iːkəʊsɪstəm/	all the plants, animals, and other organisms in a particular area, considered in relation to the environment that they live in and the way they all depend on each other. noun [count]		
ecotourism /'iːkəʊtʊərɪz(ə)m/	the business of organizing and selling holidays that cause as little damage to the environment as possible. noun [count]	<i>Nowadays ecotourism is really popular.</i>	
effect /'iːfekt/	a change that is produced in one person or thing by another. noun [count/uncount]	<i>Scientists are studying the chemical's effect on the environment.</i>	
effluent /'efluənt/	liquid waste that a place such as a factory or farm allows to flow into a river or the sea. noun [count/uncount]		
emission /'iːmɪʃ(ə)n/	a substance, especially a gas, that goes into the air. noun [count]	<i>New regulations are aimed at reducing vehicle emissions.</i>	
emit /'iːmɪt/	to send something out into the air, especially gas, light, or heat. verb [transitive]	<i>Pulsars emit radiation.</i>	
endangered species /ɪnˌdeɪndʒəd 'spiːʃiːz/	a type of animal or plant that may soon become extinct, for example because its habitat is being destroyed or because it has been hunted or gathered far too much in the past. noun [count]		
energy /'enə(r)dʒi/	electricity and other forms of power used for making things work. noun [uncount]		
enforced /ɪn'fɔː(r)st/	happening because of a situation that you cannot control or prevent. adjective	<i>Wyatt blamed injury for his enforced absence from the game.</i>	
environment /ɪn'vaɪrənmənt/	the natural world, including the land, water, air, plants, and animals. noun [singular]	<i>Industrial development is causing widespread damage to the environment.</i>	
environmental /ɪnvaɪrənmənt(ə)l/	relating to the natural world and the effect that human activity has on it. [adjective]	<i>The minister discussed environmental issues.</i>	
environmentalist /ɪnvaɪrənmənt(ə)lɪst/	someone who wants to protect the environment. noun [count]		
environmentally friendly /ɪnvaɪrənmənt(ə)li 'frendli/	not harming the natural environment. adjective		
exhaust /ɪg'zɔːst/	gases or steam produced by an engine as it works. noun [uncount]	<i>exhaust fumes/gases/emissions</i>	
famine /'fæmɪn/	a serious lack of food that continues for a long time and causes many people in a country to become ill or die. noun [count]	<i>People in some African countries suffer from famine.</i>	
flooding /'flʌdɪŋ/	a situation in which water from a river or from rain covers large areas of land. noun [uncount]	<i>Last weekend's flooding left over 10,000 people homeless.</i>	
forested /'fɒrɪstɪd/	covered with trees. adjective	<i>The hills nearby were thickly forested with oak trees.</i>	
forestry /'fɒrɪstri/	the science of caring for forests, and the trees and other plants that grow in them. noun [count]		

Word	Definition	Example	Translation
fossil fuel /ˈfɒs(ə)l ˈfjuːəl/	a fuel such as coal, oil, or natural gas made from decayed material from organisms that lived many millions of years ago. noun [count/uncount]		
fuel /ˈfjuːəl/	a substance such as oil, gas, coal, or wood that produces heat or power when it is burned. Coal and wood are sometimes called solid fuel. noun [count/uncount]	<i>Drivers are being encouraged to save fuel.</i>	
fumes /ˈfjuːmz/	smoke or gas that has an unpleasant smell, especially harmful smoke or gas. noun [plural]	<i>Traffic fumes raised pollution to record levels yesterday.</i>	
gas /ɡæs/	a substance such as air that is neither a solid nor a liquid. noun [count/uncount]	<i>regulations to cut the emissions of gases such as carbon dioxide</i>	
generate /ˈdʒenəreɪt/	to produce power. verb [transitive]	<i>75% of France's electricity is generated by nuclear reactors.</i>	
greenhouse effect, the /ˈɡriːnhaʊs ɪˈfekt/	the process by which the Earth's surface and lower atmosphere is getting warmer as a result of pollution by gases such as carbon dioxide. The heat from the sun cannot escape, leading to a general increase in the Earth's temperature called global warming. noun [count]		
greenhouse gas /ˈɡriːnhaʊs ɡæs/	a gas that stops heat from escaping from the Earth's atmosphere and causes the greenhouse effect. Carbon dioxide is a greenhouse gas. The level of greenhouse gases in the atmosphere has increased in recent years mainly because of the burning of fossil fuels and also because of deforestation. noun [count]		
habitat /ˈhæbɪtæt/	the type of place that a particular organism usually lives in, for example a desert, forest, or lake. noun [count]	<i>a rare bird that is in danger of losing its natural habitat</i>	
hazardous /ˈhæzə(ɹ)dəs/	dangerous, especially to people's health or safety. adjective	<i>hazardous driving conditions</i>	
hydroelectric /ˈhaɪdrəʊˈɪlektɹɪk/	using water power to produce electricity. adjective	<i>a hydroelectric power station</i>	
illness /ˈɪlnəs/	the state of feeling ill or of having a disease. noun [uncount]	<i>He missed five days of school because of illness.</i>	
impact /ˈɪmpækt/	an effect, or an influence. noun [count]	<i>Her paper discusses the likely impact of global warming on climate change.</i>	
incinerate /ɪnˈsɪnəreɪt/	to burn something completely. verb [transitive]		
interfere /ɪntəˈfɪə/	deliberately become involved in a situation and try to influence the way that it develops, although you have no right to do this. verb [intransitive]		
intervene /ɪntə(r)ˈviːn/	to become involved in a situation in order to try to stop or change it. verb [transitive]	<i>The police had to intervene when protesters blocked traffic.</i>	
landfill site /ˈlændfɪl ˌsaɪt/	a large hole in the ground where rubbish from people's homes or from industry is buried. noun [count]		
leach /liːtʃ/	to remove a chemical or mineral from something such as soil as a result of water passing through it, or to be removed by this process. verb [intransitive/transitive]		
lead /led/	a soft heavy grey metal used especially in the past for making pipes, covering roofs, and in paint. noun [uncount]	<i>lead pipes</i>	
leaded /ˈledɪd/	containing lead. adjective	<i>leaded petrol</i>	
leakage /ˈliːkɪdʒ/	1 the process of leaking a liquid or gas. noun [uncount] 1a an amount of gas or liquid that leaks out of something. noun [uncount]		
logging /ˈlɒɡɪŋ/	the act of cutting down trees for wood, usually in order to sell it at a profit. noun [uncount]		
malnourished /ˌmælˈnaʊrɪʃt/	weak or ill because you do not eat enough or do not eat enough of the right foods. adjective	<i>malnourished children</i>	
methane /ˈmiːθeɪn/	a gas with no colour or smell that is used as a fuel. noun [uncount]		

Word	Definition	Example	Translation
natural disaster /ˌnætʃ(ə)rəl dɪˈzɑːstə/	something that happens in nature and causes a lot of damage or kills a lot of people, for example a flood or an earthquake. noun [count]		
nitrate /ˈnaɪtreɪt/	a chemical substance containing nitrogen, used for improving the quality of soil. noun [count/uncount]		
nitrogen /ˈnaɪtrədʒ(ə)n/	a gas with no colour or smell that exists in large quantities in the air that we breathe. noun [uncount]		
noise pollution /ˈnɔɪz pəˈluːʃ(ə)n/	dangerous or annoying levels of noise. noun [uncount]		
non-biodegradable /nɒn ˌbaɪəʊdɪˈɡreɪdəb(ə)l/	not able to decay naturally, and therefore harmful to the environment. adjective		
non-renewable /nɒn nɪˈnjuːəb(ə)l/	non-renewable energy, fuel, or other raw materials exist in limited amounts only and cannot be replaced once they have been used. Oil is an example of a non-renewable resource. adjective	<i>Should we continue to consume vast quantities of non-renewable fossil fuels?</i>	
nuclear radiation /ˌnjuːklɪə ˈreɪdiəʃ(ə)n/	a form of energy produced during a nuclear reaction that is used for making electrical power but can also kill or harm humans who receive too much of it. noun [uncount]	<i>Some workers at the power station were exposed to high levels of nuclear radiation.</i>	
objector /əbˈdʒektə(r)/	someone who disagrees with something. noun [count]	<i>There are many objectors to the company's plans.</i>	
oil slick /ɔɪl ˌslɪk/	a layer of oil on the surface of a large area of water, for example after a ship has sunk. noun [count]		
organic /ɔː(r)ˈɡænɪk/	used for describing methods of farming and food production that do not use artificial chemicals. adjective	<i>Is this milk organic?</i>	
organism /ˈɔːɡənɪz(ə)m/	a living thing such as a person, animal, or plant, especially an extremely small living thing. noun [count]	<i>tests to identify the organism that causes the disease</i>	
overgrazing /əʊvəˈɡreɪzɪŋ/	a situation in which land is damaged because the cows or other animals in it have been allowed to eat too much of the grass there, or have been allowed to feed on it for too long. noun [uncount]		
overheat /əʊvə(r)ˈhiːt/	to become too hot, or to make something too hot, sometimes causing damage. verb [intransitive/transitive]	<i>The engine started to overheat.</i>	
oxide /ˈɒksaɪd/	a chemical that consists of oxygen combined with another substance. noun [count]		
ozone hole /ˈəʊzəʊn ˌhəʊl/	a hole in the ozone layer thought to be caused by light reacting with some chemicals such as cfc's. noun [count]		
ozone layer /ˈəʊzəʊn ˌleɪə(r)/	a layer of ozone in the Earth's atmosphere that protects the Earth from some of the harmful effects of the sun. noun [singular]		
penetrate /ˈpenəˌtreɪt/	to get inside an object or body by getting through something. verb [intransitive/transitive]	<i>A piece of glass had penetrated the skin.</i>	
permanent /ˈpɜː(r)mənənt/	happening or existing for a long time or for all time in the future. adjective	<i>She suffered permanent brain damage as a result of the accident.</i>	
pesticide /ˈpestɪsaɪd/	a chemical used for killing insects that damage crops. noun [count/uncount]	<i>Farmers use pesticide on their fields.</i>	
phosphate /ˈfɒsfeɪt/	a chemical that contains phosphorus, used especially for making plants grow. noun [count/uncount]		
planet, the /ˈplænɪt/	the planet Earth and everything on it. noun [count]	<i>policies to protect the future of the planet</i>	
poison /ˈpɔɪz(ə)n/	to create pollution that damages part of the environment. verb [transitive]	<i>Waste from the factories is poisoning the water supply.</i>	
pollutant /pəˈluːt(ə)nt/	a substance that is harmful to the environment, especially a chemical. Large amounts of noise, heat etc can also be pollutants. noun [uncount]	<i>the dumping of chemical pollutants in the world's oceans</i>	

Word	Definition	Example	Translation
pollution /pə'lu:ʃ(ə)n/	the process of damaging the air, water, land, or organisms with chemicals or other substances. Pollution is almost always caused by human activity, for example during the process of getting rid of chemical waste from factories and the production of carbon emissions from cars. noun [uncount]	<i>the pollution of local rivers</i>	
preservation /prezə(r)'veɪʃ(ə)n/	the process of working to protect something so that it is not damaged or destroyed. noun [uncount]	<i>Preservation of the environment is vital.</i>	
preserve /prɪ'zɜ:(r)ɪv/	to take care of something in order to prevent it from being harmed or destroyed. verb [transitive]	<i>The society works to preserve historic buildings.</i>	
protect /prə'tekt/	to keep someone or something safe from harm, injury, damage, or loss. verb [transitive]	<i>Databases are generally protected by copyright.</i>	
protected /prə'tektɪd/	used about animals, plants, and other things that the law prevents people from harming. adjective	<i>the protected species</i>	
radioactive /ˌreɪdiəʊ'æktɪv/	a radioactive substance contains a very harmful form of energy that is produced during nuclear reactions. This energy is called radiation. adjective		
rainfall /reɪn'fɔ:l/	the amount of rain that falls in a particular area during a particular period of time. noun [count/uncount]	<i>Annual rainfall was lower last year than ever before.</i>	
rainforest /reɪn'fɔ:rist/	a forest in a tropical region of the world where it rains a lot. Rainforests are considered to be important environmental areas with large numbers of different animals and plants. The rainforests are disappearing fast because of land being cleared for development and the activities of logging companies. noun [count/uncount]	<i>The biggest rainforest is in south America.</i>	
ray /reɪ/	an amount of light or heat from the sun. noun [count]		
reclaim /rɪ'kleɪm/	to improve an area of land so that it can be used. verb [transitive]		
recycle /rɪ:'saɪk(ə)l/	to treat waste materials so that they can be used again. verb [transitive]	<i>Japan recycles 40% of its waste.</i>	
reduce /rɪ'dju:s/	to make something smaller or less in size, amount, importance etc. verb [transitive]	<i>Try to reduce the amount of fat in your diet.</i>	
reduction /rɪ'dʌkʃ(ə)n/	the process or result of making something smaller or less in amount, size, importance etc. noun [uncount/count]	<i>There has been a dramatic reduction in the birth rate.</i>	
reforestation /ˌrɪ:fɔ:ri'steɪʃ(ə)n/	the act of putting new trees into a place where the original trees have been cut down. noun [count/uncount]		
regulation /ˌregjʊ'leɪʃ(ə)n/	an official rule that controls the way that things are done. noun [count]	<i>Smoke detectors must be installed to comply with fire regulations.</i>	
release /rɪ'li:s/	to let someone leave a place where they have been kept. verb [transitive]	<i>The hostages are due to be released at 2 pm today.</i>	
renewable /rɪ'nju:əb(ə)l/	renewable energy and natural materials replace themselves by natural processes, so that they are never completely used up. adjective	<i>renewable sources of energy</i>	
reserve /rɪ'zɜ:(r)ɪv/	an area of land where wild animals or plants are officially protected. noun [count]		
resistant /rɪ'zɪst(ə)nt/	1 not harmed or affected by something. adjective 2 opposed to something. adjective	<i>a disease that is resistant to antibiotics</i> <i>people who are stubbornly resistant to change</i>	
runoff /'rʌnɒf/	a flow of water or chemicals from one place to another, especially when this damages the environment. noun [count]		
safety /'seɪfti/	the fact that a thing is safe to do or use. noun [uncount]	<i>Do we know enough about the safety of these vaccines?</i>	
sanctuary /'sæŋktɪʃuəri/	a special area where animals live in a natural environment protected from people. noun [count]	<i>a wildlife sanctuary</i>	
severe /sɪ'viə(r)/	a severe problem is very serious and worrying. adjective	<i>The reforms have caused severe economic hardship for the poorest members of the population.</i>	
sewage /'su:ɪdʒ/	waste from people's bodies that is removed from houses and other buildings by a system of large underground pipes called sewers. noun [uncount]	<i>The sewage is removed every week.</i>	

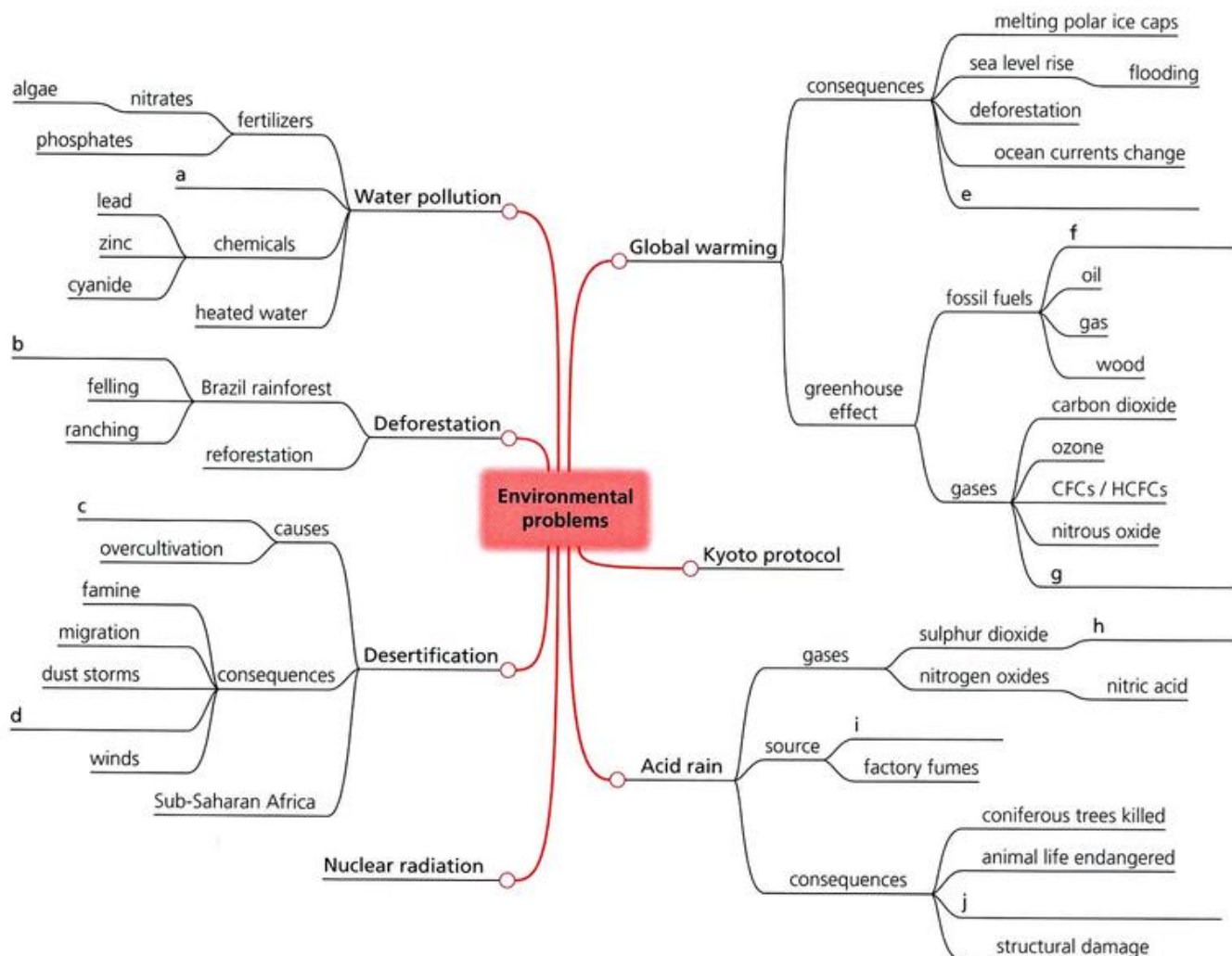
Word	Definition	Example	Translation
shade /ʃeɪd/	a slightly dark area where the light from the sun does not reach because it is blocked by something. noun [uncount]	<i>He pulled a wicker chair into the shade.</i>	
sludge /slʌdʒ/	an unpleasant thick wet substance. noun [uncount]		
solar energy /səʊlə(r) 'enədʒi/	energy that uses the radiation of the sun's light and heat. noun [uncount]		
solution /sə'lu:ʃ(ə)n/	a way to solve a problem or to deal with a bad situation. noun [uncount]	<i>UN leaders are working hard to find a peaceful solution to the conflict.</i>	
sulphur dioxide /sʌlfʊ(r) daɪ'ɒksaɪd/	a poisonous gas with a strong smell, used in industry and often a cause of air pollution. noun [uncount]		
sulphuric acid /sʌl,fjʊərɪk 'æsɪd/	a powerful acid that has no colour and is very corrosive. noun [uncount]	<i>Sulphuric acid damages metal and burns skin.</i>	
sustainable development /sə'steɪnəbl dɪ'veləpmənt/	the development of a country or region that does not use more natural resources than can be replaced and so does not harm the environment. noun [uncount]		
tolerate /'tɒləreɪt/	to allow someone to do something that you do not like or approve of. verb [transitive]	<i>Rude behaviour will no longer be tolerated.</i>	
transpiration /trænspraɪ'ʃ(ə)n/	the process in which water passes from the surface of a plant into the air. noun [uncount]		
trap /træp/	to keep something such as air, gas, or energy in a particular place. verb [transitive]	<i>Carbon dioxide causes the Earth's atmosphere to trap heat.</i>	
unhealthy /ʌn'helθi/	1 an unhealthy business or economy does not make a lot of money. adjective 2 ill, or not physically fit. adjective	<i>Your skin looks pale and unhealthy.</i>	
uranium /jʊ'reɪniəm/	a chemical element that is a metal and is used for producing nuclear energy because it is radioactive. noun [uncount]		
urbanization /ˌɜ:(r)bənəɪ'zeɪʃ(ə)n/	the process by which towns and cities grow bigger and more and more people go to live in them. noun [uncount]	<i>The 18th century was a period of rapid urbanization.</i>	
waste /weɪst/	the failure to use something valuable in an effective way, so that it does not produce the benefits that it could. noun [uncount]	<i>All this uneaten food – what a waste!</i>	
wind /wɪnd/	a natural current of air that moves fast enough for you to feel it. noun [uncount]	<i>A cold wind blew and the rain fell in torrents.</i>	
wither /'wɪðə(r)/	to become weaker or smaller and then disappear. verb [intransitive]	<i>They worry that honoured traditions will wither.</i>	
zinc /zɪŋk/	a chemical element that is a blue-white metal. noun [uncount]		

A Working with words

1 Environment word map

Write these words in the correct place on the word map.

drought exhaust fumes lakes poisoned logging climate change
coal methane overgrazing pesticides sulphuric acid



2 Water pollution

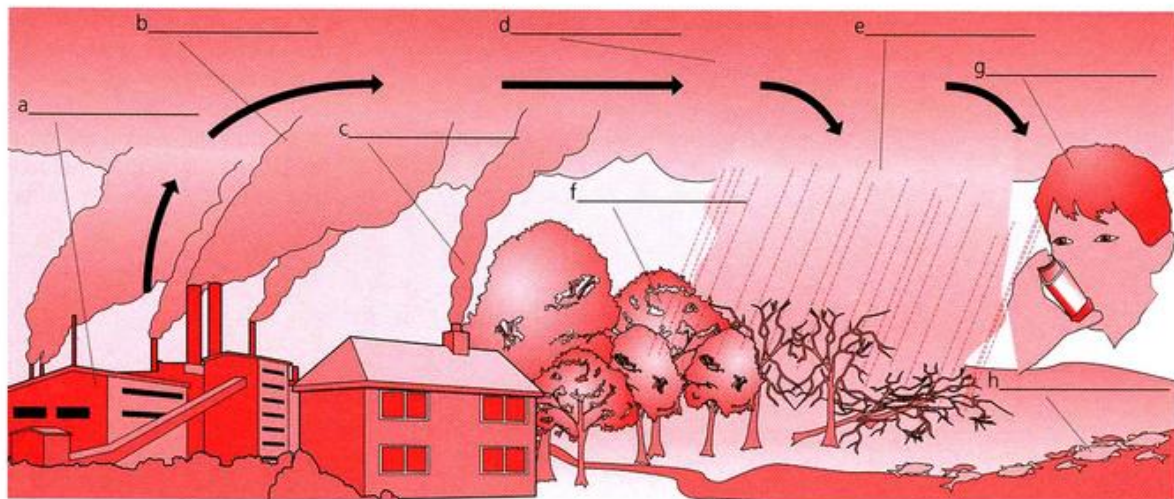
Underline the correct word in each sentence.

- Water bodies, such as rivers and lakes, are important parts of our (biomes / ozones).
- The water itself provides fish and other animals with their (habitats / habits).
- Water biomes may be damaged in a number of ways by industrial (population / pollution).
- Some industrial plants, such as thermal power stations, use water for (heating purposes / cooling purposes).
- This water becomes heated in the process and may then be released back into rivers or (lakes / pools).
- Cool water is a better habitat than warm water because it contains more (oxygen / carbon dioxide).
- Heated water is therefore a pollutant in that it may result in the (suffocation / application) of animals.
- Poisonous industrial chemicals may sometimes seep into rivers, lakes or (groundwater / seawater).
- Chemicals gradually accumulate in the water until animal and plant life dies from (burning / poisoning).
- Industrial pollution has been reduced in some countries with stricter anti-pollution (regulations / relegations).
- Some industries still try to cut costs by illegal chemical (dumping / pumping).

3 Acid rain

Label the diagram with these phrases.

acid rain produced asthma and bronchitis damage to vegetation domestic fumes factory industrial fumes reaction with moisture in clouds wildlife killed



4 Nuclear radiation

Underline the correct words in the text.

The nuclear power industry uses small amounts of uranium to (1 generate / consume) electricity. In the process, radioactive particles are created. These are dangerous to all living (2 organs / organisms). Radioactive particles also remain contaminated for up to 30,000 years. The threat of radioactive pollution to the world's environment will not quickly be (3 resolved / evolved). There are three main sources of concern over radioactive pollution: (4 discharge / exchange) of radioactive particles from nuclear plants pollute the water, air and soil, radioactive water created by the need to cool nuclear reactors is difficult to (5 expose of / dispose of) and decommissioning nuclear plants after their normal lifespan of about thirty years can be problematic and (6 expensive / intensive). Isolating and guarding large sites which contain (7 animated / contaminated) buildings and material will be difficult, expensive and a long-term commitment. International concerns over nuclear pollution mainly relate to the discharge and (8 disposal / proposal) of radioactive particles from nuclear plants. These are linked to accidents and (9 breakages / leakages).

B Working with sentences

5 Acid rain

Put the sentences in the correct order.

- Borders cannot stop them.
- In the air they join with water particles and form strong acids.
- So they move around the globe until they fall back down to earth.
- The heavier ones fall to earth as acid rain or snow.
- The smallest of these droplets of acid float in the air as mist or cloud.
- They are transported by the wind and in the atmosphere.
- These gases, such as sulphur and nitrogen, come from industrial and domestic chimneys, vehicle exhausts, planes, rockets and boats.
- They travel in the air from town to countryside, across seas and oceans, from one nation to another.
- When fossil fuels such as coal or oil are burnt, gases and unburnt particles are released into the air.
- When they land on vegetation, soil, buildings, or even when they float in the air, they do great damage to our environment and ourselves.

1 2 3 4 5 6 7 8 9 10

6 Global impacts

Match the beginnings and endings of the sentences.

Beginnings

- 1 Global warming is caused by
- 2 The burning of fossil fuels is
- 3 Trees convert carbon dioxide into oxygen
- 4 Rainforest clearing decreases the amount of oxygen
- 5 The burning of trees during deforestation
- 6 A result of global warming may be
- 7 Such a rise would flood many low-lying parts of the world

Endings

- a the main cause of the build-up of greenhouse gases.
- b a rise in sea level by up to 60cm during this century.
- c adds to the build-up of carbon dioxide.
- d and this is why equatorial forests have been described as 'the lungs of the world'.
- e such as Bangladesh and the south-east coast of the USA.
- f the gradual build-up in our atmosphere of carbon dioxide and other 'greenhouse gases'.
- g and increases the amount of carbon dioxide in the atmosphere.

1 2 3 4 5 6 7

C Working with texts

7 The greenhouse effect

Read the text and make notes on the causes, effects and solutions for the greenhouse effect.

We contribute to the greenhouse effect in many ways. People burn fossil fuels, such as coal, gas and oil and wood. This produces huge amounts of carbon dioxide which traps heat, much like a blanket, in the upper atmosphere. Additionally, large increases in animal numbers in order to feed the world's population is producing excess methane gas which is also trapping heat. Cutting down tropical forests also adds to the problem. Trees absorb carbon dioxide which people and animals produce. Trees also 'breathe out' oxygen which all living things need. These processes are vital for a balanced existence. However, people are cutting down vast areas of tropical forests, and so upset this balance.

On top of all this, the increase in temperature of the Earth's atmosphere is causing the climate in some areas to change. This is especially true in areas which normally receive little but vital rainfall. When this rain does not fall, it causes drought, crop failure and famine. Another problem is the melting of the ice caps which creates a rise in sea levels. This rise may cause some island nations in the South Pacific Ocean to disappear. There is also increased rainfall and flooding in some areas, such as in Bangladesh and Mozambique, leading to destruction and death. One solution is to reduce the burning of fossil fuels and use other sources such as solar, wind and wave energy. Planting more trees would also help increase the oxygen supply.

A Causes	B Effects	C Solutions
1	1	1
2	2	2
3	3	3

8 Negative effects of acid rain

Read the text and sort the paragraphs into the correct places in the table.

- Acid fog can directly damage human health. In times of such fog, people may breathe in tiny droplets of nitric or sulphuric acid. Such acids are believed to result in illnesses such as asthma.
- Acid rain releases minerals that damage plant roots. These two processes reduce crop yields and farm incomes.
- Acid rain results in heavy leaching, which deprives tree roots of the nutrients they need. The trees then become 'malnourished' and are more likely to be killed by diseases or parasites.
- The acidification of groundwater in Sweden has been linked to foul-tasting water, children's diarrhoea and even to people's hair turning green after washing.
- Many angling lakes have been rendered lifeless by acid rain, which destroys the food chain that fish need to survive. Thousands of lakes in Norway and Sweden have been thus affected.
- Minerals and nutrients are leached or washed out of the topsoil, reducing the soil's fertility.
- Chemicals in acid rain also weaken the ability of trees to tolerate cold. This results in the death of many conifers in Northern Europe. It is estimated that more than half of Germany's evergreen trees have now been damaged by acid rain.
- The surfaces of old buildings flake away as they undergo severe chemical weathering by acid rain. It is estimated that famous 'tourist trap' buildings such as the Coliseum in Rome have suffered more acid rain damage in the past 30 years than they did in the previous 2,000.

1 Impact on agriculture	
2 Impact on forestry	
3 Impact on leisure activities and tourism	
4 Impact on the quality of life	

17/18 Weather and climate

Word	Definition	Example	Translation
affect /ə'fekt/	to change or influence something. If something affects something else, it has an effect on it. verb [transitive]		
air /eə(r)/	the mixture of gases surrounding the Earth that we breathe. noun [uncount]	<i>Do we really want all these cars polluting the air?</i>	
airfront /eə'frʌnt/	a boundary line between two air masses. noun [count]		
altitude /'æltɪ,tju:d/	the height of a place or object above sea level. noun [count]	<i>Breathing can be difficult at high altitudes.</i>	
anemometer /æni'momɪtə/	an instrument used for measuring wind speed. noun [count]		
anti-clockwise /æntɪ'klɒkwaɪz/	moving in the direction opposite to the direction of the hands of a clock. adjective, adverb		
anticyclone /ænti'saɪkləʊn/	an area of high air pressure that produces calm weather with very little wind. noun [count]		
anti-trades /æntɪ'treɪdz/	winds that blow continuously away from the equator. noun [count]		
aqueduct /ækwi'dʌkt/	a structure like a bridge that takes water across a valley. noun [count]		
ascend /ə'send/	to rise into the air. verb [intransitive]		
atmospheric /æt'mɒs'ferɪk/	relating to or existing in the atmosphere round the Earth or round another planet. adjective [only before noun]	<i>atmospheric pressure</i>	
autumn /'ɔ:təm/	the season of the year that comes between summer and winter. noun [count/uncount]		
barometer /bə'rɒmɪtə(r)/	a piece of equipment that shows you what kind of weather to expect. It measures atmospheric pressure. noun [count]		
Beaufort Scale, the /'bɔ:fə(r)t ʃkeɪl/	a series of numbers from 0 to 12 that are used to show how strongly the wind is blowing. 0 means that there is no wind and 12 means that there is a hurricane. noun [count]		
blanket /'blæŋkɪt/	a thick layer of something, for example snow or cloud, that completely covers an area. noun [singular]	<i>a blanket of fog</i>	
blizzard /'blɪzəd/	a storm with a lot of snow and strong winds. noun [count]	<i>Roads were closed due to severe blizzards.</i>	
block /blɒk/	to stop something from moving through or along something else. verb [transitive]	<i>Something is blocking the flow of water through the pipe.</i>	
blow /bləʊ/	if wind or air blows, the air moves. verb [intransitive]	<i>A strong wind was blowing across the moors.</i>	
blustery /'blʌst(ə)ri/	1 with strong winds. adjective 1a blowing strongly. adjective	<i>blustery conditions</i> <i>blustery winds</i>	
boreal /'bɔ:riəl/	of or relating to the north. adjective		
breeze /'bri:z/	a light wind. noun [count]	<i>a gentle/light/slight breeze</i> <i>a fresh/stiff/strong breeze</i>	
cactus /'kæktəs/	a plant that grows in deserts and has thick stems and sharp points called spines [plural =cacti]. noun [count]		
calculate /'kælkjuleɪt/	to discover a number or amount using mathematics or with a piece of equipment such as a calculator. verb [transitive]		
calm /'kɑ:m/	if the weather is calm, there is very little wind. adjective	<i>We're going to see a period of calmer weather starting this weekend.</i>	

Word	Definition	Example	Translation
Campbell-Stokes recorder /'kæmb(ə)l ,stəʊks rɪˌkɔːdə(r)/	an instrument used to measure the hours of sunshine each day. noun [count]		
Celsius /'selsiəs/	a system for measuring temperature that is part of the metric system, in which water freezes at 0 degrees and boils at 100 degrees. noun [uncount]		
centigrade /'sentɪˌɡreɪd/	an old-fashioned measurement of temperature. noun [uncount]		
changeable /'tʃeɪndʒəb(ə)l/	tending to change suddenly and often. adjective	<i>a period of rather changeable weather</i>	
chart /tʃɑː(r)t/	1 a list, drawing, or graph showing information in a way that is easy to understand. noun [count] 2 a map, especially one used for planning what direction a ship or aircraft will travel in. noun [count]	<i>Enter your results on the chart.</i>	
chill factor /'tʃɪl ˌfæktə(r)/	the cooling effect of the wind. noun [uncount]		
cirrus /'sɪrəs/	a type of thin cloud found very high in the sky. noun [count/uncount]		
clear /'kliə(r)/	if the sky or the weather is clear, there are no clouds, rain etc. adjective	<i>clear blue skies</i>	
climate /'klaɪmət/	1 the type of weather that a country or region has. noun [uncount] 1a an area that has a particular type of weather. noun [count]	<i>Mexico is renowned for its hot climate and spicy food. Many northern Europeans spend their holidays in warmer climates.</i>	
climatic /'klaɪˌmætɪk/	relating to the climate of a country or region. adjective	<i>the effects of climatic change</i>	
climb /'klaɪm/	if a temperature, price, or the level of something climbs, it becomes higher. verb [intransitive]	<i>Temperatures climbed into the 90s.</i>	
clockwise /'klɒkˌwaɪz/	moving in a circle in the same direction as the hands on a clock. adjective, adverb		
cloud /'klaʊd/	a white or grey mass of very small drops of water in the sky. noun [count/uncount]	<i>A few white clouds drifted across the sky.</i>	
cloudless /'klaʊdləs/	a cloudless sky has no clouds in it. adjective		
cloudy /'klaʊdi/	full of clouds. adjective	<i>a cool cloudy morning</i>	
cold front /'kəʊld ˌfrʌnt/	the place where a moving mass of cold air meets a mass of warm air. Cold fronts usually cause heavy rain and they sometimes cause thunder. noun [count]		
concentrated /'kɒns(ə)nˌtreɪtɪd/	intense, or stronger. adjective	<i>The sun's rays are more concentrated nearer the equator.</i>	
condensation /'kɒndənˌseɪʃ(ə)n/	1 the water on windows or walls that forms when steam or warm air changes into liquid. noun [uncount] 2 the process in which a gas changes into a liquid, usually when it becomes cooler. noun [uncount]		
condense /'kɒnˌdens/	if gas or steam condenses, or if something condenses it, it changes into a liquid, usually when it becomes cooler. verb [intransitive/transitive]		
conditions /'kɒnˌdɪʃ(ə)nz/	the weather, especially when it is bad. noun [plural]	<i>The storm brought freezing conditions across much of the country.</i>	
coniferous /'kɒnɪf(ə)rəs/	1 a coniferous tree produces cones. adjective 1a a coniferous forest has only conifers growing in it. adjective		
consequence /'kɒnsɪkwəns/	a result or effect of something. noun [count]	<i>Climate change could have disastrous consequences for farmers.</i>	
constant /'kɒnstənt/	continuing at the same rate, level, or amount over a particular period of time. adjective	<i>Maintain a constant speed.</i>	
control /'kɒnˌtrəʊl/	to have the power to make decisions and decide what will happen to something. verb [transitive]	<i>Most of the news media were controlled by the central government.</i>	

Word	Definition	Example	Translation
convection /kən'vekʃ(ə)n/	the process by which the very small parts in a liquid or gas move and give out heat. noun [uncount]		
convictional rain /kən'vekʃ(ə)n(ə)l ,reɪn/	convictional rain occurs when air rises from a warm land surface. noun [uncount]		
cool /ku:l/	1 rather cold, often in a pleasant way. adjective 2 cool or cool down to become cooler, or to make something cooler. verb [intransitive/transitive]	<i>Tomorrow it will be cloudy and cool everywhere.</i>	
Coriolis effect, the /'kɔriəʊlɪs ɪ,fekt/	the reason that winds in the northern hemisphere are deflected to the right and winds in the southern hemisphere are deflected to the left due to the rotation of the Earth on its axis from west to east.		
cumulonimbus /'kjʊmjuələʊ'nɪmbəs/	a mass of very tall thick cloud that usually brings rain and sometimes thunder. noun [count/uncount]		
cumulus /'kjʊ:mjuələs/	a large low white cloud that is round at the top and flat at the bottom. Cumulus clouds form at the lower levels of the atmosphere. noun [count/uncount]		
current /'kʌrənt/	1 a strong movement of water in one direction. noun [count] 1a a strong movement of air in one direction. noun [count]	<i>Strong currents and winds swept their boat out to sea.</i> <i>Birds of prey use air currents to lift them.</i>	
cyclonic rain /'saɪklənɪk ,reɪn/	cyclonic rain is associated with low pressure systems. It forms at the fronts where warm and cold air masses meet. noun [uncount]		
cylinder /'sɪlɪndə(r)/	an object shaped like a wide tube. noun [count]		
cyprus /'saɪprəs/	a tall tree with dark green leaves that do not fall off in winter. noun [count]		
date /deɪt/	a sweet brown sticky fruit with a hard narrow seed inside that grows on palm trees. noun [count]		
deciduous /dɪ'sɪdjuəs/	deciduous trees lose all their leaves each autumn. adjective		
deflection /dɪ'flekʃ(ə)n/	the action of making something go in a different direction, especially by hitting it. noun [count/uncount]		
degree /dɪ'ɡri:/	1 a unit for measuring temperature. Measurements are often expressed as a number followed by the symbol °. noun [count] 2 a unit for measuring angles. Measurements are often expressed as a number followed by the symbol °. noun [count]	<i>It will probably be a few degrees colder by the weekend.</i> <i>The two lines meet at a 90° angle.</i>	
depression /dɪ'preʃ(ə)n/	a large mass of air at low pressure that usually brings cooler weather and rain. noun [count]		
desert /dezə(r)t/	a large area of dry land that usually gets very little rain and has no permanent rivers, lakes etc. Very few plants or animals grow or live there. Most deserts are in hot regions, but there are some in very cold regions. noun [count/uncount]	<i>The Sahara Desert is the biggest desert in the world.</i>	
desertification /dɪzə:(r)ɪ'tɪfɪkeɪʃ(ə)n/	the process by which land becomes so dry that it cannot be used for farming. noun [uncount]		
dew /dju:/	small drops of water that form on the ground during the night. noun [uncount]		
dominate /'dɒmɪneɪt/	to be the most important issue, activity, problem etc in a particular situation. verb [intransitive/transitive]	<i>The earthquake once again dominated the news.</i>	
drift /drɪft/	to be pushed along very slowly by the movement of air or water. verb [intransitive]	<i>The boat started to drift out to sea.</i>	
drizzle /'drɪz(ə)l/	to rain in a very light way. verb [intransitive]		
drop /drɒp/	1 if the wind drops, it becomes less strong. verb [intransitive] 2 a very small amount of liquid with a round shape. noun [count] 3 a fall in the amount or value of something. noun [count] [usually singular]	<i>I felt a drop of rain on my face.</i>	

Word	Definition	Example	Translation
droplet /'drɒplət/	a very small drop of liquid. noun [count]		
drought /draʊt/	a long period of time when there is little or no rain and crops die. noun [count/uncount]		
dry season /draɪ 'si:zn/	a period of the year in some countries during which rain does not usually fall. noun [count]		
dust bowl /'dʌst bəʊl/	a region where there are a lot of dust storms because the soil has become dry from lack of rain. noun [count]		
easterly /'i:stə(r)li/	a wind that blows from the east (plural: easterlies). noun [count]		
elements, the /'elmənts/	the weather, especially wind and rain. noun [plural]	<i>The hood provides added protection against the elements.</i>	
equator, the /'i:kweɪtə(r)/	an imaginary line that goes round the Earth and divides it into the northern and southern hemispheres. noun [singular]		
equatorial /'ekwə'tɔ:riəl/	near the equator, or typical of conditions near the equator. adjective		
evaporation /ɪ,væpə'reɪʃ(ə)n/	when liquid changes into gas or steam. noun [uncount]		
evergreen /'evə(r)grɪ:n/	1 a tree or plant that does not lose its leaves in winter. noun [count] 2 covered in green leaves all year long, not only in summer. adjective		
exert /ɪgzɜ:(r)t/	to put force or physical pressure on something. verb [intransitive]		
expand /ɪk'spænd/	to become larger in size and fill more space. verb [intransitive]	<i>The water froze inside the pipe, causing it to expand and burst.</i>	
exposed /ɪk'spəʊzd/	not protected from the weather. adjective	<i>an exposed site on the hill</i>	
Ferrel's law /'ferəls lɔ:/	the law that predicts the directions of the large-scale circulations of the Earth's atmosphere and oceans. It is a restatement in global terms of the action of the Coriolis force.		
fertility /'fɜ:(r)tləti/	the ability of the soil to produce a lot of good crops or plants. noun [uncount]	<i>measures to improve the fertility of the soil</i>	
flooding /'flʌdɪŋ/	a situation in which water from a river or from rain covers large areas of land. noun [uncount]	<i>Last weekend's flooding left over 10,000 people homeless.</i>	
flower /'flaʊə(r)/	1 the coloured part of a plant from which the plant's fruit develops. A flower is often made up of many petals. noun [count] 2 if a plant flowers, it produces flowers. verb [intransitive]	<i>The plant has small white flowers.</i>	
fog /fɒg/	a thick cloud that forms close to the ground or to water and is difficult to see through. Fog is thicker than mist. noun [count/uncount]	<i>Heavy fog forced drivers to slow down.</i>	
force /fɔ:(r)s/	1 used with a number for describing how strong a wind is. noun [uncount] 2 to use physical force to move things in a particular direction. verb [transitive]	<i>Use a strong jet of water to force blockages out of the pipe.</i>	
forecast /'fɔ:(r)kɑ:st/	a statement about what is likely to happen, based on available information and usually relating to the weather, business, or the economy. noun [count]	<i>The weather forecast is for a dry sunny day tomorrow.</i>	
front /frʌnt/	a line where a large area of cold air meets a large area of warm air. noun [count]		
frontal /'frʌnt(ə)l/	relating to a weather front. adjective	<i>a frontal system</i>	
frost /frɒst/	1 a thin white layer of ice that looks like powder and forms on things outside when the weather is very cold. noun [uncount] 2 a period of weather cold enough to form frost. noun [count/uncount]	<i>bushes covered with frost</i> <i>A late frost in May could easily kill these delicate plants.</i>	

Word	Definition	Example	Translation
funnel /'fʌn(ə)l/	a tube that is wide at the top and narrow at the bottom, used for pouring liquid or powder into a container. noun [count]		
gale /geɪl/	a very strong wind. noun [count]		<i>a force nine gale (= a very strong gale).</i>
garigue /'gæri:g/	an area of low, open scrubland in the Mediterranean area; characterized by small evergreen shrubs and low trees. noun [uncount]		
graph /gra:f/	a picture that uses lines or curves to show the relationship between numbers or measurements that change. noun [count]		<i>The graph shows that the number of working mothers is increasing.</i>
grass /grɑ:s/	a very common plant with thin green leaves that covers the ground. A single piece of grass is called a blade of grass. noun [uncount]		<i>We should cut the grass before it starts raining.</i>
graze /greɪz/	1 to eat grass growing in a field. verb [intransitive] 1a to put an animal in a place where it can eat grass. verb [transitive]		
Gulf Stream, the /'gʌlf ˌstri:m/	a current of warm water that flows from the Gulf of Mexico to the north and east across the Atlantic Ocean towards Europe. noun		
gust /gʌst/	1 if a wind gusts, it blows strongly for short periods of time. verb [intransitive] 2 a sudden strong wind. noun [count]		<i>A gust of wind blew his hat off.</i>
hail /heɪl/	rain that freezes in the sky and falls to the ground as small balls of ice. noun [uncount]		
heat /hi:t/	1 the quality of being hot, or the degree to which something is hot. noun [singular/uncount] 1a the heat very hot weather.		<i>He could feel the heat of the sun on his back. The local people get out of the city to escape the summer heat.</i>
hemisphere /'hemɪsfiə(r)/	one half of the Earth. The northern hemisphere is the part of the world north of the equator, and the southern hemisphere is the part south of it. noun [count]		
high pressure /'haɪ 'preʃə(r)/	a large amount of force that the air produces in the atmosphere and that usually brings warm, calm weather. noun [uncount]		
high /haɪ/	a period or situation in which something reaches its highest level. noun [count]		<i>Temperatures today are expected to reach a high of 30 degrees.</i>
humid /'hju:mɪd/	hot and wet in a way that makes you feel uncomfortable. adjective		
hurricane /'hʌrɪkən/	a violent storm with extremely strong winds and heavy rain. noun [count]		
hygrometer /'haɪ'grɒmɪtə/	a piece of equipment used for measuring humidity. noun [count]		
inland /'ɪnlənd/	in a direction away from the coast. adverb		<i>The storm moved quickly inland.</i>
irrigate /'ɪrɪgeɪt/	to bring water to land through a system of pipes, ditches etc in order to make crops grow. verb [transitive]		<i>Parts of the desert have been irrigated.</i>
isobar /'aɪsəʊ,bɑ:(r)/	a line on a weather map that connects places with the same air pressure. noun [count]		
isohel /'aɪsəʊ,hel/	a line on a weather map that connects places of equal sunshine. noun [count]		
isohyet /'aɪsəʊ'haɪt/	a line on a weather map that connects places of equal precipitation. noun [count]		
isoline /'aɪsəʊ,lajn/	a line on a weather map. noun [count]		
isotach /'aɪsəʊ,tæk/	a line on a weather map that connects places of equal wind speed. noun [count]		
isotherm /'aɪsəʊ,θɜ:(r)m/	a line on a weather map that connects places of equal temperature. noun [count]		
land breeze /'lænd ˌbrɪz/	a light wind blowing towards the sea from the land, especially at night. noun [count/uncount]		

Word	Definition	Example	Translation
landmass /ˈlænd,mæs/	a continent or a large area of land that is surrounded by sea. noun [count]		
lapse rate /ˈlæps ,reɪt/	the rate of change of temperature observed while moving upwards through the atmosphere.		
latitude /ˈlætɪ,tjuːd/	1 the distance of a point on the Earth from the equator, measured in degrees north or south. noun [count/uncount] 2 latitudes a place or region at a particular latitude. noun [plural]	<i>The plant grows best in cooler latitudes.</i>	
lightning /ˈlaɪtnɪŋ/	the bright flashes of light that you see in the sky during a storm. noun [uncount]	<i>She lay awake, listening to the thunder and lightning.</i>	
low /ləʊ/	1 small in amount or level. adjective 2 an area of low pressure. noun [count]	<i>Temperatures are usually around the low 30s at this time of year.</i>	
lows /ləʊz/	used about temperatures. noun [count]	<i>Overnight lows will be around 5 degrees Celsius.</i>	
magnetic pole /mæɡˌnetɪk ˈpəʊl/	a place near the North Pole or the South Pole that a compass points towards. noun [count]		
mean /miːn/	average. adjective	<i>Calculate the mean distance travelled.</i>	
measurement /ˈmeʒə(r)mənt/	1 the exact size, degree, strength etc of something, usually expressed in numbers of standard units. noun [count] [often plural] 2 the process of measuring something. noun [uncount]		
mercury /ˈmɜː(r)kjʊəri/	a silver liquid metal element that is used in thermometers. noun [uncount]		
meteorology /ˌmiːtiəˈrɒlədʒi/	the scientific study of weather. noun [uncount]		
mild /maɪld/	mild weather is warm and pleasant, especially warmer than usual for the time of year. adjective	<i>a mild winter</i>	
millibars /ˈmɪlɪ,bɑː(r)s/	a unit for measuring air pressure. noun [count]		
mist /mɪst/	a mass of small drops of water in the air close to the ground. noun [count/uncount]	<i>The early morning mist was clearing to reveal a glorious day.</i>	
mistral /ˈmɪstrɑːl/	a cold, dry wind from the north that is common in the south of France. noun [singular]		
moderate /ˈmɒd(ə)rət/	neither very great nor very small in amount, size, strength, or degree. adjective	<i>Only moderate rainfall is expected this month.</i>	
moist /mɔɪst/	1 slightly wet. adjective 1a used about a region or weather. adjective		
moisture /ˈmɔɪstʃə(r)/	a small amount of water or another liquid in the air, on the surface of something, or in a substance. noun [uncount]		
monsoon /ˈmɒnˈsuːn/	a period of heavy rain in India and Southeast Asia. noun [count]	<i>Every monsoon, the plain gets completely flooded.</i>	
nimbostratus /ˌnɪmbəʊˈstrɑːtəs/	thick low cloud that carries rain and covers all of the sky. noun [uncount]		
north-easterly /ˌnɔː(r)θ ˈɪstəli/	a north-easterly wind blows from the north-east. adjective		
northerly /ˈnɔː(r)ðə(r)li/	a northerly wind blows from the north. adjective		
oasis /əʊˈeɪsɪs/	a place in a desert where there is water and plants and trees grow. noun [count]		
observation /ˌɒbzə(r)ˈveɪʃ(ə)n/	a written or spoken comment about something you have seen, heard, or felt. noun [count]	<i>She made several excellent observations in her essay on Charles Dickens.</i>	
observe /əbˈzɜː(r)v/	to watch or study someone or something with care and attention in order to discover something. verb [transitive]		

Word	Definition	Example	Translation
occluded /ə'klu:dɪd/	an occluded front is the front formed when a cold front occludes (=overtakes and undercuts) a warm front. adjective		
offshore /ɒfʃɔ:(r)/	an offshore wind is blowing away from the land, towards the sea. adjective [usually before noun]	<i>Avoid offshore winds and don't sail alone.</i>	
olive /ɒlɪv/	a small black or green fruit that grows in Mediterranean countries and is eaten as food or used for its oil. It grows on an olive tree. noun [count]		
onshore /ɒnʃɔ:(r)/	moving towards land from the sea. adjective	<i>onshore breezes</i>	
overcast /əʊvə(r),kɑ:st/	with a sky completely full of clouds. adjective		
overhead /əʊvə(r)'hed/	above your head. adjective, adverb	<i>A large white bird flew silently overhead.</i>	
ozone /əʊzəʊn/	1 a kind of oxygen that exists high in the Earth's atmosphere. noun [uncount] 2 fresh air that is near the sea. noun [uncount]		
palm /pɑ:m/	a palm tree, or a large plant similar to a palm tree. noun [count]	<i>a beach of white sand fringed with coconut palms</i>	
period /'pɪəriəd/	an amount of time during which something happens. noun [count]	<i>The long dry period ended with torrential rain.</i>	
polar /'pəʊlə(r)/	coming from or relating to an area near the North Pole or the South Pole. adjective	<i>the polar regions</i>	
pole /pəʊl/	one of the points on the very top or bottom of the Earth, called the North Pole and the South Pole. noun [count]		
prairie /'preəri/	a large flat area in central North America that is covered with grass and farms but has no trees. noun [count]		
precipitation /'prɪsɪpɪteɪʃ(ə)n/	rain, snow, hail etc. noun [uncount]		
pressure /'preʃə(r)/	the amount of force that a gas or liquid produces in an area or container. noun [count/uncount]	<i>an area of high pressure over the Atlantic</i>	
prevailing wind /'prɪveɪlɪŋ 'wɪnd/	a wind that blows in a particular area at a particular time of year. noun [count]		
radar /'reɪdɑ:(r)/	a system that uses radio signals for finding the exact position of something such as an aircraft or a ship. noun [count/uncount]		
rain /reɪn/	1 water that falls in drops from clouds in the sky. noun [uncount] 2 when it rains, water falls in drops from clouds in the sky. verb [intransitive]	<i>Visibility was good, with only occasional light rain. It had been raining heavily all day.</i>	
rainfall /'reɪn,fɔ:l/	the amount of rain that falls in a particular area during a particular period of time. noun [count/uncount]	<i>Rainfall is average for the time of year.</i>	
rain gauge /'reɪn,geɪdʒ/	a piece of equipment used for measuring the amount of rain that falls. noun [count]		
rain shadow /'reɪn ʃædəʊ/	a region that has little rain because it is protected by a mountain range in the direction of winds that carry rain. As the winds rise over the mountains they drop most of their water before reaching the other side. noun [count]		
rainstorm /'reɪn,stɔ:m/	a storm with a lot of rain. noun [count]		
rainy season, the /'reɪni ,sɪz(ə)n/	in some regions of the world, the season in which a lot of rain falls. noun [singular]		
range /'reɪndʒ/	all the numbers, ages, measurements etc that are included within particular fixed limits. noun [count]	<i>Temperatures are expected to be in the range 75 to 85 degrees.</i>	
rate /reɪt/	1 the number of times something happens, or the number of examples of something within a particular period of time. noun [count] 2 the speed at which something happens within a particular period of time. noun [count]		

Word	Definition	Example	Translation
ray /reɪ/	1 an amount of light or heat from the sun. noun [count] 1a a narrow line of light that you can see coming from the sun or a lamp. noun [count]	<i>The last rays of the sun were disappearing behind the mountains.</i>	
reading /'ri:diŋ/	a number or amount shown on a piece of measuring equipment. noun [count]	<i>Magnetism produces distorted compass readings.</i>	
record /'rekɔ:d/ /'rɪkɔ:d/	1 information kept about something that has happened. noun [count] 2 if a piece of equipment records an amount, it measures it and shows it. verb [transitive]	<i>Temperatures as low as -70 degrees Celsius have been recorded.</i>	
relative humidity /ˌrelatɪv 'hju:mɪdəti/	the amount of water vapour in the air. noun [uncount]		
relief /'ri:lɪf/	the elevations of a land surface. noun [count]	<i>a relief map shows highland and lowland areas</i>	
renewable /'ri:nju:əb(ə)l/	renewable energy and natural materials replace themselves by natural processes, so that they are never completely used up. adjective		
resource /'ri:zɔ:s/	things such as coal, trees, and oil that exist in nature and can be used by people. noun [usually plural]		
rise /raɪz/	1 rise or rise up to move upwards or to a higher position. verb [intransitive] 2 if a wind rises, it starts to become stronger. verb [intransitive]	<i>Temperatures will rise steadily towards the end of the week.</i>	
rotate /'rəʊteɪt/	to move in a circle around a fixed central point, or to move something in this way. verb [intransitive/transitive]	<i>The Earth rotates 360 degrees every 24 hours.</i>	
satellite /'sætəlaɪt/	an object that is sent into space to travel round the Earth in order to receive and send information. noun [count]	<i>a spy/communications/weather satellite</i>	
saturated /'sætʃəreɪtɪd/	very wet. adjective	<i>After a night in the rain the clothes were saturated.</i>	
savanna /sə'vænə/	a large flat area of land covered with grass in a warm part of the world. noun [count/uncount]		
scarce /skeəs/	if something is scarce, there is not very much of it. adjective		
selva /'selvə/	a dense tropical rain forest. noun [singular]		
settled /'set(ə)l(ə)d/	not changing or likely to change. adjective	<i>The weather should become more settled next week.</i>	
severe /sɪ'viə(r)/	severe weather is extremely unpleasant and likely to cause harm or damage. adjective	<i>Severe thunderstorms are forecast for Tuesday night.</i>	
shaduf /ʃə'du:f/	a device consisting of a long pole weighted at one end and with a bucket at the other end, used for raising water. noun [count]		
sheltered /'ʃeltə(r)d/	a sheltered place is not affected by bad weather. adjective	<i>These plants will flourish in a sunny sheltered position.</i>	
shower /'ʃaʊə(r)/	a short period when it rains or snows. noun [count]	<i>Tonight there's a 50% chance of showers.</i>	
sky /skaɪ/	the space above the Earth that you see when you look up into the air. noun [count]		
sleet /sli:t/	a mixture of snow and rain. noun [uncount]		
smog /smɒɡ/	polluted air that forms a cloud close to the ground. noun [uncount]		
snow /snəʊ/	small soft white pieces of ice that fall from the sky and cover the ground. noun [uncount]		
soakage /'səʊkɪdʒ/	the amount of liquid that soaks into, through, or out of an object. noun [uncount]		
solar /'səʊlə(r)/	relating to the Sun, or coming from the Sun.	<i>solar power</i>	

Word	Definition	Example	Translation
south-easterly /sauθ 'i:stəli/	a south-easterly wind blows from the south-east. adjective		
south-westerly /sauθ 'westəli/	a south-westerly wind blows from the south-west. adjective		
spell /spel/	a period when there is a particular type of weather. noun [count]	<i>A prolonged wet spell causes trouble for fruit farmers.</i>	
spring /sprɪŋ/	the season of the year between winter and summer. noun [count/uncount]		
squall /skwɔ:l/	a storm that happens suddenly, especially at sea. noun [count]		
starry /'stɑ:ri/	a starry sky or night is one where a lot of stars can be seen in the sky. adjective		
Stevenson's screen /'sti:vənsənz 'skri:n/	a box, usually painted white, used to shade thermometers in weather stations. noun [count]		
sticky /'stɪki/	sticky weather is hot and damp (=with a lot of water in the air). adjective	<i>a warm and sticky summer afternoon</i>	
stratus /'strɑ:təs/	flat grey cloud that is low in the sky. noun [uncount]		
subarctic /sʌb'ɑ:(r)ktɪk/	relating to the very cold parts of the world just south of the Arctic Circle. adjective		
subtropical /sʌb'trɒpɪk(ə)l/	from or relating to the warm parts of the world just north and south of the tropics. adjective		
summer /'sʌmə(r)/	the season between spring and autumn, when the weather is hottest. noun [count/uncount]	<i>He spent the summer in Paris.</i>	
summertime /'sʌmə(r),taɪm/	the period of the year when it is summer. noun [uncount]		
sunlight /'sʌn,lait/	the light from the sun. noun [uncount]	<i>bright/brilliant/strong sunlight</i>	
sunshine /'sʌn,ʃaɪn/	light from the sun. This word is used especially to mean that the light is warm and pleasant. noun [uncount]	<i>The sea was sparkling in the early morning sunshine.</i>	
swirl /'swɜ:l/	to move quickly in circles, or to make something move in this way. verb [intransitive/transitive]	<i>Snowflakes were swirling all around us.</i>	
taiga /'taɪgə/	an area of land situated below the tundra in the northern hemisphere. It has cold winters and warm summers with many coniferous trees. noun [uncount]		
taproot /'tæp,rʊ:t/	the main straight root of a plant that has smaller roots growing out from its side. noun [count]		
temperate /'temp(ə)rət/	never having extremely hot or extremely cold weather. adjective	<i>temperate countries/regions/zones</i>	
temperature /'tempɪtʃə(r)/	a measurement of how hot or how cold a place or object is. Temperature is measured in degrees Celsius or degrees Fahrenheit, using the symbol °. noun [count/uncount]	<i>It's stopped snowing here but the temperature is still minus three.</i>	
thermometer /'θə(r)'mɒmɪtə(r)/	a piece of equipment that measures temperature. noun [count]		
thorn /'θɔ:(r)n/	a sharp point that sticks out from the stem of a plant. noun [count]		
thrive /'θraɪv/	to become very successful, happy, or healthy. verb [intransitive]	<i>This type of plant thrives in cool conditions.</i>	
thunder /'θʌndə(r)/	the loud noise that you sometimes hear in the sky during a storm. noun [uncount]	<i>a roll of thunder (=a series of noises) a clap of thunder (=a single very loud noise)</i>	
thunderstorm /'θʌndə(r),stɔ:(r)m/	a heavy storm with thunder. noun [count]		
topsoil /'tɒp,sɔɪl/	the layer of soil that is near the surface of the ground. noun [uncount]		
tornado /'tɔ:(r)'neɪdəʊ/	a very strong wind that goes quickly round in a circle or funnel (also called a <i>twister</i>). noun [count]		

Word	Definition	Example	Translation
torrential /tə'reɪnʃ(ə)l/	torrential rain falls fast in large amounts. adjective		
towering /ˈtaʊərɪŋ/	much taller than surrounding people or things. adjective		
trade wind /ˈtreɪd ˌwɪnd/	a wind that blows continuously towards the equator. noun [count]		
tropical /ˈtrɒpɪk(ə)l/	used about weather that is very hot, especially when the air also feels slightly wet. adjective	<i>Tropical heat can make you feel very tired.</i>	
tropics, the /ˈtrɒpɪks/	the hottest parts of the Earth, that are near the equator. They are between the Tropic of Cancer and the Tropic of Capricorn. noun [plural]		
tundra /ˈtʌndrə/	a large flat area of land without trees in very cold northern parts of the world. noun [count/uncount]		
typhoon /taɪˈfuːn/	a tropical storm with strong winds that move in circles. noun [count]		
unequal /ʌnˈiːkwəl/	not the same in amount, number, or size. adjective	<i>unequal payments</i>	
unsettled /ʌnˈset(ə)ld/	unsettled weather changes a lot during a short period and there is a lot of wind and rain. adjective		
vapour /ˈveɪpə(r)/	very small drops of water or other liquids in the air that make the air feel wet. noun [count/uncount]		
variation /ˌveəriˈeɪʃ(ə)n/	the existence of differences in amount, number, level, form etc. noun [singular/uncount]	<i>There is considerable variation in size, method of construction, and design.</i>	
vegetation /ˌvedʒəˈteɪʃ(ə)n/	plants and trees. noun [uncount]	<i>a type of vegetation that is found only in this part of the world</i>	
warm front /ˌwɔː(r)m ˈfrʌnt/	the front edge of a mass of warm air that brings warm weather when it moves into an area. noun [count]		
warm /ˌwɔː(r)m/	to make something or someone warm. verb [transitive]	<i>The morning sun warms the kitchen nicely.</i>	
waxy /ˈwæksi/	smooth and shiny like wax. adjective	<i>waxy flower petals</i>	
weather /ˈweðə(r)/	the conditions that exist in the atmosphere relating to temperature, precipitation, and other features. noun [uncount]	<i>Unsettled weather will continue through the weekend.</i>	
weather vane /ˈweðə(r) ˌveɪn/	an object, often an arrow or a model of a cock, that is fixed to the top of a building and points in the direction the wind is coming from. noun [count]		
westerly /ˈwestəli/	a westerly wind blows from the west. adjective		
windy /ˈwɪndi/	1 with a lot of wind. adjective 1a used about places where there is a lot of wind. adjective	<i>a windy beach</i>	
winter /ˈwɪntə(r)/	the season after autumn and before spring, when it is usually cold. noun [count]		
wispy /ˈwɪspi/	if something is wispy, it has a long, thin, delicate shape, for example a cloud, smoke, or hair. adjective		

A Working with words

1 Weather word map

Write these words in the correct place on the word map.

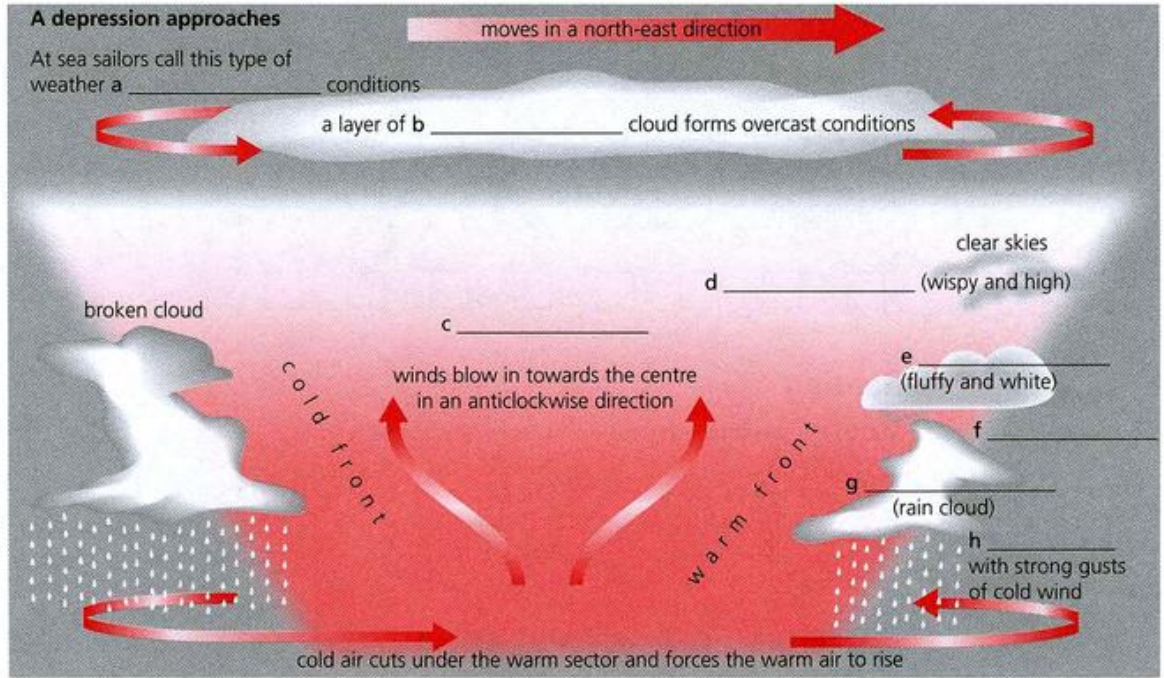
deposition Gulf Stream relief depressions anti-trades isotherm hygrometer hail cirrus deflection



2 Depression approaching

Label the diagram with these words and phrases.

cirrus cloud warm sector squally cumulus cloud showers cumulonimbus stratus cold sector



3 Winds transfer heat and cold

Complete the sentences with these words.

south-westerlies continental cool Coriolis blow deflected equator poles warm

- 1 Winds are named after the direction from which they _____.
- 2 Winds which come from the south-west are called the _____.
- 3 Winds which blow from places nearer to the _____ to places farther away are called warm winds.
- 4 Coming from these regions they tend to _____ the areas over which they blow.
- 5 Likewise, winds which blow from places nearer to the _____ to places farther away are called cold winds.
- 6 Coming from these regions they tend to _____ the areas over which they blow.
- 7 Because the Earth rotates, winds are _____ to the right in the northern hemisphere and to the left in the southern hemisphere.
- 8 This movement is referred to as the _____ effect.
- 9 Winds which blow from _____ regions are dry winds and winds which blow from sea areas (oceans) are wet winds.

4 Evaporation

Put the sentences in the correct order.

- a As the clouds rise, they get colder and form rain, hail, snow or sleet.
- b In the air, the water vapour cools and condenses, forming cloud.
- c Inland, the clouds continue to rise.
- d Rivers and groundwater return most of the precipitation to the sea.
- e Sea winds blow the clouds inland.
- f The light water vapour rises high into the air.
- g The remainder is evaporated from the land by the sun's heat.
- h The sun's heat evaporates sea water, forming a gas called water vapour.

1 2 3 4 5 6 7 8

5 Heating

Match the beginnings and endings of the sentences.

Beginnings

- 1 Places near the equator receive sunrays from
- 2 These rays are more concentrated and travel through a lesser depth of atmosphere than
- 3 Air has weight and exerts pressure and so
- 4 Heavy, cold air presses down and exerts high pressure and so
- 5 There are general, prevailing patterns of moving air
- 6 The Coriolis effect is the name given to the force created by
- 7 Ocean currents are also caused by
- 8 Unequal heating sets up convection currents between
- 9 The global winds, caused by unequal heating,
- 10 Warm ocean currents, such as the North Atlantic Drift, raise sea and air temperatures

Endings

- a air moves from high pressure to low pressure.
- b almost directly overhead because the sun shines straight down.
- c and keep harbours in high latitudes free of ice.
- d help to drag the ocean currents along in their direction.
- e light, warm air tends to rise and exert low pressure.
- f sunrays at places near the poles.
- g the effect of the rotation of the Earth on its axis.
- h throughout the world called global winds.
- i unequal heating at different latitudes.
- j warm and cool parts of the oceans.

1 2 3 4 5 6 7 8 9 10

6 Showing the weather

Read the sentences and choose the best ending.

Endings

a blowing wind a given day a weather chart degrees Celsius millimetres
 equal pressure equal rainfall equal sunshine equal temperature
 kilometres per hour sunny weather the wind is blowing wind speed

- 1 Isolines are different lines on _____.
- 2 An isobar is a line joining places of _____.
- 3 An isotherm is a line joining places of _____.
- 4 An isohel is a line joining places of _____.
- 5 An isohyet is a line joining places of _____.
- 6 Isotachs are lines on a weather map which show _____.
- 7 Anticyclones are areas of descending air which bring clear skies and _____.

- 8 Wind vanes show the direction _____.
- 9 A rain gauge is used to measure precipitation in _____.
- 10 A Campbell-Stokes recorder indicates the hours of sunshine in _____.
- 11 A thermometer measures temperature in _____.
- 12 Anemometers are used to measure wind speed in _____.
- 13 The Beaufort Scale shows the force of _____.

C Working with texts

7 How to measure the weather

Read the text and sort the information into the table in the correct places.

Temperature is measured over days, months and years. It is also measured to give the average and a range of temperatures.

In order to obtain average mean temperatures for a given day, add the highest and lowest temperatures for the day and divide by two.

The average monthly temperature can be calculated by adding the mean daily temperatures for the month and dividing by the number of days in that month.

You can find the mean annual temperature by simply adding the average monthly temperatures for the year and dividing by 12.

To obtain the temperature range for a given day you need to take the highest temperature for the day minus the lowest temperature for the day.

The monthly temperature range can be found by subtracting the mean temperature for the coldest day in the month from the mean temperature for the hottest day in the month.

The method used for calculating an annual temperature range is to take the mean temperature for the hottest month in the year minus the mean temperature for the coldest month in the year.

- | | |
|---|--|
| a daily temperatures for the month and divide by number of days in that month | h mean monthly temperature |
| b add mean monthly temperatures for the year | i monthly temperature range |
| c and lowest temperatures for the day and divide by 2 | j temperature for coldest day in month from mean temperature for hottest day in month |
| d annual temperature range | k temperature for hottest month in year minus mean temperature for coldest month in year |
| e daily temperature range | l temperature for the day minus the lowest temperature for the day |
| f mean annual temperature | |
| g mean daily temperature | |

To obtain average mean temperatures	Method
1	2 add highest ...
3	4 add mean ...
5	6 ... and divide by 12
To obtain temperature ranges	Method
7	8 take the highest ...
9	10 subtract the mean ...
11	12 take the mean ...

8 Depression and anticyclone conditions

Read the text and sort it into the correct place on the diagram.

1 Air rises from the low pressure centres of depressions. But temperature decreases with height. So as the air rises, it becomes cooler. Cool air cannot hold as much water as warm air. So as the air rises, some of its water vapour is condensed or changed into tiny droplets. These droplets make up cloud.

2 Air descends towards the centre of high pressure. As the air descends, it becomes warmer. As the air becomes warmer, it can hold more moisture, so it absorbs rather than condenses water vapour. Without condensation, no cloud can form. So skies are clear.

3 Widely spaced isobars indicate light winds or calm conditions. Any winds which do exist are blown away from the centre of the anticyclone. Because of the Coriolis effect, the winds blow in a clockwise direction in the northern hemisphere.

4 Cloud

5 Since descending air results in little or no condensation, anticyclones bring dry weather conditions.

6 dry

7 much

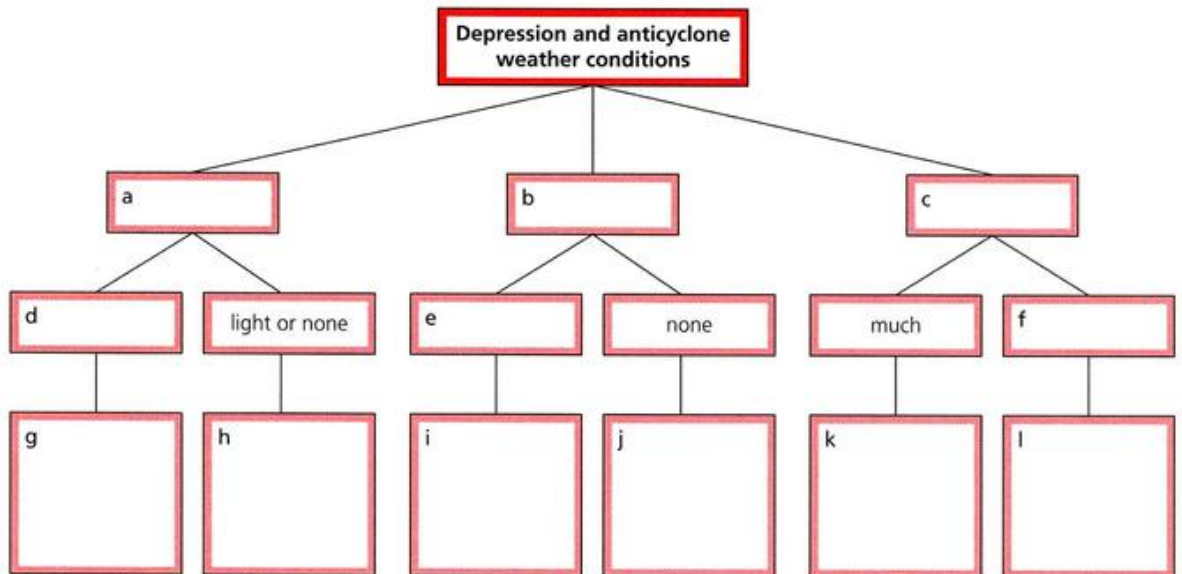
8 Precipitation

9 strong

10 Winds

11 As the air continues to rise, condensation continues. The tiny droplets that make up cloud join together and become heavier until they fall as rain or other forms of precipitation. The rain associated with depressions is called cyclonic rain.

12 Closely packed isobars indicate strong winds. Strong winds blow in towards the low pressure areas at the centres of depressions. Because of the Coriolis effect, the winds blow in an anticlockwise direction in the northern hemisphere.

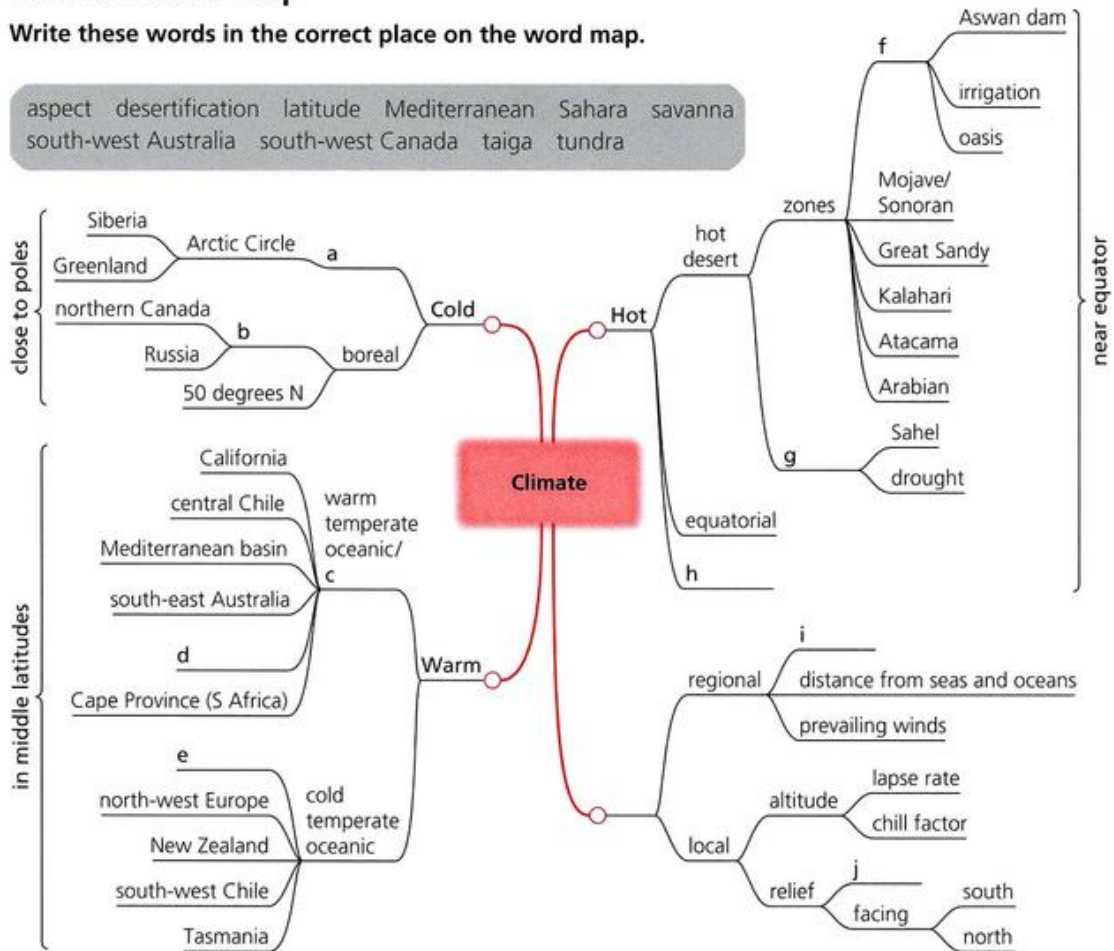


A Working with words

1 Climate word map

Write these words in the correct place on the word map.

aspect desertification latitude Mediterranean Sahara savanna
south-west Australia south-west Canada taiga tundra



2 Water in the Sahara

Read the text. Some of the sentences contain incorrect words. These are underlined. Replace them with one of these words.

annually flooding shaduf resource control constant renewable scarce block irrigation

Water is a basic natural source needed to maintain human and animal life and to grow food. It is renewing if it is used carefully. In some places where rainfall is too scared to grow crops, water is provided artificially to grow food. This process is called regulation. It is the artificial watering of land. From the times of the Pharaohs until very recently, water from the Nile was gained in two ways: flood water was allowed to cover farmland, where it remained trapped until it had deposited its silt, which fertilized the land when the river level was low, or water could be lifted from the Nile by a shading or Archimedes screw. But these methods were slow, inefficient and difficult. Egyptians had always wished to patrol the Nile so that its level would remain constrained throughout the year. In recent times this became even more important in order to provide food for Egypt's rapidly growing population. The attempt to solve this problem was the building of the Aswan High Dam across the Nile gorge. Its purpose is to blacken the waters of the Nile for irrigation. Two and sometimes three crops can now be grown gradually using water from the reservoir behind the dam. It also plays the role of controlling fleeing in the Nile valley. The dam also produces hydro-electricity for industry in the region.

source > _____ shading > _____ blacken > _____
 renewing > _____ patrol > _____ gradually > _____
 scared > _____ constrained > _____ fleeing > _____
 regulation > _____

B Working with sentences

3 Some hot climates

Read and sort the information into the correct place in the grid.

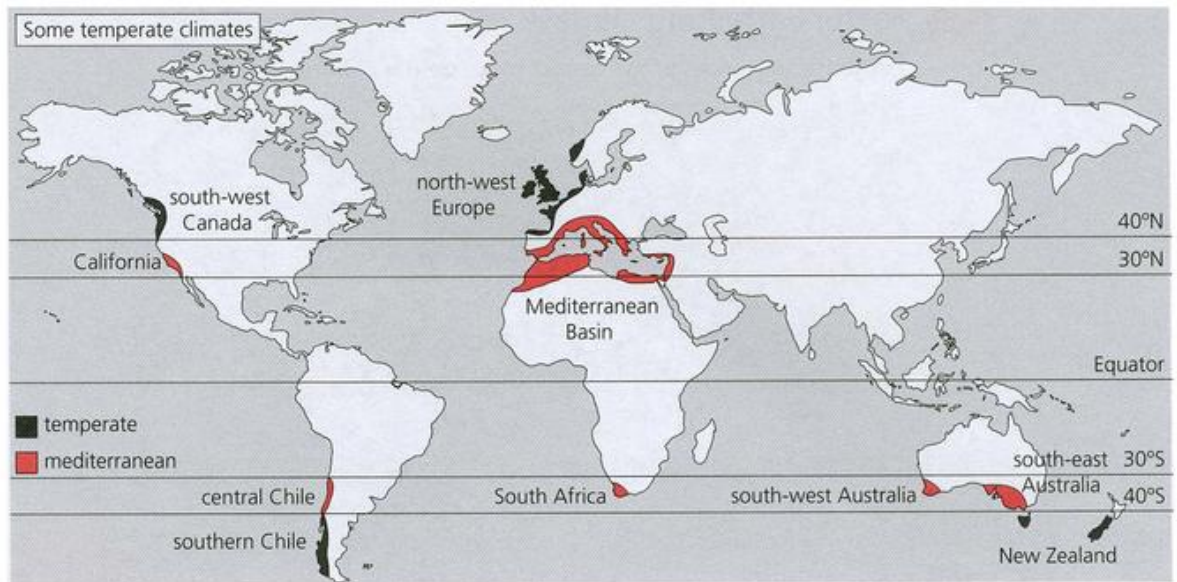
- a none in some areas, otherwise thorn, cacti, palm and dates at oases, long roots, waxy leaves
- b 1,000mm, two seasons and dry in winter, convectional rain
- c 10–250mm, thunderstorms and flash floods on occasions, generally cloudless skies
- d hot, 27°C all year
- e selvas, growth all year, no seasons, mahogany and other hardwoods
- f hot, 30–40°C, western side of continents, large daily range
- g hot, 30°C all year
- h savanna, tall grasses, green in wet season, golden brown in dry season; lion, cheetah, giraffe
- i rain daily, 2,000mm, convectional rain, very humid

	Equatorial	Savanna	Hot desert
Temperature	1	2	3
Rainfall	4	5	6
Natural vegetation, animals	7	8	9

4 Climate characteristics

Look at the map and table on page 205, and decide which sentences are true and which are false.

- 1 Temperatures in the UK are warm in the summer from 15°C to 17°C.
- 2 California enjoys hot summers around 30°C with clear sunny skies.
- 3 Warm trade winds blow throughout the Mediterranean basin in the winter.
- 4 New Zealand records 800–2,000mm of cyclonic rainfall annually.
- 5 Tasmania is covered predominantly with evergreen woodland, pine, cypress, cork and oak trees.
- 6 South-west Canada enjoys mild winters and a temperature of around 12°C in January.
- 7 The natural vegetation of southern Chile includes deciduous forests, with ash, elm and oak trees and with some mountain ash, pine and birch on wet upland soils.
- 8 France, Belgium and Holland have a small annual temperature range of 12°C.
- 9 Italy has predominantly changeable cloudy weather characterized by cyclonic rainfall.
- 10 Central Chile has dry summers and moist winters.



	Cool temperate oceanic (maritime)	Mediterranean (warm temperate oceanic)
Temperature	warm summers 15°C–17°C mild winters 5°C small annual temperature range 12°C	hot summers, 30°C with clear sunny skies mild winters, 12°C January warm trade winds
Rainfall	800–2,000mm annually cyclonic rainfall changeable cloudy weather rain throughout the year	dry summers and moist winters 400–1,000mm moist anti-trade winds in winter
Natural vegetation	deciduous forest, with ash, elm and oak trees. Some mountain ash, pine and birch on wet upland soils.	evergreen woodland, with pine, cypress and cork oak trees. Sweet-smelling herbs such as lavender.

5 Warm temperate oceanic climates

Read the sentences and choose the best ending.

Endings

hot desert regions hours of sunshine in summer they are warm
equator from dry landmasses during thunderstorms relatively dry
of rainfall from the sea warm and wet between 12–15°C

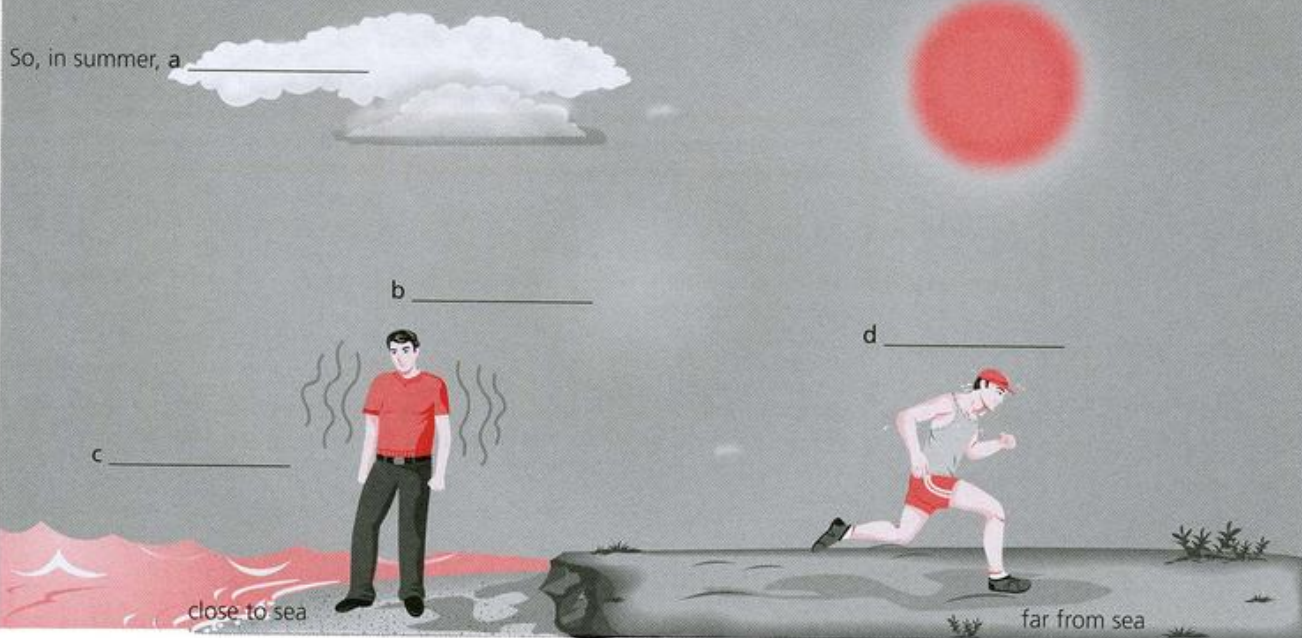
- The warm temperate oceanic areas of the world are found at locations on the western sides of landmasses and between 30°C and 40°C north and south of the _____.
- The temperature in these areas is hot at around 30°C in summer and warm in winter _____.
- The Mediterranean areas lie just above _____.
- High pressure creates clear cloudless skies in summer with long _____.
- Settled hot weather attracts tourists to Mediterranean beaches _____.
- In winter, the anti-trade winds blow from lower latitudes and so _____.
- In summer, Mediterranean areas are affected by the trade winds which blow _____.
- Some convectional rain falls _____.
- But the summers are _____.
- The winters are moist with 400 to 1,000mm _____.
- The anti-trades bring depressions and rain _____.
- These winds also blow from lower latitudes so they are _____.

6 Factors affecting climate

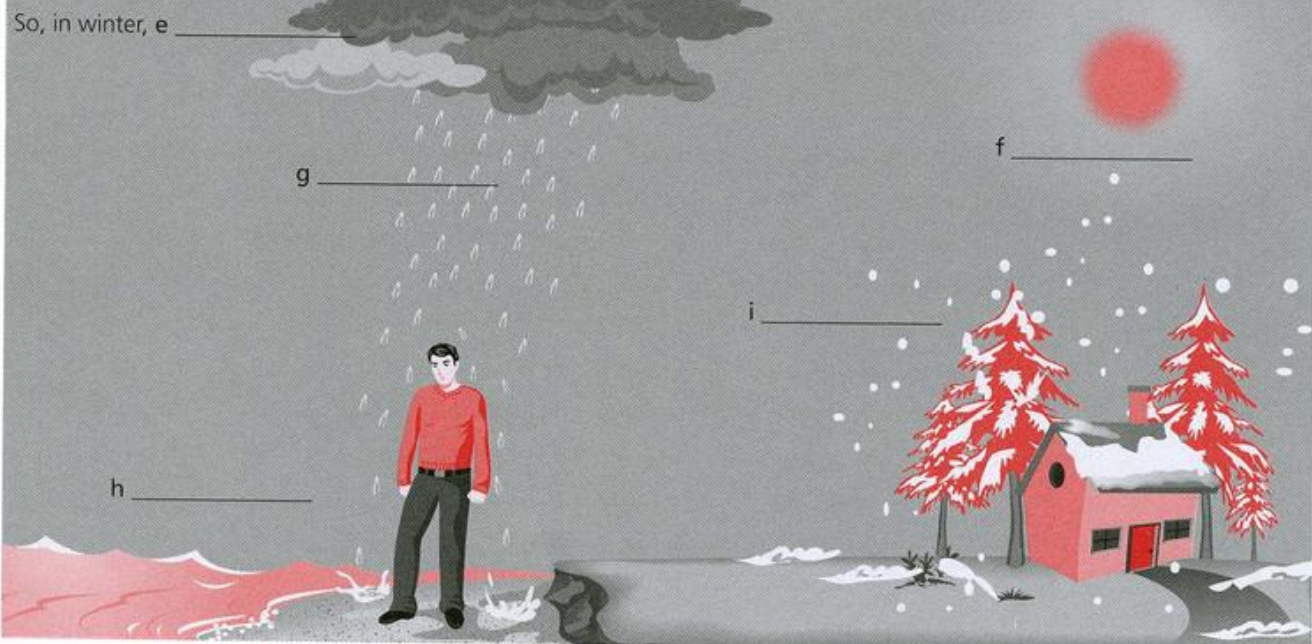
Put these sentences in the correct place on the picture.

- 1 blizzards of snow away from warm sea breeze so bitterly cold
- 2 sunny days with high pressure and cold winds
- 3 away from cool sea breeze, so hot
- 4 sea breeze is cool
- 5 areas near to the sea are cool and areas far from the sea are hot
- 6 cool sea water
- 7 warm sea water
- 8 areas near to the sea are warm and areas far from the sea are cold
- 9 cloudy days with low pressure and rain

Summer



Winter



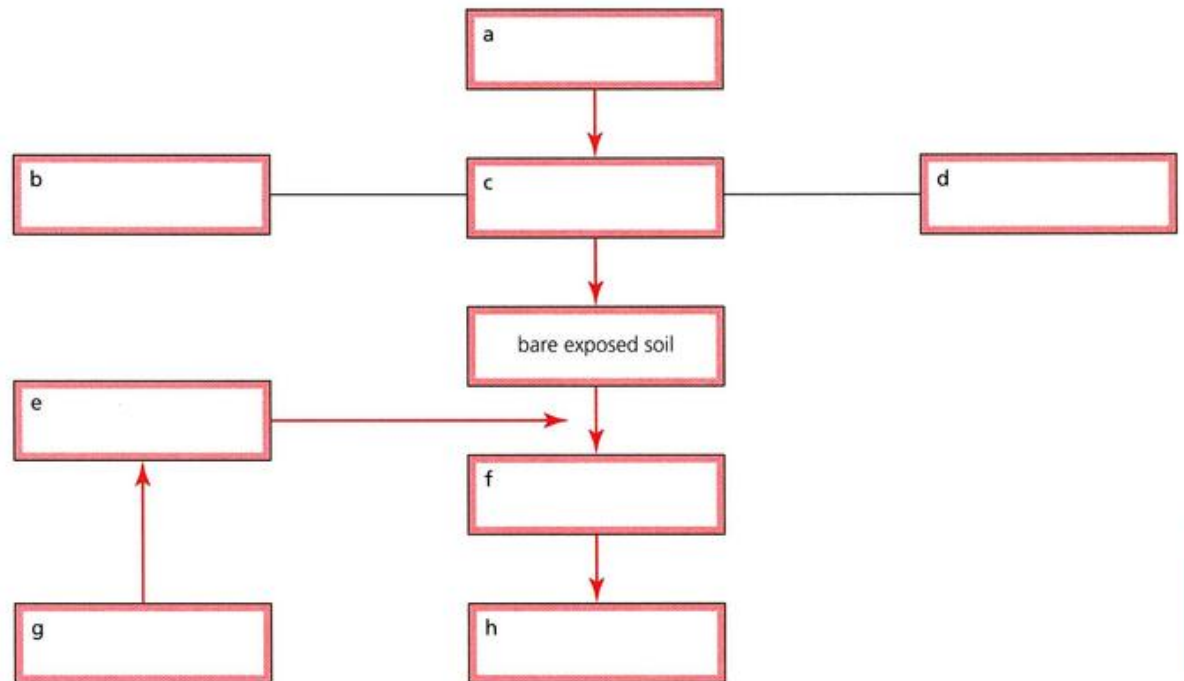
7 Desertification in the Sahel

Read the text and sort the information into the correct place in the diagram.

- 1 global warming may contribute to drought
- 2 land almost completely barren – desertification
- 3 more livestock means overgrazing
- 4 more trees cut for fuel and housing
- 5 overcultivation of land means soil fertility declines
- 6 population growth means more food, fuel and housing is required
- 7 unreliable rainfall in Sahel, severe droughts, crops fail, soils dry and dusty
- 8 winds blow away unprotected topsoil

Desertification is the result of a combination of natural and human causes. High birth rates in the Sahel have resulted in rapid population growth. More people need more food, fuel and housing. More people keep more sheep, goats and cattle which have overgrazed the land and stripped away its natural grass cover. More trees have been cut for fuel and housing for the growing population. Land has been overcultivated, so that its fertility has declined. All of this clearance has left the soil bare and exposed so winds blow away the unprotected topsoil and the eroded land is left almost completely barren. At this point, desertification has taken place.

Another factor is unreliable rainfall and several severe droughts have occurred in the Sahel since the 1970s. Droughts are unusually long rainless periods during which crops fail and soils become dry and dusty. Some scientists also believe that global warming may contribute to drought. Higher global temperatures permit the air to hold more water vapour. This results in less condensation and therefore less rain.



8 Mediterranean climate and vegetation

Read the text and make notes in the grid.

Why are Mediterranean summers hot and dry?

Because this area is less than 40° from the equator, the sun is quite high in the sky. The sun's rays are therefore concentrated and give great heat. High pressure usually dominates the area in summer. This brings long periods of settled, dry weather.

Why are winters mild and wet?

Although the sun is lower in the sky in winter, it is still high enough to give quite warm conditions. During winter, the prevailing winds blow in from the Atlantic Ocean in the west. These winds are mild and damp. When they rise over mountainous areas, relief rainfall occurs. Westerly winds also bring depressions and these result in wet, unsettled conditions.

How do Mediterranean plants adapt to summer drought?

They usually have small waxy leaves or sharp thorns that do not lose much moisture through transpiration. (Transpiration is the loss of moisture through the leaves or bark of a plant.) Trees such as the cork oak and olive have thick, protective bark. These help to stop heat getting in or moisture getting out through transpiration. Long tap roots reach far underground for water. Herbs such as lavender have short life cycles that avoid periods of drought: plants flower in the spring and lie dormant during the dry summer.

Mediterranean climate and vegetation	
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	2
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Answer key

Topic 1

- a vent b magma c focus d structure e semi-molten f plates g folding
- a volcanic island b crack c Mid Atlantic Ridge d North American Plate e crust f mantle g convection currents h Eurasian Plate i semi-molten rock
- 1 colliding 2 pressure 3 collisions, crust 4 buckle 5 sinks, melts 6 surface, folded 7 wells up 8 eruption
- 1b 2c 3g 4f 5d 6e 7a
- 1 earthquakes 2 folding 3 volcanic mountains 4 mid ocean ridges 5 plates 6 the Pacific Ring of Fire 7 continental drift
- 1b 2d 3e 4f 5c 6a
- a collide b slide c separate d separate e collide f separate g collide h separate i separate
- A: 1, 3, 7
B: 4, 5, 8, 9
C: 2, 6, 10

Topic 2

- a mudflows b igneous c extraction d drilling e shaft f denudation g weathering h water / wind
- a shaft mine b open cast mining c shaft d platform e oil rig f drilling g sea floor h oil well
- 1 cools 2 slowly 3 on the Earth's surface 4 rocks 5 grains 6 sea creatures 7 pressure 8 marble 9 quartzite
- 1 Soil creep is the quickest type of mass movement. slowest
2 Soil creep can occur even on very steep slopes. gentle
3 Soil creep happens so slowly that it might not be noticed at all, except for the effect that it has on upper objects such as walls and fences. surface
4 Soil creep is greatest near the surface and decreases with height. depth
5 Anything that loosens the soil, including freeze-thaw action or the burrowing of animals, assists the movement of soil underneath. downslope
6 Soil piles up behind walls, causing them to thaw and break. bulge
7 Tree trunks and fences crack in the direction of soil creep. bend
8 Poles may deposit in the direction of soil creep. lean
9 Soil sometimes accumulates in a series of small ridges called plateaus. terracettes
- 1b 2g 3c 4h 5a 6f 7d 8e

6

Resources	Uses
limestone	is used to make concrete blocks
coal natural gas oil peat	is used as a fuel in homes is used as a source of energy to generate electricity
iron ore	is used as a raw material to make iron and steel
clay	is used to make building bricks is used to make cement

7 1 weathering 2 erosion 3 mechanical 4 chemical 5 moving water 6 moving ice 7 moving air 8 frost
9 temperature change 10 plants and animals 11 rain

8 Granite: 2, 5, 7, 8, 10
Basalt: 1, 3, 4, 6, 9, 11

Topic 3

- 1 a suspension b attrition c erosion d tributaries e estuary f v-shaped g levees h broad meanders
- 2 a suspension b lightest particles c clay d saltation e traction f rolling g sliding h heavier particles
- 3 a power station b the running water turns turbines c downstream d rotating turbines generate electricity e the water runs downhill through pipes f natural flow of water downslope is prevented by constructing a dam across the valley g sediment normally carried downstream is deposited in the lake h upstream
- 4 1 An ox-bow lake is a v-shaped lake found on the flood-plain of a river in its old stage. horseshoe-shaped
2 An ox-bow lake is formed when riverflow speeds up in its lower stages. slows down
3 This causes the river to slope from side to side and form meanders. swing
4 The meander forms a pool so that only a narrow neck of land separates the outer banks of the channel. loop
5 In heavy flood the river cuts through this neck leaving the section of river as a cut-out. cut-off
6 River depositions seal up the section from the river and an ox-bow forms. deposits
7 A levee is a broad, low ridge of fine cement built along the bank of a river. sediment
8 It is built along the riverbank by groundwaters over thousands of years. floodwaters
9 People also create artificial levees which are narrow and triangular-shaped. steep-sided
10 They are built to retain floodwaters within a narrow tunnel to prevent flooding. channel
- 5 1h 2a 3e 4b 5c 6g 7f 8d
- 6 1f 2g 3d 4e 5a 6b 7c 8h
- 7 1 steep sides, very narrow floors,
2 both sides jutting out
3 sudden drop
4 vertical erosion, river transports material
5 hard rock
6 hard rock on soft, soft rock eroded, drop develops, plunge pool
- 8 example notes
1 hardness of rock 2 volume of water 3 speed of river 4 hydraulic action 5 abrasion 6 solution 7 attrition
8 suspension 9 saltation 10 traction 11 solution

Topic 4

- 1 a swash b spit c tombolo d longshore e groynes f wave-cut g stacks h attrition
- 2 1j 2g 3h 4k 5f 6c 7a 8i 9d 10e 11b
- 3 1 low tide 2 inland 3 dunes 4 lagoon 5 Marram 6 stabilize 7 breeze
- 4 a7 b2 c4 d5 e3 f1 g6
- 5 1d 2f 3a 4e 5c 6b
- 6 1T 2T 3F (shallow water) 4T 5F (up the shore) 6F (down the shore)
- 7 1 cliffs and wave-cut platforms
2 hydraulic action, abrasion, attrition, solution
3 beach
4 longshore drift, wind action
5 caves, sea stacks, sea arches, blow holes
6 hydraulic action, abrasion, attrition, solution
7 sand spits, sand bars, tombolos
8 longshore drift, wind action

8 example notes

A

- 1 recreation
- 2 food
- 3 fuel deposits
- 4 transport
- 5 fish farming
- 6 tidal energy

B

- 1 useful land eroded
- 2 beaches and spits eroded
- 3 flooding
- 4 sand and silts deposited in harbours

C

- 1 wave walls and boulders
- 2 groynes break longshore drift
- 3 dams or dykes keep out sea
- 4 jetties prevent silting

Topic 5

- 1 a eskers b moraine c deposition d hanging e fjords f plucking g arête
- 2 1 downslope 2 scrape 3 melt 4 melting 5 meltwater 6 erosion 7 dragged 8 smoothens
- 3 basin-shaped steep-sided tarns glacier compressed plucked arête peak
- 4 a4 b7 c5 d2 e3 f6 g1
- 5
 - 1 a medial moraine
 - 2 low bank of material
 - 3 along centre of glaciated valley
 - 4 a terminal moraine
 - 5 curved high and wide bank
 - 6 along front edge of glacier
 - 7 accumulated on top of earlier moraine
 - 8 a lateral moraine
 - 9 sloping bank of unsorted material
 - 10 along side of glacial valley
- 6 1g 2a 3d 4f 5h 6e 7c 8b
- 7 example notes
Benefits
 - 1 glaciated regions with their U-shaped valleys and lakes are tourist attractions
 - 2 fertile boulder clay soils produce high crop yields
 - 3 eskers provide sand and gravel for buildings
 - 4 glacial lakes are used as reservoirs and sources of hydro-electric power
 - 5 glacial valleys provide routeways through mountainsProblems
 - 6 many glacial areas only have thin soil cover
 - 7 poor drainage in some areas leads to waterlogging and bogs
 - 8 poor soils are factors in the migration of people
- 8 A Glaciated valleys: 2, 3, 4, 7
B Hanging valleys: 1, 5, 6, 8

Topic 6

- 1 a formation b chernozem c bedrock d nutrients e microorganisms f capillary action g loamy
- 2 a cylinder b humus c clay d silt e sand f gravel
- 3 1 ingredient 2 weathering 3 earthworms 4 litter 5 fertile 6 jelly-like 7 absorb 8 nutrients 9 particles 10 vital
- 4
 - 1 Most soil surfaces contain plant litter.
 - 2 This consists of dead leaves, grasses and other pieces of decaying vegetation which accumulate on the surface of the soil.
 - 3 Microorganisms such as bacteria and some fungi work on the plant litter.
 - 4 They cause it to decay slowly into a black-coloured, jelly-like substance called humus.
 - 5 Oxygen is also needed to assist the breakdown of plant litter into humus.
 - 6 So air in the soil plays an important role in the process of humification.
 - 7 Humus helps to make soil fertile.

5 1c 2a 3e 4f 5g 6h 7b 8d

6 a3 b7 c2 d4 e5 f6 g1

7 example notes

1 a production of leaves, b plant roots

2 c many minerals, d few minerals

3 e few plants (rhododendron, heather, and coniferous trees), f variety (most deciduous trees, rich grasses)

4 g lowland plains, river valleys

5 h for support, to supply essential minerals, i deep roots, network of roots near surface

6 j upland areas, thin soils, k uprooted during storms

7 l taller plants, m lighter, shorter plants, crop marks

8 A Brown earth soils: 2, 4, 13, 5, 6

B Podzols: 10, 3, 11, 12, 1, 7, 9, 8

Topic 7

1 a curved b east-north-east c triangulation pillars d even e aerial f grid reference g eastings h linear scale

2 a gentle slope b steep c very steep d cliff e contours far apart f contours close together
g contours very close together h contours touching

3 1b 2f 3i 4a 5h 6g 7c 8e 9d

4 1 autumn 2 time of day 3 engineers 4 summer 5 archaeologists 6 spring 7 weather 8 winter

5 a4 b2 c6 d5 e7 f1 g3

6 1T 2T 3F (north-west) 4T 5F (north-west) 6T 7F (south-west) 8F (north-north-east)

7 example notes

How does relief affect roads?

1 roads avoid steep mountain and hill slopes

2 roads use valleys as routes through mountains

3 few roads in mountains

4 roads follow contours

5 roads built on level lowland plains

How do rivers and lakes affect roads?

6 road land slightly higher than rivers

7 roads cross rivers at bridging points

8 many-road bridging point called route focus

9 last road bridge before sea called lowest bridging point

10 roads go round lakes too wide to cross

11 roads avoid bogland as too soft

8 1g 2f 3b 4e 5h 6a 7c 8d

Topic 8

1 a overcrowding b pessimistic c pyramids d birth e density f immigration g senile h demographic transition

2 a high stationary stage b early expanding stage c late expanding stage d low stationary stage e senile stage
f death rate falls g birth rate falls

3 1 density 2 distribution 3 housing 4 communities 5 accommodate 6 household 7 slum 8 migrant

4 1g 2f 3b 4d 5h 6a 7c 8e

5 1T 2F (very high) 3T 4T 5F (the Sahara) 6F (very low) 7T 8T

6 1c 2h 3i 4f 5b 6a 7g 8d 9e

7 a4 b5 c1 d8 e7 f6 g3 h2

8 a7 b1 c2 d5 e4 f8 g9 h10 i3 j6

Topic 9

- 1 a residential / dormitory b reclamation c convergence d primate e hilltop / knolls f hinterland g historical
h lowlands i land quality
- 2 1d 2f 3a 4g 5b 6c 7e
- 3 1F (in the centre) 2T 3T 4F (circular pattern) 5T 6F (the radial roads)
- 4 In the Dutch Polders: 1d 2f 3a
In Ireland: 4e 5c 6b
- 5 1a 2c 3b 4a 5c 6c 7a
- 6 1: b, f, h, i (in any order)
2: a, c, e, j (in any order)
3: d, g, k
- 7 example notes
Lowland characteristics:
 - 1 easy to build
 - 2 warmer, more fertile
 - 3 connectionsVery important: areas well-drained
River use: Sites:
 - 1 domestic uses 1 dry-point sites
 - 2 navigation 2 bridging pointsFactors: Where:
 - 1 fertile areas 1 east and south
 - 2 fishing 2 sheltered bays / harbours
 - 3 tourism 3 sandy beaches
- 8 Water: 1d 2g
Communications: 3l 4i 5e
Food: 6k 7j 8b 9c
Defence: 10h 11a 12f

Topic 10

- 1 a crime b new towns c semi-detached d higher density e River Seine f inequality g administrative h congestion
- 2 a industrial buildings b detached houses c semi-detached houses d terraced houses e apartment blocks
f office blocks g skyscrapers h low land value i high land value
- 3 1 dominated 2 primate 3 located 4 redeveloped 5 commercial 6 cultural 7 scattered 8 manufactured
9 outer suburbs
- 4 1 Urban redevelopment and renewal are used to combat inner city decay.
2 New towns are built to reduce uncontrolled urban sprawl.
3 Urban redevelopment is where old, run-down houses are demolished.
4 Their inhabitants are rehoused in the suburbs or in new towns.
5 The valuable inner city sites are then used mainly for commercial purposes, such as offices, shops and multi-storey car parks.
6 Urban renewal means that old dwellings are refurbished or replaced by new houses.
7 Community centres and other facilities are provided, so that existing inner city residents are encouraged to remain in their old localities.
8 In order to reduce urban sprawl, new towns are sometimes built near large cities.
9 New towns do not grow naturally, but are deliberately built to house a planned, maximum population.
10 New towns are built near large cities and are connected to the cities with good transport systems.
11 Their main function is to house the overspill populations of nearby cities and so prevent urban sprawl.
12 New towns contain carefully planned industrial estates, as well as services such as shopping centres.
- 5 1h 2d 3b 4i 5f 6c 7a 8e 9g
- 6 1F (08.00 to 09.00) 2 F (17.00 to 18.00) 3T 4T 5T 6T 7F (less) 8F (fewer)

- 7 1 focus of transport routes 2 biggest manufacturing city 3 chief commercial centre 4 rural-urban migration
5 city-suburb migration 6 post-independence capital 7 location of civil services
- 8 example notes
1 different functions 2 close to home 3 new satellite towns 4 suburbs 5 shopping areas 6 near city centre
7 in suburbs 8 inner city 9 in suburbs 10 playgrounds 11 noise and stress

Topic 11

- 1 a physical b wool c subsistence farming d livestock e viticulture f conservation g labour h soil type
- 2 1g 2f 3b 4e 5h 6a 7c 8d
- 3 a cattle breeding b spraying crops c milking a cow d harvesting e bales of hay f ploughing
- 4 1 undertaken by humans 2 other economic activity 3 all over the world 4 dedicated to farming to decrease
5 as more countries develop 6 for humans to live 7 given over to farming 8 subsistence farming
- 5 1 Physical factors 2 Climate 3 Temperature 4 Sunshine hours 5 Rainfall 6 Soil type 7 Relief
- 6 1 ✓ 2 assist 3 consumption 4 ✓ 5 benefit 6 co-operative 7 contribute 8 ✓ 9 domestic 10 ✓
- 7 a market gardening b viticulture c cereal crops d industrial crops e grain crops f grain-fodder crops g legumes
h tobacco crops i fibre crops j sugar crops k stimulation crops l oil-yielding crops
- 8 example notes
1 agricultural system 2 inputs 3 physical 4 human 5 processes 6 outputs 7 climate 8 relief 9 labour
10 machinery 11 seed 12 harvesting 13 feeding 14 crops 15 meat

Topic 12

- 1 a purification b cycle c domestic d peat e tidal f land g overfishing h fossil fuels
- 2 a water tower or reservoir b chemical purification c pumping station d distribution to tower and town
e well / borehole f aquifer g water table h flows to homes and factories
- 3 vital maintain renewable cycle available surface supplies tidal hydroelectric
- 4 1h 2b 3g 4d 5i 6a 7c 8f 9e
- 5 1F (Africa) 2F (100%) 3T 4T 5T 6F (1.5 billion) 7T
- 6 1 ✓ 2 open 3 cleanly 4 ✓ 5 outward 6 ✓ 7 ✓ 8 ✓ 9 through 10 olive 11 ✓
- 7 example notes
1 too efficient and too wasteful 2 trawlers 3 factory ships 4 transport ships 5 echo-sounders 6 sonar
7 motorized winches 8 monofilament nets 9 fishmeal 10 fertilizer and paint 11 better technology led to
overfishing 12 fewer adult fish
- 8 example notes
For: enough supply for 50–100 years; relatively clean fuel to burn; efficient fuel; easy to handle, transport and store;
gives many by-products
Against: oil is finite; oil spills can be catastrophic

Topic 13

- 1 a factors b education and training c engineering d acids e transport f ferrous g raw materials h machine
i sale goods j light industry
- 2 1 light industry 2 economy 3 raw materials 4 food processing 5 clothing 6 availability 7 cotton 8 labour
- 3 a forests for charcoal b coalfield c iron manufacturing d non-integrated steelworks e major oil terminal
f integrated steelworks
- 4 1 Labour 2 Capital 3 Transport facilities 4 Personal factors 5 Services 6 Markets 7 Government grants
8 Resource materials
- 5 1b 2j 3g 4h 5c 6a 7f 8e 9i 10d

- 6 1F (in the south) 2T 3T 4F (throughout England, Scotland and Wales) 5F (first industrialized nation) 6F (steel) 7F (by the early twentieth century) 8T 9T
- 7 1 finance 2 raw materials 3 labour 4 energy 5 transport by sea, air, road or rail 6 processes 7 waste – liquids, solids, gases 8 products for sale to other businesses 9 goods for sale to the public 10 transport to points of sale 11 inputs 12 outputs
- 8 A: 9 6 3 2 5
B: 1 8 4 10 7

Topic 14

- 1 a international b recreational c nightlife d sectors e road f health care g bricklayers h secretaries
- 2 a Proportions of employment in a MEDC b Proportions of employment in a LEDC c Primary d Secondary e Tertiary f Primary g Secondary h Tertiary
- 3 1 rapidly 2 leading 3 growth 4 wealthier 5 incomes 6 work-free 7 weekend breaks 8 comfort 9 destinations
- 4 1T 2T 3T 4F (99.4%) 5T 6T 7F (catering assistants) 8T 9T 10F (pipe layers and rail construction workers)
- 5 1g 2c 3h 4a 5f 6b 7d 8e
- 6 1d 2i 3h 4a 5g 6c 7b 8f 9e
- 7 example notes
Introduction: 1 transport 2 communications
Development: 3 tourism creates a need 4 tourism provides money 5 prospect of jobs encourages investment
Majorca examples: 6 busy airport 7 fleets of ferries 8 roads upgraded 9 computer and telephone links

Issues	For	Against
A Jobs	11	3
B Construction	2	9
C Ambiance	10	7
D Services	1	4
E Standard of living	12	8
F Cost of land	6	5

Topic 15

- 1 a bilateral b developed countries c desertification d population e colonialism f cash crops g fair trade h protectionism i WTO j control
- 2 1 unfair 2 profits 3 traders 4 protectionism 5 competition 6 cut 7 multinational 8 fluctuating 9 grown 10 decreased 11 plan
- 3 1h 2a 3f 4i 5b 6e 7d 8c 9g
- 4 1T 2T 3F (bigger) 4T 5F (smaller) 6F (smaller – combined figure is 37%) 7F (the figure varies) 8T
- 5 a10, 6 b1 c11, 3 d9, 2, 8 e5, 4 f7
- 6 Developed countries: 3, 5, 9, 13, 17
Quickly developing countries: 1, 4, 11, 16, 15
Slowly developing countries: 2, 14, 6, 7, 8, 10, 12
- 7 example notes
Arguments for aid: 1 saves lives 2 helps communities 3 can have good long-term effects 4 creates friendly links and spreads world's wealth
Arguments against aid: 5 receivers dependent on donors 6 bilateral aid sometimes tied 7 fair trade more important 8 feelings of superiority in the North
- 8 1g 2c 3h 4a 5b 6f 7d 8e

Topic 16

- 1 a pesticides b logging c overgrazing d drought e climate change f coal g methane h sulphuric acid i exhaust fumes j lakes poisoned
- 2 1 biomes 2 habitats 3 pollution 4 cooling purposes 5 lakes 6 oxygen 7 suffocation 8 groundwater 9 poisoning 10 regulations 11 dumping
- 3 a factory b industrial fumes c domestic fumes d reaction with moisture in clouds e acid rain produced f damage to vegetation g asthma and bronchitis h wildlife killed
- 4 1 generate 2 organisms 3 resolved 4 discharge 5 dispose of 6 expensive 7 contaminated 8 disposal 9 leakages
- 5 1i 2g 3h 4a 5f 6c 7b 8e 9d 10j
- 6 1f 2a 3d 4g 5c 6b 7e
- 7 example notes
A Causes: 1 burning fossil fuels 2 methane from animals 3 felling tropical forests
B Effects: 1 climate change 2 ice caps melt 3 increased rainfall and flooding
C Solutions: 1 reduce burning fossil fuels 2 use other sources of energy 3 plant more trees
- 8 1f, b 2c, g 3e, h 4 d, a

Topic 17

- 1 a hygrometer b deposition c hail d cirrus e relief f depressions g deflection h anti-trades i isotherm j Gulf Stream
- 2 a squally b stratus c warm sector d cirrus cloud e cumulus cloud f cold sector g cumulonimbus h showers
- 3 1 blow 2 south-westerlies 3 equator 4 warm 5 poles 6 cool 7 deflected 8 Coriolis 9 continental
- 4 1h 2f 3b 4e 5c 6a 7d 8g
- 5 1b 2f 3e 4a 5h 6g 7i 8j 9d 10c
- 6 1 a weather chart 2 equal pressure 3 equal temperature 4 equal sunshine 5 equal rainfall 6 wind speed 7 sunny weather 8 the wind is blowing 9 millimetres 10 a given day 11 degrees Celsius 12 kilometres per hour 13 a blowing wind
- 7 1g 2c 3h 4a 5f 6b 7e 8l 9i 10j 11d 12k
- 8 a10 b4 c8 d9 e7 f6 g12 h3 il j2 k11 l5

Topic 18

- 1 a tundra b taiga c Mediterranean d south-west Australia e south-west Canada f Sahara g desertification h savanna i latitude j aspect
- 2 resource renewable scarce irrigation shaduf control constant block annually flooding
- 3 1d 2g 3f 4i 5b 6c 7e 8h 9a
- 4 1T 2T 3F (in summer) 4T 5F (deciduous forest, etc) 6F (5°C) 7T 8T 9F (dry summers and moist winters) 10T
- 5 1 equator 2 between 12–15 °C 3 hot desert regions 4 hours of sunshine 5 in summer 6 they are warm 7 from dry landmasses 8 during thunderstorms 9 relatively dry 10 of rainfall 11 from the sea 12 warm and wet
- 6 a5 b4 c6 d3 e8 f2 g9 h7 i1
- 7 a6 b4 c3 d5 e7 f8 g1 h2
- 8 example notes
1 sun is quite high in the sky 2 high pressure 3 lower sun, still high enough 4 winds blow in from Atlantic 5 small waxy leaves or sharp thorns 6 thick, protective bark 7 long tap roots 8 short life cycles

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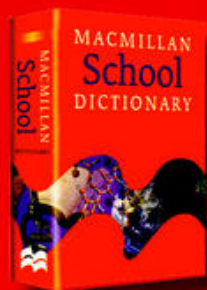
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