

Physical Landscapes

Introduction

Rivers do three kinds of work - erosion, transportation and deposition. Erosion is when rocks and soil are picked up. Transportation is the movement of the rocks and soil. Deposition is when the rocks and soil are dropped. Another name for the rocks and soil is load. The three processes of erosion, transportation and deposition change the way the land looks.

River Courses

Rivers are usually looked at as having three parts or courses. The upper course is the highest section which is found in the mountains or hills. Here the river erodes a v-shaped valley, the path is fairly straight and it flows downhill steeply. The land forms that are common in this course of the river are waterfalls and gorges.

In the middle course the angle that the river flows down is less steep, the river begins to meander and the valley sides are also less steep. Common landforms here are river beaches and river cliffs.

The lower course has the gentlest slopes - both in long profile and across the valley floor. This almost flat land is known as the flood plain. The river may have very large meanders and ox-bow lakes. The mouth of a river is when it reaches open water - either a lake or the sea. Under certain conditions a delta can be found here.

Landforms

Waterfalls are most common in the upper course. They are formed when a river crosses a layer of harder rock. This layer is eroded more slowly than the softer rock beneath it. Eventually a step in the profile of the river is formed with a plunge pool formed in the softer rock. As the layer of hard rock is undermined it will collapse and so the waterfall moves upstream. This forms a narrow valley with steep sides - a gorge.

Features found in the middle course are river cliffs and river beaches. A river cliff is found on the outside of a meander. Here the water is flowing quickly into the bank. The powerful current is able to erode the side of the river and it makes a steep bank, or river cliff. On the inside of the bend the water is flowing much more slowly. It has less power to transport its load and often deposition will take place. The shallow water and gentle slope on the inside of a bend is a river beach.

The lower course has the widest rivers and the largest meanders. The river is most likely to flood in this sections and when it does a "short cut" can be formed. The river

will flow through the shorter route, leaving the curve of the meander cut off. This is known as an ox-bow lake.

Land Use - Upper Course

In the upper course of a river valley the land is highest, steepest and most exposed. The weather in this part of the valley is colder, wetter, windier and more humid than the parts lower down. Snow lies here for longer than elsewhere. The soils are often acid, thin and waterlogged. All these limitations make it difficult to make use of the land in the upper course. Farming is extensive, with forestry, hill sheep and deer stalking being common uses. Buildings and transport links are rare. This lack of development makes the land attractive for hill walkers and rock climbers, and some areas in the highest part can be used for winter sports like skiing and snowboarding. The heavy rain does make the land suitable for reservoirs and the fast flowing rivers can be dammed to make hydro-electric power stations.

Land Use - Middle Course

The land is getting lower, less steep and the climate is less extreme. This allows for greater use of the valley. Arable farming can now take place although livestock will still be found. The land is suitable for building and there are villages and small towns here. The flatter and wider valley floor may have road and even rail transport links. Forestry is still carried out in the middle course, especially where the soil is not fertile enough for farming. The wider range of activities available to people here means that the population density is greater than in the upper course.

Land Use - Lower Course

Here the land is low, flat or very gently sloping, and the temperatures are warmest. The soils are often deep and fertile and so the land is best suited to intensive agriculture with arable farms and market gardens. Close to the river where the land may be marshy or at risk from flooding may be kept as permanent pasture for livestock. The largest settlements and greatest concentration of road and rail links are found in the lower course. The largest industrial areas, which need good communications, many workers and large areas of flat land are also located here. This part of a river valley has the greatest population density.

Landscapes made by glacial erosion

Land in the hills and mountains is colder and receives more precipitation. Snow will fall in these upland areas, and if the temperature is cold enough can remain through the summer. The next winter's snowfall piles up on top squeezing the lower layers which eventually turn into ice. The ice, due to the pull of gravity, begins to slide downhill and erodes the rock it passes over. It erodes in two ways - by plucking and by abrasion. Plucking is the ice freezing on to a jagged piece of rock and pulling it out as the ice continues to move downhill. It is similar to a dentist pulling out teeth. Abrasion happens when ice already has fragments of rock embedded in its base and these

scrape at the rock surface. This process can be compared to sandpaper smoothing wood.

Landforms made by glacial erosion

A U-shaped valley is the shape left after a valley has been overdeepened by a glacier. The original V-shaped valley, which would have been made by a river, is widened and deepened after the ice has eroded the sides and bottom of the valley. V-shaped valleys have a wide flat floor, which may contain ribbon lakes (long and narrow) and mis-fit streams (so called because they are too small to have made the valley). The sides of U-shaped valleys may have hanging valleys, which are side valleys that are left high on the side of a main valley that has been deepened by glaciation. Streams flowing in a hanging valley may form a waterfall as it flows down the steepened sides. The valley sides may also have truncated spurs which are the ends of sloping ridges cut off (or truncated) by the valley glacier which tends to flow straighter than a river.

Corries are armchair-shaped hollows, which are found high up on the sides of hills. They are often formed on the shaded and therefore colder side of the hill. Here the snow does not melt as fast and there can be a build up of snow which is squashed and turned into ice. As the ice moves downhill it erodes the underlying rock, eventually producing a corrie. Often two or more corries are formed leaving a narrow ridge between them. This is called an arête. When an hill has been heavily eroded with 3 or 4 corries the jagged hill that is left is known as a horn or pyramidal peak.

Glacial Erosion and Land Use

Upland areas that have been glacially eroded are used in a variety of ways, but they also limit what human activities can take place. The stark rugged scenery of mountains in areas of low population density and therefore low pollution attract people who want to get away from it all by angling, walking, rock climbing. The majority of visitors are more passive than active, that is they will visit by car or bus and view the scenery from the road. Where snowfall is predictable skiing and snowboarding facilities have been developed, although this is not a quiet, peaceful activity. In the Scottish Highlands deer stalking and grouse shooting are important activities as they provide jobs and bring in money to remote communities. Fish farming in coastal areas has grown enormously as source of income, whilst salmon fishing is not as important now due to the recent decline in the wild salmon numbers. Heavy precipitation amounts have encouraged the building of hydro-electric power (HEP) dams, where water flow is used to turn turbines and generate electricity. Commercial forestry and quarrying are other economic activities in this type of area.

This type of scenery has limitations caused by the high altitude, steep slopes, thin and infertile soils, heavy rainfall and low temperatures. This prevents any kind of intensive agriculture with hill sheep farming being the most important. Communications are difficult and roads and railways are usually only found in the valley floors. The remoteness is a disadvantage as it costs more to import and export goods, and the cost of living for the inhabitants is consequently higher. The "unspoilt" nature of the glacial highlands has meant that land use conflicts occur. Often the need to develop an

area by, for example, opening up a quarry or enlarging a ski resort will conflict with the desire to protect the environment.

Climate

Climate is the average weather conditions. Climates are worked out from weather records that have been measured over 30 years at least. To be able to identify a climate you need to be able to describe the temperature of the hottest and coldest months and the temperature range.

The describing words for temperature are important. In Shetland, for example, the average July temperature is 13 C is described as having a warm summer. You also need to be able to describe the total amount of annual rainfall - that is how many millimetres fall in a year. The pattern of rainfall is also important - for example is there a drought in the summer? The climate of a place is influenced by differences in latitude, altitude and distance from the ocean.

As a general rule the closer to the poles the colder the temperatures. So the north of Scotland will be colder than the south of England. The higher above sea level also the colder the temperature. Therefore the top of Ben Nevis is colder than Fort William nearby which is on the coast. Temperatures are more extreme for places far away from the sea. It is colder in the winter and hotter in the summer. As well as having a lower temperature range coastal locations frequently have higher rainfall totals.

In the Standard Grade there are four climates that you need to know

Arctic
Mediterranean
Hot Desert
Equatorial

You may be asked to identify a climate type by its location on a world map.

Arctic - Climate, vegetation and scenery

The Arctic climate is found in countries around the Arctic Ocean. This includes north Alaska, north Canada, coastal areas of Greenland, northern Scandinavia (Norway, Sweden and Finland) and Siberia in northern Russia. The main features of this climate are low amounts of precipitation with a summer maximum, mild summers and very cold winters. This extreme climate produces the type of scenery known as the Tundra. The winters in the Tundra as well as being very cold are also very dark and north of the Arctic circle there are days when the sun does not rise. Precipitation is very low in this season as the cold temperatures reduce evaporation and the air can only hold very low amounts of water vapour. What little snow that falls does not melt so the land is

covered in snow and ice all winter. The short summers sees the land covered in heather, moss and arctic flowers. The land is waterlogged as the ground will remain frozen and so impermeable with only the top metre or so melting. The frozen ground is known as permafrost and the section that melts is known as the active layer. Plants do not grow high due to the strong winds and the permafrost preventing deep roots.

The Arctic and People

The extreme climate also limits how people have made use of the land. In the past the traditional inhabitants (e.g. Inuit in northern Canada, Lapps in northern Scandinavia) would have a seasonally nomadic lifestyle. The Inuit would hunt in the summers often moving to where the seals and whales could be found and in the winter stay in a more permanent shelter. Traditionally Lapps would follow the large reindeer herds on which they depended. These traditional ways of life have largely died out and most people stay in modern permanent housing.

Modern developments in The Arctic areas include oil production in Alaska and early warning stations which were set up to spot missile attacks between the USA and the Soviet Union. Such developments increase the rate of change for the indigenous people and have been blamed for social problems such as alcohol abuse. There are also concerns that modern developments can have a harmful effect on the environment. Conservationists may oppose these changes, whilst others argue in their favour as it can bring good economic results, namely jobs and money.

Hot Deserts - Climate, vegetation and scenery

The hot desert climate is found around the tropics of Capricorn and Cancer, usually on the west side of continents. Examples are the Thar desert in Pakistan and the Atacama desert in Chile. This climate has hot or very hot temperatures and is very dry having less than 250mm of precipitation a year. The vegetation of hot deserts is very sparse due to lack of rain. Some plants have adapted to the conditions by having long roots to search for moisture, and some plants like cacti store water.

Hot Deserts and People

The traditional way of life for groups like the Bedouin of the Sahara and Arabian deserts often involved nomadic pastoralism. This involves moving with camels and goats to find fresh pasture. The low rainfall does not allow settled farming. Other desert dwellers would live at sources of permanent water. As in the Arctic lands this way of life is being followed by less people as many leave to live in cities. The exploitation of minerals such as oil and iron ore provides jobs and money in hot deserts such as Arabian and Australian, respectively. Another new development are desalination plants which provide usable water by taking salt out of sea water.

The Equatorial Regions - Climate, Vegetation and Scenery

The temperature of the equatorial regions is hot throughout the year, with a very low temperature range usually of less than 3 degrees Celsius. It is also a very wet climate with annual precipitation often more than 2000 mm. It is a simple climate type to identify as the line on the climate graph is almost straight. These hot and wet conditions are ideal for the growth of plants so the vegetation is both dense and varied. Typically in Britain there would be 4 or 5 species of trees in a forest, whilst in the same area near the equator there may be about 500 species. The equatorial rainforests also have an extremely diverse fauna. The rainforest in the equatorial regions produce a very distinctive scenery. From the air it looks like a green carpet with the occasional taller tree (emergent) sticking up. There are also numerous rivers due to the heavy rainfall totals.

The Equatorial Regions and People

The traditional way of life in the equatorial rainforests depended very much on the flora and fauna of the area. A common type of farming was "shifting cultivation". Despite appearances, the rainforest soils are not very fertile. The heavy rainfall leaches out the important nutrients from the soil and sometimes the whole top soil itself can be eroded by the tropical downpours. The native people realised this and so would clear an area of forest, plant crops such as manioc and cassava, and after 3 or 4 years when the soil was losing its fertility would move on to a new patch of forest, which would be cleared and cultivated. This is a sustainable style of land use as the slow growing rainforest vegetation would get a chance to re-grow. The indigenous people would also hunt, fish and gather fruit and nuts.

Recently, there has been recent change in this area. Large areas of rainforest have been cleared to make room for cattle ranching, mining, settlements, reservoirs, roads and airstrips. The trees are cut down as timber as the tropical hardwoods are much in demand. The removal of the natural vegetation has had a number of effects. The soil, already fragile gets damaged and eroded. The climate of the area becomes drier with the loss of the vegetation acting as a "sponge" to hold on to the moisture. The soil runs off into rivers and lakes causing navigation problems. Both the burning of the trees and their reduced number increases the concentration of carbon dioxide. The extra carbon dioxide is believed to contribute to global warming, which in turn is blamed for the rise in sea level.

Mediterranean - Climate and Vegetation

The areas of the world that have a Mediterranean style climate are found at about 35 degrees north and south of the equator, on the western sides of continents. The distinctive feature of this climate which makes it easy to identify is the low level of rain in the summer. Overall, the climate has warm winters and hot summers and a moderate amount of rainfall. The natural vegetation of the Mediterranean areas is a type of scrub forest with trees such as cork, fig and olive which has adapted to the summer drought. Much of this type of vegetation has been removed by human activity.

The Mediterranean Climate and People

Farmers have made use of the mild winters which allow crops to grow throughout the year in places with Mediterranean climates. The dry summers however pose problems so many irrigation schemes have been developed. The dry, hot and sunny climate has been very attractive to holiday makers and tourism is now the main industry in areas such as Majorca and the Algarve. This in turn has led to worries about pollution with increased sewage and pressure on water supplies. Again there is the conflict between the wish for development with the economic benefits it brings, and the need to look after the environment.

Weather

Elements of the Weather

The weather is made up of different elements, which are measured either by special instruments or are observed by a meteorologist. These measurements are then recorded and used in the making of climate graphs and weather forecasts. The table below shows the weather element details.

Element	Description	How it is measured	Units of measurement
Precipitation	Moisture from the sky e.g. rain, snow etc.	By a Rain Gauge	Millimetres (mm.)
Temperature	How hot or cold it is	By Thermometers, found inside a Stevenson Screen	Degrees celsius (c)
Wind Speed	How fast the wind is blowing	By an Anemometer	Knots, or by the Beaufort Scale
Wind Direction	Where the wind is blowing from	By a Wind Vane	Points of the compass (north, north-west etc), or bearing in degrees
Element	Description	How it is measured	Units of measurement
Humidity	The amount of	By a Hygrometer	Relative Humidity (% of

	water vapour in the air	(wet and Dry Bulb Thermometers)	water vapour that can be held by the air at the actual temperature)
Air Pressure	The "weight" of the air pushing on the surface of the Earth	By a Barometer	Hectopascals (although most people know it as millibars)
Cloud Cover	The amount of cloud in the sky	It is observed by a meteorologist	Oktas - eighths of the sky
Visibility	How far you can see	It is observed by a meteorologist	Kilometres
Sunshine	The hours of sunshine	By a Sunshine Recorder	Hours and minutes

Weather Stations

The weather instruments are found on land in weather stations. These are locations that are carefully chosen so that accurate and reliable data are collected. Weather stations are clear of obstructions that could block the wind or cast shadows. They are fenced off so that animals cannot get in and damage the equipment.

An important part of a weather station is a Stevenson screen, which holds the thermometers. This is a white box with slatted sides. The white colour reflects the direct sun's rays and slats on the sides allow air to pass through freely. The box is raised on stilts so that it is easier to read the instruments and there is no effect from the ground. Accurate temperature and humidity readings can then be taken.

Air Masses and Air Streams

Air in the atmosphere picks up the characteristics of the area it comes from. For example, the air above the Sahara Desert tends to be hot and dry. A large volume of air that has similar temperature and humidity is called an **air mass**. If an air mass moves from its source region it will bring its "weather" with it. So air that starts over the Sahara stays hot and dry for a while and brings hot and dry weather. The name given to this body of moving air is an **air stream**.

There are five air streams that affect Britain. They are shown in the table below.

Name	Source Area	Weather
Tropical Maritime (mT)	The Atlantic Ocean, south-west of Britain	Warm and wet

Tropical Continental (cT)	South Europe and North Africa, including the Sahara Desert	Warm and dry
Polar Maritime (mP)	The North Atlantic	Cold and wet
Polar continental (cP)	Northern Europe and Siberia	Dry, and in winter, very cold
Arctic maritime (mA)	Arctic Ocean	Very cold, but not very wet due to the low humidity

Weather Fronts

Weather fronts are where two air streams meet. These air streams have different temperatures and humidity. The warmer air, being less dense, rises up over the cooler air. The warm air expands and therefore cools as it rises. Colder air can hold on to less water vapour. The water condenses out of the atmosphere, forms clouds and eventually rain.

Warm Fronts

There are two main types of front. Warm fronts are where warm air "catches up" with colder air. The angle that the warm air moves up is gentle at the warm front. Clouds are slowly formed over a large area and this makes long periods of drizzle.

Cold Fronts

At the cold front, the cold air cuts underneath the warm air and forces the warm air up a much steeper angle. At cold fronts the air is cooled quickly and forms a narrow band of thick cumulonimbus clouds. These produce a short burst of very heavy rain.

Occluded Fronts

Occluded fronts are found when the cold front has caught up with the warm front and pushed the warm air up into the atmosphere. This warm air cools and condenses. Occluded fronts also make a short period of very heavy rain. Remember one thing above all

Fronts mean rain!

Depressions

Depressions are usually known as lows. They could also be called cyclones but this would probably panic too many people watching weather forecasts. They are areas of

low pressure that pass over Britain and are responsible for a lot of our weather. Lows bring the following conditions.

- Windy weather
- Cloudy conditions
- Periods of rain, and in winter, snow
- Unsettled, changeable weather

It is easy to identify depressions on synoptic charts (weather maps).

1. The isobars (lines joining places with equal air pressure) are close together
2. The air pressure gets lower as you move into the centre of the low
3. Frequently they have weather fronts

To be able to "read" a depression on a weather map it is important to remember the following points.

- Winds blow (more or less) parallel to the isobars
- The closer the isobars the faster the wind
- In the northern hemisphere winds blow anticlockwise around the centre of the low
- Fronts mean rain - warm fronts a long period of steady rain, cold and occluded fronts a shorter spell of heavy rain
- The temperature between the warm and cold fronts is higher than outside them - this hotter area is called the warm sector
- Usually depressions move west to east over Britain

The Passing of a Depression

It can be helpful to split a depression into five parts and consider the weather each part brings. The following list is in the order it passes over Britain.

1. In "front of" (east) the warm front. The wind is increasing, the temperature is relatively cool, clouds are high and thin and it is dry.
2. At the warm front. The wind is stronger, veers in direction (e.g. from south-west to west), cloud cover is lower and thicker, the temperature is warmer and it is raining.
3. In the warm sector (between the fronts). As the name suggests this is the warmest part of a depression. It has broken cloud and occasional showers.
4. At the cold front. Thick cloud, heavy rain and hail, sudden drop in temperature. Wind direction continues to veer (e.g. from west to north-west) and the wind picks up in speed.
5. "Behind" (west) of the cold front. Cold, with clearing showers. Wind speed drops off.

Anticyclones

Anticyclones are areas of high pressure. In the northern hemisphere the wind blows clockwise around the centre of the high. The isobars are widely spread so the wind blows more slowly than in a low. Highs also bring more settled weather, clearer skies, and in summer sunny warm days. Winter high pressure systems bring the same calm conditions but this often leads to frosts as there are few clouds to trap the heat at night. High pressure in winter can also produce fog - this and the freezing temperatures can make driving hazardous. Highs tend to stay around for longer than lows and this means that the weather can be unchanged for a week or more.

Weather Forecasting

Modern weather forecasting is based on collecting a huge amount of data and then quickly processing this information so that predictions can be made. The sources of weather information are

- Ground Weather Stations - both staffed and automatic
- Radiosonde Balloons - gathers information from the upper atmosphere
- Satellites - shows cloud patterns and snow cover
- Radar - precipitation patterns
- Aircraft
- Weather Ships
- Automatic Weather Buoys

The data is sent to the Meteorological Office in Bracknell where powerful computers process it into more useable and understandable synoptic charts. These are interpreted by the meteorologists who provide the forecasts for the public. Weather information is available from a wide range of sources, for example

- Newspapers
- Television, including teletext
- Radio
- Telephone
- Internet e.g. [The BBC](#) or the [Met Office](#)

Physical Environment

Tropical Rainforests - Reasons for their Destruction

Tropical Rainforests are found in the Amazon Basin of South America, (e.g. Brazil) Central Africa (e.g. Congo) and South-East Asia (e.g. Indonesia).

There are economic reasons for countries to cut down their rainforests.

1. Farmland is made. This is both arable land which is used for tropical crops such as cassava and bananas, and grass land which is used for livestock farming, mainly cattle ranching. This farmland, as well as providing food, gives employment and earns money in export earnings for the country.
2. The wood cut down is sold as timber and used as fuel. Tropical hardwoods are much in demand for use in building and furniture. The main markets for the tropical hardwoods are in the developed world.
3. It will allow the mining of minerals. Many important ores such as bauxite and iron ore have been found in tropical rainforest areas. The most economical way to remove the rocks is often by opencast mining, which means that the trees have to be cut down.
4. The produce power and water supplies. Rivers have been dammed to make large reservoirs for Hydro-Electric Power schemes. An example is the Sobradino Dam on the San Francisco River in Brazil.

There are also social reasons for cutting down the trees.

1. Transport links. Roads and railways are needed to move goods and people.
2. Settlements. Modern cities such as Manaus in Brazil and Jakarta in Indonesia have been developed in areas that were once were tropical rainforest.

The Effects of Destroying the Tropical Rainforests

Native People

When the trees are cut down it takes away the habitat of the plants and animals. It also reduces the space for the indigenous people who have lived there for thousands of years. These people used the available resources by hunting, fishing, gathering and farming. This way of life has died out with contact from incomers. Some native groups suffered greatly from diseases which they had no resistance to. People are also tempted into the modern lifestyles in the larger settlements, which social problems can follow.

Fauna and Flora

Deforestation has led to the loss of thousands of species of insects, animals and plants. It means that important chemicals that could be used for medical purposes have not been found and will be lost.

The Soil

Removing the vegetation cover exposes the soil to erosion and leaching. Without the branches and leaves to break its fall, heavy tropical storms can quickly wash the soil from even an gentle slope. Cutting down the trees also takes away the roots which helps bind the soils together. The soil can quickly silt up rivers and lakes.

Even if the soil is not completely removed the nutrients may be leached out as the rainfall seeps down through the soil. Soils lose their fertility after only a few years, and this causes problems for commercial arable farmers.

The Climate

The climate of the area becomes drier with the loss of the vegetation which acts as a "sponge" to hold on to the moisture. Having less cloud cover means the increase in temperatures. Both the burning of the trees and their reduced number increases the concentration of carbon dioxide. The extra carbon dioxide is believed to contribute to global warming, which in turn is blamed for the rise in sea level.

Protecting the Rainforests

Rainforests can be protected by establishing game reserves to save rare animals and plants, reducing deforestation in areas where native people live, replant the areas the timber countries clear and by supporting the countries that have rainforests. The "debt for nature" scheme is designed to remove or reduce the debts that developing countries may have if the forests are protected.

People have also tried to reduce the demand for tropical hardwoods such as mahogany, teak and ebony. This can be done by using woods that are grown in sustainable forests.

Desertification

Desertification is when land turns into desert. This means that little or no food can be grown in areas where people live and farm the land. Desertification is caused by the following factors

1. Deforestation - This directly leads to lower rainfall and higher temperatures
2. Overcultivation - growing too many crops, year after year on the same piece of land damages the soil structure and reduces the soil fertility
3. Overgrazing - the cattle, sheep, goats and other animals take away the vegetation cover and expose the bare soil
4. Poor irrigation - this can make the ground too salty (salinisation)
5. Drought - extended periods of lower than usual rainfall damages the vegetation
6. War - this causes refugees to move into marginal land

Most of all desertification is caused by the pressure of too many people living in an area.

Possible Solutions to Desertification

To solve the problems caused by desertification means increase the amount of food that can be grown in areas where people live and farm the land. The following problems can be tackled by

1. Deforestation - Aforestation, that is re-planting trees, especially in shelter belts. Planting grasses can help stabilise the soil and cut down on erosion by wind and rain.
2. Overcultivation - Using good farming practices such as proper crop rotation and the use of manure as a fertiliser
3. Overgrazing - It is important that the young trees are fenced off to prevent grazing by animals
4. Poor irrigation - Make sure the water is not evaporated on the surface which wastes water and increases its salinity
5. Drought - This can be triggered by deforestation, so aforestation should help reduce this. Also terracing the land to slow down the water running off will make better use of the rain that does fall

Most of all desertification can be controlled by human activity. This is by people **not** mis-using the land and by reducing the pressure of too many people living in an area.

Soil Erosion

Soil erosion is when the soil is blown away by the wind or washed away by the rain. Soil erosion is common in areas with steep slopes, where trees have been cut down, in droughts when crops and other vegetation grows poorly and in rural areas which are overpopulated. Nepal, in the Himalayan Mountains, has severe problems caused by increased population density and steep slopes.

Soil erosion can be reduced by building terraces on hillsides, irrigation schemes to overcome droughts, planting more trees to bind the soil together and make wind breaks, and using fertilisers in overpopulated areas to make the soil more fertile. It is very important that the farming techniques used do not damage the structure of the soil, as this makes it easily eroded. Good farming techniques include contour ploughing, crop rotation and keeping the soil rich in humus.

An example of poor techniques was the "Dust Bowl" in the mid-western states of the U.S.A. in the 1930's. Farmers exhausted the soil by monoculture and left the soil bare after harvesting. Soil erosion is a problem of the developed world as well as the developing.

Ocean Pollution

The world's seas and oceans are being polluted by

- Agriculture - The run off of pesticides and fertilisers
- Industry - effluent from factories and power stations
- Sea transport - especially oil tankers
- Overfishing - a type of pollution as it damages the environment
- Domestic waste - sewage from settlements

Ocean pollution can kill fish, plants and animals, spoil beaches and swimming areas, and make people ill.

Ocean pollution can be prevented by banning the use of the dangerous forms of agricultural chemicals, building sewage treatment plants, using aircraft to follow and monitor ships, and using laws to stop industry dumping waste in the rivers and seas.

Overfishing

With overfishing too many fish are caught and the number of fish in the sea decreases substantially. Overfishing could be prevented by

- Putting quotas on much fish can be caught
- Banning nets with small mesh size and using square mesh panels. This allows smaller, immature fish to escape, grow and breed
- Tie-up schemes. Boats are only allowed to fish on so many days a month
- Decommissioning. Fishermen are encouraged to stop fishing by getting compensation for their old boats
- Exclusion zones. Areas of the sea are off-limits to certain nationalities, or at certain times of the year
- Monitoring by Fisheries Protection ships and aircraft. Larger fishing boats are now required to carry devices so that their position can be monitored by satellite.

Air Pollution

Acid Rain

Acid rain is a mixture of water and pollutants which falls as rain and damages lakes, rivers, soils and buildings. In Sweden, about a quarter of its lakes have been damaged

by acid rain, and in Germany many forests have been damaged. Buildings made of limestone in central Europe are being dissolved and statues are unrecognisable. Acid rain can be reduced by reducing sulphur and nitrogen dioxide emissions from power stations and factories which burn fossil fuels.

The Ozone Layer

The ozone layer is the part of the atmosphere which shields the Earth from the Sun's harmful ultra-violet rays. Chlorofluorocarbon's (CFC's), which are found as coolants in fridges and in the past in aerosols, are the main cause of the "hole" in the ozone layer above Antarctica. The use of alternative chemicals would contain this threat, but the damage already caused will take a long time to heal.

Global Warming

Global warming is the slow increase in temperature of the world. The greenhouse effect is when solar radiation is prevented from leaving the atmosphere by various gases such as methane and carbon dioxide in the air. Global warming could lead to the ice-caps melting, which would raise the sea level and flood coastal areas and islands.

Land Use

Land Use - Introduction

The physical (natural) landscape, the weather and the climate all affect the way we live. In Scotland, the land is used for farms, forests, reservoirs, quarries and recreational facilities. Such land uses bring advantages and disadvantages to the people living in an area. Sometimes there are conflicts (arguments) as to the best way to use the land.

Physical Factors - Relief

Higher land tends to be windier, wetter, colder, more remote; have poor, marshy and thin soils - in short, it is not very good for most land uses. The higher lands in the U.K. have very few people and are not used intensively for farming.

Steeper land also is more difficult to use. Soils creep down steep slopes, machines such as tractors can topple over and water runs quickly off the land. Slopes can be stabilised by planting trees and in other parts of the world steps or terraces are cut in hillsides so that crops can be grown.

The lowest land offers the most opportunities for a variety of uses. It is the warmest, calmest, driest and is the easiest to build houses, industry and communications on.

The aspect of the land is the way the slope faces. In the northern hemisphere land that slopes down to the south is the best for farming as it gets more direct rays from the sun and is therefore hotter. The sunny-side of valleys tends to have more settlements.

Physical Factors - Weather

Weather affects everyone. What we do at work, in our spare time and when travelling can be controlled by what the weather is like. We will look at the different weather conditions that are commonly found in Britain and the good and bad effects they can cause.

Weather type	Advantages	Disadvantages
High Pressure in Summer	Dry, calm and sunny weather benefits people who work in tourism (such as hotel owners), soft drink manufacturers, and farmers when they are harvesting crops	Can cause droughts and forest fires; crops may grow badly without rain
Low Pressure in Summer	Sufficient rainfall for grass and crops to grow; low risk of water shortage	Depressing for holiday makers; interrupts summer sports; strong winds may flatten crops
High Pressure in Winter	Cold and clear condition can be excellent for skiers and winter sports enthusiasts	Ice and winter fogs make driving hazardous; frozen football pitches; burst water pipes
Low Pressure in Winter	No shortage of water supplies; low risk of frost for farmers	Storms can cause damage to buildings; flooding risk to farmland; heavy rain and strong winds also make driving hazardous
Weather type	Advantages	Disadvantages

Land Use - Conflicts

People often disagree as to the best way that areas should be used. There will usually be advantages and disadvantages to each way of using the land. You need to be able to argue for one kind of land use over another, giving valid reasons for your choice.

Settlements

Advantages	Disadvantages
<ul style="list-style-type: none"> • New housing can be needed in rural areas • Building the houses creates jobs 	<ul style="list-style-type: none"> • Housing uses up the most fertile, lower land • The spread of towns and cities can damage wildlife and increase pollution

Forestry

Advantages	Disadvantages
<ul style="list-style-type: none"> • Creates jobs • Britain will not need to import so much timber • It can stabilise soil and reduce erosion 	<ul style="list-style-type: none"> • Some people believe it spoils the look of the landscape • It damages the habitat of the local fauna and flora

Quarries

Advantages	Disadvantages
<ul style="list-style-type: none"> • Creates jobs, both in the quarry and in related work e.g. lorry drivers • Rock is needed in many industries e.g. road building 	<ul style="list-style-type: none"> • Quarries can be noisy and dusty • Quarries can look ugly and be an eyesore • Noise and traffic problems can be caused by the heavy lorries

Caravan and Camp Sites

Advantages	Disadvantages
<ul style="list-style-type: none"> • Creates jobs and the tourists will spend money in the local area • Encourages people to look after their local area as this will attract more tourists 	<ul style="list-style-type: none"> • Tourists can disturb the local people • The jobs provided are often seasonal (summer) • Large numbers of tourists can damage the countryside

Winter Sports Resorts

Advantages	Disadvantages
<ul style="list-style-type: none">• Creates jobs and the tourists will spend money in the local area• Provides healthy exercise outdoors	<ul style="list-style-type: none">• Tourists can disturb the local people• The jobs provided are often seasonal (winter)• Large numbers of skiers and snowboarders can damage the fragile mountain environment and disturb the plants and animals

Settlements - Introduction

Settlements are places where people live. They vary in size from the smallest (single buildings) to the largest (conurbations).

Site and Situation

The **site** of a settlement is where the settlement has been built.

The **situation** of a settlement is where it is in compared with the surrounding area.

Situation can also be described as whereabouts a settlement is.

A **nucleated** settlement is where the buildings are grouped together.

A **linear** shape is where the settlement has developed along a line.

A **dispersed** settlement is where the buildings are spread apart.

Choosing a Site

The site of a settlement is where the settlement has been built. There are a number of factors that were important to the original settlers.

- Water supply - this needs to be fresh, clean and reliable
- Building material - either stone or wood
- Food supply - farmland and fishing grounds were important
- Land for building -- needs to be solid and unlikely to flood; best on low and flat land which is not marshy
- Fuel supply - e.g. peat, wood or coal

- Defensive site - a place that is difficult to attack because it is e.g. on top of a steep-sided hill.

Functions of a Settlement

The function of a settlement is its main economic activity or purpose. Types of functions include

- Industrial Towns e.g. Sheffield
- Ports e.g. Liverpool
- Market Towns e.g. Kelso
- Seaside Resorts e.g. Blackpool
- Fishing Ports e.g. Peterhead
- Dormitory Settlements e.g. Haddington

Settlements which have the same function will have many of the same features, and these can be shown on a **model**. Models allow you to compare a particular settlement with a typical one.

Market Towns

Market Towns tend to have the following features

- Found in a fertile farming area
- Many services e.g. shops and offices
- Good transport links - often they are route centres
- They may be at the site of important bridges. Often mills were built on the river
- Market places in the town centre; Markets may no longer be held there

Ports

Ports tend to have the following features

- Found where there are sheltered harbours
- Flat land for building on nearby
- Modern ports need deeper water for today's larger ships
- Many ports have gone through a lot of redevelopment

The largest ports are found where there is a major industrial area inland that needed a place to import and export its goods.

Industrial Towns

"Old" Industrial Towns tend to have the following features

- Found on or near coalfields
- Has railways and canals for transport
- Has housing and industry mixed in together
- Newer industry is found on the outskirts, near main roads for transport

In the newer industrial towns planning ensures the housing and industry are located apart.

Seaside Resorts

Seaside Resorts tend to have the following features

- Found on the coast with beaches
- Close to industrial areas with large populations, with good rail and road links
- On the sea-front are hotels and entertainments such as pubs and bingo
- Guest houses are found inland where the land is cheaper to buy
- Housing found further inland, with industry on the outskirts
- Caravan, camp-sites and golf courses also on the edge of town, but near the coast
- Promenades - pedestrianised roads along the front of the resort

With the increase in cheap package holidays in the last 30 years many seaside resorts have had to **diversify**. Many people chose to retire to these resorts, and therefore have an ageing population.

Services in Settlements

Services are things that people use in settlements. Examples include shops, schools, banks and sports centres. Services are split into three groups - low, middle and high.

	Low Order Services	Medium Order Services	High Order Services
Number found in a settlement	Very many	Quite a few	Fewest
How often are they used	Frequently	Quite often	Occasionally

Found in	All size of settlements	Usually towns and larger	The largest settlements
Size of the Sphere of Influence	Small	Medium	Large
Examples	Newsagents and Post Offices	Hairdressers and Chemists	Furniture Shops and International Airports
	Low Order Services	Medium Order Services	High Order Services

Sphere of Influence

The sphere of influence of a service is how far people will travel to make use of that service. A primary school, which is a low order service, will have a smaller sphere of influence than a secondary school which is a middle order service. People are willing to travel a long distance to get to a high order service (e.g. Harrods shop in London) and it therefore has a very large sphere of influence.

Settlements as a whole can also be said to have a sphere of influence. People will usually only travel a short distance to a hamlet (e.g. Levenwick in Shetland) but will travel further to a town (Lerwick in Shetland).

Urban Zones

When we look at cities and large towns in Britain we find many have similar patterns of land use. For example, at or near the centre of the settlement there will be a business area with offices, large shops, and main train and bus stations. We will look at the four main land-use areas or zones -

- The Central Business District (CBD)
- The Inner City
- The Suburbs
- New Industrial Areas

Central Business District

The central business district (C.B.D.) has the following characteristics -

- Has the departmental shops, large offices, main railway and bus stations, many churches, pubs, clubs and cinemas and the town hall
- The main roads head into the C.B.D.
- The value of the land is greatest here

- Due to the high cost of the land buildings are built upwards
- C.B.D.s suffer from the worst traffic congestion
- It is often the oldest part of the city
- It may have a grid-iron street pattern, that is parallel straight roads and other roads running at right angles

The Inner City

The inner city has the following characteristics -

- Old factories and houses are mixed in together as they were built during the 19th century when most people walked to work (no cars); there was little open space left between the buildings
- The street pattern is often grid iron
- In Scotland the housing is usually tenements; in England terraced housing (think "Coronation Street")
- Often have empty buildings, derelict land, vandalism, crime, poverty, unemployment and other social and economic problems
- In the last fifty years much redevelopment has taken place in these areas; many high rise multi-storey residential blocks of flats have been built
- As both the houses and factories had chimneys air pollution was a problem; with industrial decline and housing redevelopment this has reduced

The Suburbs

The suburbs have the following characteristics -

- Younger buildings than in the middle of the city
- The street pattern is made up of crescents and cul-de-sacs (dead ends); this slows down traffic to make the streets safer
- More detached and semi-detached houses; as the land is less expensive people have gardens
- Less factories than the inner city
- More open space and parks
- Many people commute from here to work in shops and offices in the C.B.D.
- Less pollution than the centre of the city

New Industrial Areas

The new industrial areas have the following characteristics -

- They have modern factories with car parks

- The factories are laid out in an orderly fashion -they are planned areas
- The buildings are usually lower than in the old industrial areas
- The areas are landscaped with, trees, bushes, flowers and grass
- They are kept apart from the residential areas
- They found close to good road transport links
- Less pollution than the centre of the city - electricity is almost always used as the power source, and there are very few chimneys

Urban Problems - Traffic Congestion

There are two main problems that modern day cities face, namely urban decay when parts of the city become run down and undesirable to live in, and traffic congestion. Traffic congestion is caused by

- Many people working in the C.B.D. which may have narrow streets
- Shortage of off-street parking which means people park on the roads and so increase congestion
- People not using public transport - either because it is less convenient, too expensive or not available
- More people own and use cars

As an example of how bad traffic jams now are, a hundred years ago it took about one hour to travel from Paramatta to the centre of Sydney (Australia) by horse and cart. Today it takes longer by car. As well as causing aggravation stationary traffic cause severe air pollution from exhaust fumes. Various solutions to these problems have been tried.

- Ring roads and by-passes; these can be unpopular as countryside around towns and cities are lost when they are built
- Park and Ride - you park your car on the edge of the built up area and then ride a bus or train into the C.B.D.
- One way streets to speed up traffic flow
- Multi-storey car parks
- Banning cars from the from the C.B.D., either with pedestrianised streets (e.g. Renfield Street in Glasgow) or by stopping them coming into the city centre at all. Cars are banned from the centre of Milan (Italy) on Sundays.
- Charging car drivers when they enter the city centre

A complete solution to traffic congestion needs people to be able and willing to travel on public transport more.

Urban Problems - Sprawl

Cities continue to get bigger and bigger. People want to live in the leafy suburbs. Modern supermarket chains like Asda want to set up new stores on the edge of town. Here land is cheaper, and there is space for the large car parks. Ring roads and by-passes are built around cities. All this means that more and more countryside and farmland is lost.

One solution is to declare a "green-belt" around urban areas, where development is not allowed. This has not always been successful as new factories bring jobs and housing is often in great demand. Developments have also been "leap-frogging" the green belt and been built further away from the city.

Urban Problems - Urban Decay

Urban decay is when parts of the city become run down and undesirable to live in. It causes economic (money), social (people) and environmental (social) problems. Examples of urban decay are -

- Slum housing - with outside toilets, overcrowding, no hot water or central heating
- Many buildings have been poorly built and now have leaking roofs, draughty windows and crumbling stonework
- Empty buildings are vandalised; gap sites where buildings have been knocked down turn into derelict land
- As the factories and housing have been in the same areas air, noise and water pollution have been common

There have been a number of schemes to reduce the problems of urban decay. They have had mixed success.

Comprehensive Redevelopment

This is when you knock down all the buildings and start from scratch. It was felt to be needed in some places as the problems were so bad. In Kingston and the Gorbals in Glasgow, for example, the old tenements were knocked down and replaced by new flats and multi-storey high rise buildings. Unfortunately, many of the new buildings were poorly built and have also been knocked down. This approach has also been criticised as it destroyed the social fabric of the area - people no longer knew their neighbours and they were moved away from their friends and relations.

Urban Regeneration

Another idea was to renovate the existing housing and improve the environment and economy. In Glasgow this involved

- New roofs
- Rewiring the houses and fitting central heating
- Fitting double glazing
- Secure entry-phone systems on tenement closes

- The outsides of tenements were cleaned by sand-blasting
- Combining two small flats into a larger one
- Improving the environment by landscaping
- Building or improving the social facilities such as clubs and medical centres
- Encouraging new business and industry to set up in the areas with grants and loans

This has proved more popular as people have been able to stay in their own area.

New Towns

Another approach to solve the problems of urban decay was New Towns. These were started up after the second world war. They were planned settlements which were close to the cities that were being regenerated. Housing was built in neighbourhood areas, which had their own schools, play areas and small shopping centres. Industries were developed in separate estates out on the edge of town, which had good road transport links. Pedestrians are kept apart from traffic and this improved road safety. The city centre shopping areas are easily accessible.

The five New Towns in Scotland are East Kilbride, Irvine, Cumbernauld, Livingston and Glenrothes.

Farming

Types of Farming

In the Standard Grade Geography exam there are three types of farming you need to know about - arable, livestock and mixed.

- Arable farms are ones where the main way of making money is by growing crops
- Livestock farms are where animals are the important part of the farm
- Mixed farms are where animals and crops are both important to the farmer

Only British examples are used in the exam questions.

Inputs, Outputs and Processes

Inputs are what go into the farm. There are two types of input. The natural or **physical** inputs include weather, climate, relief (height, shape and aspect), soil, geology and latitude. Farmers have little or no control over these. Changing the

natural inputs can sometimes be done but it usually involves a lot of expense. For example areas with not enough rainfall get water from irrigation schemes, steep slopes can be cut into terraces and the climate can be greatly altered by using greenhouses.

Examples of **human** inputs include machinery, fertiliser, pesticides, seeds, livestock, animal feed, workers and buildings. These usually have to be paid for, although farmers can save some money by producing some of these themselves, e.g. grass is grown as a fodder crop and animals are bred.

Outputs are what the farm produces e.g. grains, eggs, milk, meat etc.

Processes are the types of work that are carried out on the farming. It varies with the type of farm e.g. ploughing, seeding and harvesting are important on an arable farm, whereas a major activity is milking on a dairy (livestock) farm.

Farms as Businesses

Like shops and factories, a farm is a business. Like all other business it has to make money to survive. Its profits are made when the money the farmer makes by selling his or her **outputs** is more than is spent on the **inputs**. Like other business people farmers want to make a substantial profit. Most of the recent changes in farming can be explained by the farmer's desire for a good profit.

Arable Farms

Arable farms are mainly found in the eastern side of the U.K. Here the land is lower and flatter, the soil more fertile and the climate drier and sunnier. The ten main crops grown in Britain in 1996 were

Wheat	1,976
Barley	1,267
Fodder crops	362
Oilseed rape	356
Sugar beet	199
Potatoes	177
Vegetables grown in the open	132
Oats and Other Cereals	114
Other crops not for stock feeding	78
Orchard Fruit	28

All figures are in 1,000 hectares.

Livestock Farms

In Britain the location of livestock farms depends on the main animal that is being kept. Sheep are usually found in the upland areas. They are suited to these parts as

- Sheep are hardier (tougher) than other animals, and can cope with the colder, wetter and windier conditions
- They are more surefooted than cattle, so don't mind the steep slopes
- The land certainly can't be used for arable farming

Dairy cattle are more common in the wetter west of Britain as the heavier rainfall helps in the milk production. Lowland areas are favoured as these have warmer temperatures. The south-west of England and Ayrshire in Scotland are particularly suited as the mild winters mean a longer growing season, which in turn means the farmers are less reliant on providing winter feed for the cattle. Dairy farms are also located nearer the larger settlements. This was important in the past when transport was slower and milk needed to get to the market quickly to still be fresh. This location is less important today with refrigerated transport.

The total number of the different types on animals were (1995)

Cattle	11,733
Pigs	7,534
Sheep	42,771
Fowls (chickens and hens)	125,981
Ducks and geese	2648

All figures are for 1,000 animals.

Mixed Farms

Mixed farms have both livestock and crops. They are found where farmers have good quality, fertile land that they can use for arable farming and other land which is more suited for animals. Farmers will often grow fodder crops for their animals, and so save money on livestock feed.

Intensive and Extensive Farming

Intensive farms have a lot of inputs used on a small area of land. An example would be a market garden that uses a lot of chemicals, buildings, electricity and workers in a very small area of land.

Extensive farms have few inputs on a large area of land. An example is a hill sheep farm where perhaps only one farmer will look after a large number of sheep, which do not take a lot of looking after.

The Pattern of Land Use on Farms

If a farm house is located centrally in area of farmland which evenly fertile a distinct pattern of landuse may be produced. The farmer will keep the animals and crops that

need the most attention in fields that are closest the farmhouse. For example, dairy cattle will be milked twice a day will be close at hand, whereas sheep, which rarely need checking up on, will be more remote.

The same is true for crops. Strawberries and raspberries need frequent spraying, fertilising and tending so they will be close by, whilst a grain crop like barley will be planted further away.

Changes in British Farms

Fewer people work in British farms. The reasons for this include

- Mechanisation - machines take the place of many workers; also fewer horses are used and they needed a lot of looking after
- Larger farms run efficiently need fewer workers
- Workers have to be paid - the farm owner wants to make as much money as possible

fewer workers = more profit

The yield is the amount of a crop that is grown from an area of land. The amount of wheat that British farmers have been able produce from an hectare of land has greatly increased. The reasons for this include

- Increased use of fertiliser which help the growth of plants
- Increased use of pesticides which reduce plant disease and damage from insects
- Greater knowledge and expertise in farming
- Guaranteed prices from the European Union means the farmers could still get a good price for their crop even if it was overproduced
- Many hedges have been removed which meant fewer small fields and more efficient farming practices

Set-aside is land the farmers are paid not to farm. It was introduced as European Union farmers were producing more crops than people needed. These extra crops then had to be stored, often at great expense. This overproduction has been reduced by farming less land.

As more and more young people are going on to colleges and universities from school, and some courses cannot take all the applicants, I wonder if teachers will soon be paid not to teach!

On a less cynical note, set-aside was also introduced to allow nature (plants, insects and animals) to recover away from intensive agriculture, and its reliance on artificial chemicals.

Farming Problems

The problems that have affected British farms include

- Overproduction
- Pollution by Chemicals
- Growth of Cities

The next three sections will look at these problems, and suggest ways they can be solved, or at least reduced.

Overproduction

As mentioned in the changes in British farms section, farmers have increased the amount of food they grow on the land. This has led to the creation of wine "lakes" and grain "mountains" - surplus produce that has been stored in warehouses. The problem of too much milk and dairy produce was tackled by the E.U. bringing in **quotas**. These are limits on the amount of milk each farmer was allowed to produce.

The European Union is currently reforming the Common Agricultural Policy (CAP) which many believe was the cause of these problems. It remains to be seen how successful these changes will be.

Pollution by Chemicals

A lot of modern farming involves the use of chemical fertilisers, insecticides and herbicides. The yields that farmers have been able to produce have grown enormously. However, these chemicals continue to work after they have been washed off the land into rivers and the water supply. This has led to changes in the flora and fauna of intensively farmed areas. River estuaries have suffered from the growth of weed and algae, as the levels of nitrates in the water has increased.

Governments have tackled this problem by careful monitoring of pollution levels, with fines for the worst offenders. Some farmers have chosen to go "organic", which means they do not rely on artificial chemicals. As well as having environmental benefits the farmer can charge more for the produce as the consumer is willing to pay extra for organic goods.

Growth of Cities

Some of the best quality farmland has been lost due to the growth of cities. This **urban sprawl** is mainly caused by new housing developments, but new industry, out of town shopping centres and multi-lane ring roads and by-passes all contribute.

One solution is to build within the city in brown-field sites, although these places are not always popular as they have traffic congestion problems and lack of room for

expansion. Another is to use a green belt - an area around a city where development is meant to be restricted by law. Such schemes have only had limited success.

Industry

Sectors of Industry

Primary

- "Take" - this involves taking resources from the land or the sea e.g. farming, mining or fishing

Manufacturing

- "Make" - e.g. car making or house building

Service

- "Serve" - providing a service to others e.g. teachers, lorry drivers

Quaternary

- information and office based industry e.g. making computer software

Location Factors

Primary industries are found where the resources are found eg. coal mines have to be found on coal fields.

The location of manufacturing industry is influenced by the following factors

- labour supply - how easy it is to get workers
- transport - by road, rail, sea and air to move goods and workers
- site - is the land flat, dry and with room for expansion
- raw materials - being near to heavy, bulky raw materials will help reduce transport costs
- market - being close to customers also reduces transport costs
- power supply - most modern industry uses electricity
- government aid - are grants, loans, training or other kinds of help available for a site

Market and labour supply are very important in service industries.

Quaternary industries are less tied down to a particular location.

Heavy Industry

- It is a help to heavy industry if it is located near to the bulky and heavy raw materials
- Near power supply - coal is the source of power in iron and steel making so iron and steel works were found on or near a coalfield
- Cheap transport - by railways and canals in the past, by bulk carriers (ships) more recently
- flat land - large areas of flat land are needed

Industrial Decline

During the 1900's heavy industry began to decline in Scotland. The factors which caused this were -

- Local iron ore supplies were exhausted (used up)
- Coal mining declined as reserves were used up or considered too expensive to mine
- Competition from other countries that produced cheap coal, iron and steel and ships
- Unhelpful location e.g. Ravenscraig, the last big steelworks, was inland and therefore had extra costs in transporting the iron ore and coal by rail
- Shipbuilding yards were built on water that was too shallow to launch modern, very large ships

Light Industry

Light industry uses small, light raw materials and components to produce small, light, high value goods. The location factors for light industry are

- Good transport links such as motorways and air links
- Close to market - you can save on transport costs by being close to where you sell your goods
- Close to labour supply - often you need skilled workers in light, modern industries
- Government Aid - all other things being equal a company will choose a location that gets extra help from the government

Light industries are termed "footloose" - they are not tied to the location of raw materials as heavy industries are.

Government Incentives

The kind of help governments offer companies to set up in high unemployment areas include

- Grants, which is money given to the company
- Loans, money given to the company that has to be paid back over time
- Training, so that people will have the skills they need in your industry
- Infrastructure, improvements in e.g. roads, electricity supply, telecommunications and the water supply
- Constructing buildings that the companies can move into

Government aid is provided by the local authorities, the British Government and the European Union.

Old and New Industrial Landscapes

Old Industrial Landscapes

The main features include

- Canals and railways for transport
- Factories, three or four stories high, with chimneys
- Large, irregular shaped factories
- The old factories caused a lot of air and river pollution
- Housing close to the factories
- Often found in the inner city areas
- Little open space

New Industrial Landscapes

The main features include

- Planned industrial estates and business parks
- Usually found at or near the edge of a city
- Low factories with plenty of space for parking and expansion
- Near good road links
- Uses electricity as a power supply
- Includes open space with trees and grass to improve the quality of the environment

Feature	Old Industrial Areas	New Industrial Areas
Factory location	Near centre of town	Near edge of town
Housing location	Close to factories	Away from factories
Height of factories	Two or more storeys	Single storey

Pattern of factories	Irregular shapes and layout	Rectangular and neatly arranged
Factory windows	Few and small	Many and large
Surroundings	Waste land and derelict buildings	Landscaped with trees, grass and flowers
Transport links	Many railways and canals	Mainly roads
Width of roads	Narrow	Wider
Parking	Very poor	Large car parks
Chimneys	Common, tall on factories	Very few if any
Pollution	Air and river pollution common	Much cleaner
Power source	Coal in the past, now electricity	Always electricity
Factory type	Mainly manufacturing; often heavy industry	Manufacturing and service

The Effects of Industrial Decline

The effects of industrial decline can be grouped in three headings - economic, social and environmental

Economic

Economic effects - to do with **money** - unemployed people have less money to spend, local shops and pubs take in less money, the local government gets less taxes and therefore has less money to spend, services such as schools and post offices are cut back, more people leave and so the area is badly run down.

Social

Social effects - to do with **people** - e.g. unemployment, low standards of living, family break-ups, crime, vandalism and depression. As many younger people will move away to look for work the area gets an ageing population.

Environmental

Environmental effects - to do with the **surroundings** - e.g. empty factories and houses, gap sites (where buildings used to be), waste ground and dirty buildings. One

positive effect of the old polluting factories closing down is there is less air and river pollution now.

Regional Differences within the U.K.

Areas which have depended on the old, heavy industries (coal mining and iron and steel) have low wages, high unemployment and population decline. Areas like these include parts of the north-east of England and south Wales.

Areas which have modern, light industries have low unemployment, high wages and population increase. Areas like these include parts of south-east England and East Anglia.

Population

Censuses

A census is a count of the population of a country. A census also finds out facts about the population, such as their age, sex, jobs they do, type of house and what language they speak. It is usually carried out every 10 years. A country will carry out a census because

1. The government needs to know how many people live in each part of their country; it then knows where to spend its money
2. They also find out about population trends; this allows them to plan ahead
3. They can find out about the population structure - how many old, middle aged and young people there are; this again allows the government to target their spending - on, for example, old folks homes or schools

Census Difficulties

Some countries have a lot of difficulty carrying out censuses and some countries don't have censuses at all. The reasons for this are

- They cost a lot of money which poor countries can't afford
- Some people live in difficult to reach areas because of mountains, deserts and forests
- Wars make counting difficult
- Nomads (people who move about) also make counting difficult
- People who are illiterate (can't read or write) are unable to fill out the forms
- Some people do not tell the truth for political or religious reasons

Vital Registrations

This is a method of counting the population by carefully using the records of births, marriages, adoptions, divorces and deaths. This method is cheaper, but it does not give as much information as a census. It does, however, give a continuous record, whereas a census gives a "snap-shot" picture every 10 years. Another way is by a sample survey where a fraction of the population are surveyed. This method has the advantage of being cheaper than a census, but the disadvantage of being less accurate.

Standard of Living and Population Density

A person's standard of living tells you how well off they are. We can measure their standard of living by looking at

- Their average income
- The average number of calories eaten per person
- The number of people per doctor
- The percentage of people who are able to read and write
- The average life expectancy
- The infant mortality rate

These factors are known as **standard of living indicators**.

Countries that have a high standard of living are mainly found in the northern part of the world, and are called **developed** countries. Canada, France and Japan are examples of developed countries. This part of the world is also known as the "North". Countries that have a low standard of living are mainly found in the southern part of the world and are called **developing** countries. Bolivia, Chad and Afghanistan are examples of developing countries. This part of the world is also known as the "South".

Population Density

The population density of a country is how crowded it is. You can work out the population density of an area by dividing the number of people living there by the area of the land (in square kilometres).

For example, in 1991 there were 22,522 people living in the Shetland Isles on 1,468 sq km.

22,522 divided by 1,468 gives a population density of 15.34, that is just over 15 people per square kilometre.

Compare this with Hong Kong which in 1991 had 5,851,000 people living on 1,040 sq km (less area than Shetland), which equals over 5625 people per sq km!

Population Distribution - High and Low Population Density

People do not live evenly spread through the world. For example large parts of Australia are very sparsely populated (low population density), whereas areas in the south-east and around Perth are crowded (high population density). The spread of people around a country is known its **population distribution**

The factors that tend to produce low population densities are

- Extreme climate - too cold, hot, wet or dry
- Extreme relief - too high and too steep
- Extreme remoteness - places that are difficult to reach
- Infertile land - need to have extensive (very large) farms

The factors that can produce a high population density are

- Moderate climate
- Fertile farming land - many, small farms able to support a large population
- Mineral resources - mines produce jobs, and provide raw materials for other industries
- Low land - with gentle slopes or flat ground
- Good water supply
- Wealthier areas - people will move to where the jobs and money are found

Population Structure

The population structure of a country is how it is made up of people of different ages, and of males and females. The common method to show the structure is by a **population pyramid**. This diagram is made up by putting two bar graphs (one for male, one for female) side by side. From this you can read off what percentage of a population is of a certain gender and age range.

Population Definitions

There are a number of terms which are important to understand in studying population.

The **crude birth rate** is the number of births per 1000 people in a year.

The **crude death rate** is the number of deaths per 1000 people in a year.

The **natural increase** is the number of extra people (birth rate minus the death rate). This is usually given as a percentage.

The **infant mortality rate** is the annual number of deaths of infants less than one year old per 1,000 live births.

Term	Malawi (example of a developing country)	Norway (example of a developed country)
Crude birth rate	51 per thousand	14 per thousand
Crude death rate	21 per thousand	10 per thousand
Natural increase	2.8%	0.3%

Infant mortality rate	134 deaths per live births	5.2 deaths per live births
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Differences Between Developed and Developing Countries

Birth Rates

Developing countries have high birth rates because

- Many parents will have a lot of children in the expectation that some will die because of the high infant mortality rate
- Large families can help in looking after the farm
- The children will be able to look after their parents if they become old or sick; there may not be a old age pension scheme
- There may be a shortage of family planning facilities and advice

Developed countries have low birth rates because

- It is expensive to look after large families
- More women prefer to concentrate on their careers
- Increasing sexual equality has meant women have more control over their own fertility
- There is a ready availability of contraception and family planning advice

Death Rates

Developing countries have high death rates because, in many cases, there are

- Dirty, unreliable water supplies
- Poor housing conditions
- Poor access to medical services
- Endemic disease in some countries
- Diets that are short in calories and/or protein

Developed countries have low death rates because, in many cases, there are

- Good housing conditions
- Safe water supplies
- More than enough food to eat
- Advanced medical services which are easy to access

Some developed countries have a high death rate as they have an ageing population with many older people.

Natural Increase

Developing countries have high rates of natural increase as their birth rates are high, and although their death rates are also high there is usually a big gap between the two figures.

Malawi's natural increase is 30 per year for every 1,000 people. This is calculated from the birth rate of 51 minus the death rate of 21 ($51 - 21 = 30$).

Developed countries have both a low death rate and low birth rate, with only a small gap between the two. Norway's natural increase is 3 per year for every 1,000 ($14 - 10 = 3$).

Countries that have a high rate of natural increase will have a short population doubling time.

Infant Mortality

The infant mortality rates are higher in developing countries. The reasons for these higher rates are that developing countries often have

- A shortage of medical services
- A greater number of children born to mothers
- Poor nutrition of mothers and babies
- Less knowledge of health matters
- Dirty water supplies

The chances of surviving to your fifth birthday depend on where you are born in the world

Model of Population Change

If you look at how the population structure of countries like the U.K. change it is possible to identify four stages

1. High birth rate and high death rate, low natural increase - the population grows slowly
2. High birth rate and decreasing death rate, large natural increase - rapid growth in population
3. Both birth and death rates are falling, still large natural increase - population still growing, but at a slower rate
4. Low birth and death rate, low natural increase, slow population growth

The proper name for this is **The Demographic Transition Model**.

Stage 1

- High death rate - poor medical knowledge, diet, water supply and sanitation
- High birth rate - children used on farms, no reliable contraception

Stage 2

- Decreasing death rate - medical knowledge and diet improves
- High birth rate - still children used on farms, no reliable contraception

Stage 3

- Decreasing death rate - more medical advances, clean water, greatly decreased infant mortality
- Decreasing birth rate - children needed less on farms, people have smaller families when infant mortality decreases

Stage 4

- Low death rate - advanced medical services, good living conditions, increased health education
- Low birth rate - children cost money, contraception widely available, women gain higher status and control

Countries with Rapid Population Growth

When a country's population grows quickly it has the following effects

- The large number of young people have to have services e.g. schools provided for them
- There are fewer older people, so less money needs to be spent on them
- There is a relatively small proportion of adults of working age; these people provide the wealth for the services
- There is pressure on the countryside with the extra population to feed; this can result in overgrazing, over cropping and soil erosion
- People move to the cities to find work; developing countries with rapidly growing populations have the fastest growing cities in the world
- Shanty towns grow up on the edge of cities; these are self-constructed buildings of poor quality which can lack vital services such as water, electricity and sanitation
- Some people apply to migrate to developed countries in order to improve their standard of living

Countries with Slow Population Growth

When a country's population grows slowly it has the following effects

- It has an ageing population, so large amounts of money is spent in providing services, e.g. healthcare, for older people
- As there is fewer young people less money needs to be spent on this age group
- There could be a shortage of workers in the future, with so few young people
- Migrants move into the country, often to work in the low paid, low status jobs that would otherwise be difficult to find workers for

Changing Population Growth

Populations growing too quickly

The steps that have been taken to reduce the problems caused by a rapidly growing population include

- Education about family planning, with the increased availability of a range of contraceptive methods
- Extra taxes for parents who have large families
- Extra benefits for the parents that have only one or two children
- Raising the age of marriage
- Increasing the industry and wealth in a country - this allows it to "afford" the increased population

When a country develops - that is has a higher quality of life, higher standard of living and increased wealth - the birth rate goes down. This is the greatest influence in reducing problems caused by rapid population growth.

Populations growing too slowly

Governments have been concerned when the population of their country is only growing slowly. Indeed some countries, e.g. Hungary and Germany have recently had population decline. The governments have responded by

- Giving mothers longer paid maternity leave; giving paternity leave to fathers
- Generous child benefit payments
- Raising the age of retirement - this increases the workforce and reduces the amount that has to be spent on pensions

Population Dependency Ratio

The dependency ratio tells us how many young people (under 16) and older people (over 64) depend on people of working age (16 to 64). Countries that have a high

dependency ratio have more people who are not of working age, and fewer who are working and paying taxes. The higher the number, the more people that need looking after.

Migration

Migration is the movement of people from one place to another. It can be over a short or long distance, be short term or permanent, voluntary or forced.

The problems of an area that encourage people to leave are known as **push factors**. Examples include

- Natural disasters
- Lack of employment
- Low pay, and poor standard of living
- Poor housing
- Lack of educational opportunities
- Shortage of medical facilities and services
- War and/or persecution

The attractions of a area that migrants move to are called **pull factors**. They include

- Better employment opportunities
- Better education chances, including higher education
- Better medical care
- Higher wages, and improved standard of living
- The bright lights, that is entertainments like pubs and clubs

Some advantages of migration are

- The area people migrate from has less overcrowding
- The gaining area gets workers
- Migrants may sent back some money to their families

Some disadvantages of migration are

- The area people migrate from loses some of its most go ahead, active people
- The gaining area has to find housing and provide services for the migrants
- The reality for the migrant does not match up with the expectation - many migrants have to live in slum housing, and work in low status, low paid jobs

As many people leave the countryside to live in the cities, they have grown particularly quickly. This process is known as **urbanisation**.

International Relations

Trade Alliances

Trade happens when countries buy from and sell to other countries. Imports are goods brought into a country. Exports are goods sent out of a country.

An alliance is when a group of countries work together in some way.

In a trade alliance countries co-operate by

- Making it easy to buy and sell goods between the members of the alliance
- Making it harder for other countries to sell into the alliance

An trade alliance, such as the E.U. (European Union), makes trading harder for outside (non-member countries) by

- By having quotas - these are a limit on the amount of a good that can be sold by one country
- By having tariffs - these are taxes which are put on imports to make them more expensive, and so less likely to be bought

Selling Alliances

An alliance is when a group of countries work together in some way.

In a selling alliance countries co-operate by

- Agreeing to limit the production of a good that all the countries produce - this creates a shortage, which pushes up the price
- Agreeing not sell the good for less than a minimum price

An example of a selling alliance is O.P.E.C. - the Organisation of Petroleum Exporting Countries. In the early 1970's it managed to push up the price of oil by controlling how much oil was made available to other countries.

Selling alliances can only work if all the main producers of the goods stick to the agreed production levels and prices. Otherwise countries will undercut each other in an attempt to sell more of their good, and this brings the price of the commodity down.

Social Alliances

An alliance is when a group of countries work together in some way.

In a social alliance countries that have historical or cultural links co-operate by working together in areas they have in common e.g. sport, language, religion and education.

An example of a social alliance is the Commonwealth. This is made up of former colonies of the U.K., and includes countries such as India, Kenya and Australia.

Defence Alliances

An alliance is when a group of countries work together in some way.

In a defence alliance countries promise to come to each others help if one member is attacked by an outside enemy. The idea is the alliance would be so powerful that wars would be prevented. An example of a defence alliance is N.A.T.O. (North Atlantic Treaty Organisation). This is mainly made up of allies of the U.S.A. and the U.K. from the second world war.

International Influence

A country can be said to have a lot of international influence if it has considerable

- Money
- Military strength
- Resources

The area and population of a country also affect a the importance of a country. A **superpower** is a country which has significant influence in the world. The U.S.A. (United States of America) is the only true superpower left since the break-up of the Soviet Union. Japan is sometimes considered a superpower due to its economic strength.

Alliances can make individual countries into a group that has international influence. The European Union, for example, has a combined population and wealth which is greater than the U.S.A.

The European Union

Although primarily a trade alliance the European Union (E.U.) also is a social alliance. It was set up in 1951, and was originally a group of six countries. These countries could see the benefits of greater co-operation and did not want the repetition of the conditions that led to the second world war. It has grown into an alliance of 15 countries with other countries applying to join.

People disagree about the usefulness of the E.U.

People who are in favour of the E.U. put forward the following advantages

- Free trade (no tariffs or quotas) benefits industries as they have a larger market to sell their goods to
- Greater co-operation between countries should prevent the outbreak of war between members
- Greater cultural understanding results from freedom to travel within the E.U.
- The E.U. has a greater influence on world events than the individual countries could have
- European Union regional development funding has improved conditions in the poorer countries and areas

People who are not in favour of the E.U. give the following disadvantages

- Goods cost more to import from non-E.U. countries due to tariffs
- E.U. funded schemes, such as the Common Agricultural Policy, are expensive, inefficient and sometimes corrupt
- Whereas some areas are net receivers, some richer countries are net donors, that is they have to spend give money to the poorer countries. Germany is a net donor and Greece is a net receiver
- It reduces the political independence of each country - decisions are taken for all countries by the European Parliament

Trade

Introduction

Countries trade when they sell and buy goods to each other. Imports are the goods that are sold abroad by a country. Exports are goods that are sold overseas. A country's trade balance is the difference between the value of its exports and the cost of its imports. If a country makes more money from its exports than it spends on its imports it has a trade surplus (a profit). However, if it has to spend more money on imports than it gets from its exports it has a trade deficit (a loss).

Pattern of Trade

The main pattern of trade is that developing countries tend to export mainly primary goods, and import mainly manufactured goods. In developed countries the pattern is the other way around - they tend to import primary goods and export manufactured goods. Primary goods are raw materials. They include coal, grains and fish. Manufactured goods are goods that have been made. They include cars, machinery and computers.

Developed and developing countries are interdependent. This means they rely on each other. Developed countries need the raw materials for their manufacturing industries, and developing countries need to have a market for their goods.

Trade Problems for Developing Countries

Developing countries believe they get a raw deal when it comes to international trade. These problems include

- Relying on only one or two primary goods as their main exports
- They cannot control the price they get for these goods
- The price they pay for manufactured goods increases all the time
- As the value of their exports changes so much long term planning is impossible

- Increasing the amount of the primary good they produce would cause the world price to fall

Developing countries that try to export manufactured goods find that trade barriers are put in their way. There are two types of trade barrier - quotas and tariffs.

1. A quota is a limit on the amount of goods a country can export to another country
2. A tariff is a tax on imports

Other problems that developing countries face are they are short of the money that is needed to set up new businesses and industries. Also, developing countries have fewer people who have the wealth to buy the goods made in local industries.

Multinational Companies

A multinational company has branches in many countries. Ford and Sony are examples. Multinational companies do bring some benefits to developing countries. They provide jobs and increase the wealth of the local people. The country gains some wealth by way of taxes.

However, there are some problems as well. The jobs are often low-skilled and poorly paid. Much of the profit will go out of the country, and the company may pull out to relocate in a country where it can make a greater profit. Multinational companies are primarily interested in making profits for their shareholders. Paying wages is an expense that the company will try to reduce to as low a level as possible.

Aid

Types of Aid

Aid is any kind of help given to an area or country. The types of aid we will be looking at in this section are

- Voluntary Aid
- Bilateral Aid
- Multilateral Aid
- Large Scale Aid
- Emergency Aid

Aid can also be broken into long and short term aid. This section also looks at self-help schemes.

Voluntary Aid

Voluntary Aid is also known as charity aid. It is money collected by agencies such as Oxfam and ActionAid which is then spent on a variety of different schemes. Governments can sometimes also contribute to voluntary aid schemes. Most of this aid goes towards long term development, for example in training farmers in efficient farming techniques that also prevent soil erosion. Charities also have campaigns to collect funds and provide emergency aid after a disaster, for example, flooding in Mozambique.

Bilateral Aid

Bilateral means "two sides". This type of aid is from one country to another. An example would be Britain giving money and sending experts to help build a dam in Turkey. Quite often bilateral aid is also tied Aid. This is the most common type of aid.

Tied Aid

In this type of aid the giving (or donor) country also benefits economically from the aid. This happens as the receiving country has to buy goods and services from the donor country to get the aid in the first place. In building a dam, for example, the Britain may insist that their companies, experts and equipment are used. Whether the aid is given may depend on the receiving country agreeing to buy e.g. military jets from the donor. Some people believe that this type of aid can be harmful if it supports governments that oppress their people.

Multilateral Aid

Multilateral means "many sides". Here organisations that involve many countries, give help. This aid is run by groups such as the World Health Organisation (WHO) and United Nations Educational, Scientific and Cultural Organisation (UNESCO) - both of which are part of the United Nations (UN).

Emergency Aid

Most aid is long term developmental aid. However after a natural disaster such as an earthquake or flood, help is needed straight away. This help includes food, clean water, shelter, medicines and the staff to organise these materials. Such items are not useful for long term aid as local farmers and business people would not be able to compete with the free handouts and so the local economy would be damaged.

Problems with Aid Schemes

International aid schemes have caused problems, and have been criticised by some people because

- They may involve the building of an expensive, prestigious building such as a hospital - which will mainly help the urban rich
- It will involve technology which is inappropriate - a tractor is not much use if there are not spare parts or diesel fuel available locally
- Large scale projects such as dams may damage the environment and force people off the land
- Some projects have suffered from corruption - the help has not gone to the people who need it but politicians and officials have greatly benefited

Self Help

These are schemes where the local people take part in small-scale activities which help the local area. As the local people are involved they are projects that are needed. They do not usually need high technology, nor do they need a lot of money. Examples of self help schemes include

- Planting trees, and building lines of stones to reduce soil erosion
- Training local health workers, who know how to prevent and treat the local diseases and health problems
- Making bio-gas plants which takes manure and produces gas for cooking and natural fertiliser

Enquiry Skills

In the standard grade geography exam it is now important that you can identify gathering and processing techniques. In the general and credit papers you also have to justify (give good reasons for) your choices.

Gathering Techniques

- Extracting information from a map
 - Differences and similarities can be clearly identified (for example, from old and new maps)
 - The layout of buildings help identify type and age of the buildings
 - Different maps can be used to show relationships (so for example, land use and relief)
- Field sketching
 - Allows you see for yourself
 - Better than photographs as you can choose what is included in the sketch, that is, you focus on the relevant features

- Allows comparison with other sources
- Measuring
 - A scientific way of gathering evidence
 - Measurement gives accurate details
 - Measuring allows you to use accurate information in a study
 - Allows conclusions to be made on objective evidence
- Recording information on a map
 - Allows patterns and relationships to be identified
 - Allows comparisons to be made with the other sources
- Observing and recording
 - Allows you to compare
 - A sample could give a good estimate of the overall situation
 - A transect makes it possible to study a large area by looking at a part of it
 - You can collect information that would not be available from other sources
 - This information will be original
 - Allows comparisons to be made
 - Allows conclusions to be made on objective evidence
- Questionnaires and interviews
 - Find out how (or when) people travelled
 - Ask directly about
 - People can have first-hand information
 - You can collect information that would not be available from other sources

Processing Techniques

- Classifying/ Tabulating/ Matrixing
 - Clearly highlights differences
 - When information is grouped or classified it comes easier to understand
 - Makes it easier to make comparisons
 - Makes it easier to find a relationship between sets of information
- Drawing graphs
 - Good for showing percentages (pie chart)
 - Good to show how one amount is shared out (pie chart)
 - Shows changes over time or distance (line graph)
 - Shows if there is a link between two sets of figures (scattergraph)
 - Good for showing trends (line graph)
 - Allows you to compare
 - Using colour can make important aspects stand out
 - Good for showing changes in trends (line graph)
 - Scatter graphs can be used to test hypotheses
- Drawing maps

- Allows patterns to be clearly identified
- Allows you to show only the relevant information
- When used with other techniques maps can show relationships, for example, between land use and relief
- Colour allows important aspects to be highlighted
- Drawing cross sections/ Transects
 - Allows you to write descriptive or a explanatory common underneath
 - It is a good way to show relief (height, slope, shape and aspect)
 - Quicker and easier to describe a sample than whole area
- Annotating maps, graphs and field sketches
 - Labels help in understanding diagrams
 - Annotation can be used to emphasise the important features

All Purpose Justifications

These you may be able to use in any answer where a justification is asked for.

Gathering Techniques

- You are collecting original data, not just second hand information
- The information will be up to date
- This techniques allows comparisons to be made easily
- It would be difficult to find information from any other source

Processing Techniques

- This allows comparisons to be easily made
- Showing the information pictorially (graphically) will make it easier to understand
- By using this technique you can emphasise the important parts

Definitions

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[Key Idea 3 Climatic Regions](#)

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[Key Idea 5 Competition between land uses in the countryside](#)

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Gathering Techniques

Gathering techniques are ways of finding out different information. The following is a list of different

techniques that you could be asked about in Standard Grade.

Fieldsketching - drawing a sketch of the site of a settlement, river landforms.

observing and recording - the age and use of buildings, land use and land use changes, environmental quality, traffic, cloud cover, cloud type, wind speed and visibility.

Extracting information from maps - on height, slope aspect, farming, forestry, landforms and population indicators; old maps for former industries and land uses.

Extracting information from other sources - for example T.V., newspapers, Meteorological Office, satellite photographs, radar images, climate graphs, census data. traffic, building types, land uses, environmental quality

Questionnaires - using one with shoppers to find out sphere of influences, the effect of change in industry, land use conflicts, views on trade and aid.

Interviewing - shopkeepers for sphere of influences, local people about urban decay, industrial change, land use changes, the weather; views on trade, aid and European issues.

Processing Techniques

Processing techniques are used to change findings into a different form that is more easily used and understood. The information will be changed into tables, maps, graphs or diagrams. Examples of processing techniques you will be expected to know about in Standard Grade are

Bar graphs - used to compare amount of several different items.

Divided bar graph - used to show different information.

Population pyramid - a double bar graph used to show the structure of the population.

Scattergraph - used to show if there is a relationship between two sets of figures.

Pie-Graph - used to show how one total is divided up.

Tabulating - making up a table to compare two or more places.

Annotating diagrams - putting labels on maps, graphs and fieldsketches. This gives more detail and helps understanding.

Line graph - shows how one quantity changes over distance or time.

Multiple line graph - shows changes in two or more items over distance or time.

Rose diagram - compares the amount of something in different compass directions e.g. wind direction.

Climate graph - shows temperature and rainfall and helps compare two or more places. It is a combined bar and line graph.

Cross-sections - a side on view of the landscape which shows the shape of the land.

Transects - this is a cross-sections on which features of the human or physical landscape are noted. It is used to show the relationship between relief and land use.

Recording information on maps - namely land use, population distribution, migrations, movement of goods and location maps.

Key Idea 1 - Physical Landscapes

abrasion - the way rocks in rivers or glaciers scrape and erode the rocks they are moving over

alluvium - material deposited by a river

arete - the ridge between two corries

attrition - the way that rocks in rivers are worn down by rubbing against each other

boulder clay - rocks, sands and gravels deposited by melting ice; also known as till

braiding - the spitting of a river into different channels

corrosion - the way which rivers use the rocks that they carry to batter the land

corrie - a large hollow near the top of a mountain, caused by glacial erosion

crag and tail - a hill with one very steep side and a gentle slope on the other side caused by ice flowing around it

delta - an area of alluvium at the mouth of a river when it has split up into distributaries

deposition - the dropping of rocks and other materials by e.g. glaciers and rivers

distributary - a branch of a river which flows out from the river

drumlin - a smooth, half egg-shaped hill formed beneath an ice sheet

erosion - the wearing away of soil and rocks by e.g. rivers and glaciers

erratic - a rock transported by ice and dropped in a different area

esker - a winding ridge of sand and gravel, deposited by a river under the ice

estuary - the tidal mouth of a river

fiord - a U shaped valley drowned by the sea to become a long, narrow, steep-sided sea inlet

flood plain - a wide valley, usually in the lower course of a river

freeze-thaw action - the weathering process that breaks up rocks by the repeated freezing and thawing of water in cracks

glacier - a mass of ice flowing down a valley

hanging valley - a smaller valley which hangs above the main U shaped valley in a glaciated region

Ice age - the long, cold period when ice and snow covered most of northern Europe
ice sheet - a large body of moving ice, usually in a lowland area
landform - a feature made by natural processes
lateral moraine - material found at the sides of glaciers
lower course - the end part of a river
meander - a large bend in a river
middle course - the middle part of a river
moraine - material deposited by glaciers
mouth - the end point of a river where it reaches the sea or a lake
outwash plain - the plain made up of material washed out of a melting glacier or ice-sheet
ox-bow lake - a former meander of a river
physical landscape - the natural scenery of an area
plucking - the way by which moving ice pulls away rocks onto which it has frozen
pyramidal peak - a pyramid shaped peak made by glacial erosion
river beach - a build up of material deposited in the inside bend of a river
river cliff - the steep bank made by erosion on the outside bend of a river
river terrace - a flat bench lying on each side of a river valley
roche moutonnee - a large rock smoothed by ice on its upstream side, jagged on its downstream side
scree - a pile of loose jagged rocks made by freeze-thaw
source - the start of a river
spur - a ridge of rock which juts down into a valley
terminal moraine - moraine deposited at the end of a glacier
transportation - the carrying of rock particles
tributary - a smaller river which flows into a larger one
truncated spur - a spur that has been truncated, or cut off, by moving ice
upper course of a river - the first part of a river
U-shaped valley - one that has steep sides and a flat bottom and has been overdeepened by a glacier
V-shaped valley - a valley that has been eroded by a river
weathering - the process by which rocks are worn away but not transported away

Key Idea 2 Weather

air pressure - the force exerted by air on the earth's surface
air stream - a moving current of air
anemometer - an instrument for measuring wind speed
anticyclone - a high pressure system that brings settled weather
barometer - an instrument for measuring air pressure
barograph - an instrument for recording air pressure
Beaufort scale - a scale of wind speed
cold front - the boundary in front of cold air
depression - a low pressure system that brings unsettled weather
humidity - the amount of water vapour in the atmosphere
isobar - a line joining places with equal air pressure

millibar - is a unit of pressure used in recording air pressure; also known as hectopascals

occluded front - where a cold front overtakes a warm front in a depression

okta - an eighth of the sky covered in cloud

precipitation - moisture from the atmosphere in the form of rain, sleet, hail, snow and dew

radiosonde - an instrument carried by a balloon which measures elements of the weather in the upper atmosphere

rain gauge - the instrument for measuring precipitation

Stevenson screen - a white wooden box on legs which holds weather instruments

sunshine recorder - the instrument for measuring sunshine

synoptic chart - a map which shows weather conditions

temperature - how hot or cold it is

warm front - the boundary in front of warm air

warm sector - the wedge of warm air in a depression

weather station - is a site where different elements of the weather are measured and recorded

weather station symbol - is a series of symbols which show the weather at one particular spot

wind vane - an instrument for measuring wind direction

Key Idea 3 Climatic Regions

altitude - the height above sea level

climate - the average of the weather conditions, usually measured over 30 years

desert - an area with very low rainfall, usually less than 250 mm. a year

drought - a long period of dry weather

equatorial climate - a hot and wet climate found in many places near the equator

extreme climate - a climate with a large range of temperature between the hottest and coldest months

hot desert climate - a hot, dry climate which is generally experienced on the western sides of continents around 30 north and south of the equator

Mediterranean climate - a warm climate with dry summers

rainfall pattern - the distribution of rainfall throughout a year

seasonal rainfall - is rainfall which occurs mostly during one part of a year

temperature range - the difference between the highest and lowest temperatures

Tundra climate - a cold and dry climate found in the north of Canada and Russia

Key Idea 4 The physical environment and its effect on human activities

drainage - removing water from the land

Forestry Commission - the organisation that plants and looks after forests in the UK.

irrigation - putting extra water onto farmland

land use - the way people use the land e.g. farming, forestry, settlement

national park - a large area of countryside whose outstanding scenery is protected for the public

recreation - an activity undertaken for pleasure

rural - the countryside

terraces - steps cut into the sides of hills to make extra flat land for farming

urban - cities, built up areas

country park - a small area of countryside near a city set aside for recreation

Key Idea 5 Competition between land uses In the countryside

conflict - disagreement between different land users

conservation - is maintaining or increasing the attractiveness of an area

Key Idea 6 Environmental Issues

afforestation - the planting of trees

deforestation - the cutting down of trees

global warming - the gradual increase in temperatures world-wide

greenhouse effect - the gradual rise in temperatures due to an increase in carbon dioxide and other gases in the atmosphere

overpopulation - where too many people live in an area for the resources available, resulting in a low standard of living

ozone layer - a belt in the atmosphere which absorbs most of the harmful ultra-violet rays from the sun

pollution - damage to the environment caused by people

shelter belt - a line of trees which slows down wind speed and protects the crops and soil behind it

Key Idea 7 Characteristics of settlements

accessibility - how easy it is to get to a settlement

central business district (CBD) - the centre of a city which usually has departmental stores, offices, main bus and railway stations and entertainments

commuter village - a village next to a city; many people travel, or commute, from the village to work in the city

conurbation - a very large built up area formed when towns and cities join together

dispersed - a scattered pattern of settlements

function - the main purpose of a settlement, e.g. port, market town or route centre

high order services - services that are rarely used by most people and are only found in the larger towns and cities e.g. major football stadium, international airport.

land use zones - in a town are the areas of housing, industry and commerce (shops, offices etc.).

industrial estate - an area of modern factories

Infrastructure - the framework of roads, railways, power supplies

land use zones - areas in a town with the same kind of land use

linear settlement - settlement with a long, narrow shape

low order services - those used frequently by most people, found in villages as well as towns e.g. post office, general shop

market town - a town surrounded by farmland which provides services for farmers
nucleated - a settlement with the buildings clustered together
residential area - housing area
site - the land on which a settlement is built
situation - the position of a settlement in relation to other settlements
sphere of Influence - the area around a settlement within which people use that settlement for their services
urban areas - towns and cities
urban model - a diagram showing a simplified pattern of land use in a town or city

Key Idea 8 Recent Changes In Towns and Cities

commuter - someone who travels to work
congestion - too much traffic on roads
derelict land - disused land
dormitory settlement - a settlement near a larger town in which most people have jobs in the larger town
green belt - an area of protected countryside around towns and cities
Inner city - the old, central area of a town or city, often areas of redevelopment
new town - a planned town, such as East Kilbride, which offers new housing and jobs
overspill - population forced to move out of an area because of a urban renewal scheme
park 'n' ride - a scheme where car parks are set up at the edge of a town and people travel to work by car or train
renovation - the modernisation of buildings
suburbs - the outskirts of a town
urban decay - the poor condition of part of a town
urban fringe - where the town meets the countryside
urban regeneration - improvements to housing, jobs, leisure and the environment in a town
urban renewal - a scheme to improve the condition of a town
urban sprawl - the spreading of towns into the countryside

Key Idea 9 Farming

agribusiness - the organisation of a farm as a business
arable farm - one that grows crops
cash crop - a crop that is grown for sale cereal crop - grain crop e.g. wheat
Common Agricultural Policy (CAP) - the European Union's farming policy that looks after the farmers in Europe
crofting - part time farming found in the north of Scotland
crop rotation - the swapping around of crops to help look after the soil
diversification - branching out into a different way of earning money
extensive farm - one that has few inputs for its area -e.g. hill sheep farming
factory farming - the very intensive rearing of animals, often indoors e.g. chickens
fodder crops - crops that are grown for animals to eat

horticulture - is growing flowers, fruit and vegetables
inputs - these are needed in order to farm e.g. land, workers, equipment
Intensive farm - one that has high inputs for its area e.g. a market garden
market gardening - a small farm in which the produce is sent directly to market e.g. flowers, vegetables
mixed farm - one that grows crops and keeps animals
organic farming - one that does not use artificial chemicals
outputs - what the farmer produces e.g. wheat, potatoes, milk
pastoral land - land that is left as grass for the animal to eat
permanent pasture - land that is always used as pasture
rough grazing - poor quality grazing land

Key Idea 10 Industry

assisted area - an area that receives government help to attract industry
capital intensive - an industry that spends a lot of money on equipment and machinery, and employs few workers
enterprise zone - a small area that receives special government help to attract industry e.g. Clydebank
extractive industry - quarrying and mining
footloose Industry - one that is not tied to a particular location
greenfield site - land that has not previously been built on
heavy Industry - making large, heavy goods using raw materials such as coal and iron e.g. shipbuilding
high tech Industry - one that uses advanced equipment to make goods e.g. computer chips
industrial estate - a planned industrial area, often with ready made factory units
industrial Inertia - when an industry stays in an area after the reasons for it being there have gone
labour-intensive - an industry that requires a lot of workers
light industry - making small goods with small amounts of raw materials e.g. jewellery
primary industry - one which collects resources provided by nature e.g. farming, forestry, fishing and mining (Take)
quaternary industry - one which provides information and advice e.g. research laboratory
raw materials - items used to make another product
secondary Industry - a manufacturing industry (make)
service industry - provides a service to people or other industries e.g. transport, retail. Also known as tertiary industry (serve)
sunrise industry - a new, growing industry e.g. electronics
sunset industry - an old, declining industry e.g. shipbuilding

Key Idea 11 Economic Change

economic effects - the financial effects on jobs and income (money)
environmental effects - the effects on the landscape and the environment
multiplier effect - the 'knock-on' effect of an industry opening or closing on other industries or services
restored land - derelict land that has been made useful again e.g. by landscaping or renovating buildings
social effects - the effects on the quality of life of the people e.g. standard of living, services, community spirit

Key Idea 12 Population Distribution

economic factors - factors connected with jobs and money
empty lands - areas with low population density
environmental factors - factors connected to the natural environment e.g. climate, relief, soil
political factors - factors to do with the government and the European Union
population density - the number of people per square kilometre of land
population distribution - the way in which a population is spread throughout a country or region
population pyramid - a bar graph which shows the age and sex composition of a population

Key Idea 13 Population Characteristics

birth rate - the number of births per 1000 people
census - a count of the number of people living in a country
death rate - the number of deaths per 1000 people
developed countries - ones with high living standards. Also known as the 'North'
developing countries - ones with low living standards. Also known as the 'South'
gross domestic product (GDP) - the value of all the goods and services produced by a country in a year
gross national product (GNP) - the GDP plus the value of services earned abroad
indicators of development - statistics that help indicate a countries standard of living
infant mortality - the number of infant deaths to every 1000 live births
life expectancy - the average age to which people are expected to live in a country
literacy rate - the percentage of people in a country who can read and write
standard of living - how well off the people in a country are
third world - another name for the countries of the developing world
vital registrations - events such as births, deaths, marriages and divorces

Key Idea 14 Population Change

active population - the number of people in a country of working age, usually 15 to 60 years

dependent population - the number of people in a country who are not working, i.e. children and elderly

guest workers - people allowed to live and work in a country for a short period of time

migration - the movement of people from one area to another

natural increase - the number of extra people in a country each year caused by the extra number of births than deaths

overpopulation - too many people living in an area for the available resources, resulting in a low standard of living

pull factor - a reason that attracts people to live in another area e.g. higher standard of living

push factor - a reason why people move away from an area e.g. poor housing

refugees - people forced to move from their home area due to e.g. war

shanty town - an area in a town or city where people have built their own poor quality houses; often lacking in services e.g. electricity, sewers

Key Idea 15 International Relations

European Union - a trade and social alliance of European countries

quota - a limit on the number of goods a country is allowed to export to another country

selling alliance - a group of countries that agree a price at which they will sell a particular product e.g. oil

social alliance - a group of countries which cooperate with each other in a number of ways e.g. sport, defence, aid, immigration

tariff - a tax on goods imported into one country from another

trade alliance - a group of countries between which free trade can take place

Key Idea 16 International Trade

consumer - a person, country or industry that uses a product

exports - goods sold to another country

imports - goods bought from another country

multinational company - a very large company that has operations in many countries e.g. IBM, General Motors

overproduction - more of something is produced than can be sold, causing the price to fall

trade balance - the difference between the value of a country's exports and imports

trade barrier - something that makes it more difficult to export goods e.g. tariffs and quotas

trade deficit - the amount by which the value of the imports exceeds the value of the exports

trade surplus - the amount by which the value of the exports exceeds the value of the imports

Key Idea 17 International Aid and Self Help

aid - help

appropriate technology - using equipment that is best suited to the skills and finances of a country

barefoot doctor - a local person trained to treat the common local diseases and offer health advice

bilateral aid - aid from one country to another

high technology - advanced equipment, usually costing a lot of money.

intermediate technology - middle level technology, often the right level to be used in the development of a country

long-term aid - aid that usually takes years before it is of benefit to a country e.g. improved education or a tree planting scheme

low technology - primitive techniques and equipments

multilateral aid - aid from a group of countries to an agency that then distributes it to other countries

project aid - aid used for a large project e.g. a hospital or a hydro electric dam

self help scheme - a scheme, usually small scale, which uses the skills of the local people to improve the local conditions

short term aid - emergency aid, needed after natural disasters such as floods and earthquakes

tied aid - aid with conditions attached e.g. the money must be spent on goods from the country giving the aid

United Nations - a world-wide organisation set up to improve the conditions in every country

voluntary aid - aid collected by charities such as Oxfam or Action Aid and then distributed to those that need the help

Exam words

compare - outline the similarities or differences

conflict - an argument or difference of opinion

describe - outline the main features or characteristics

distribution - the spread throughout a country or region

economic - to do with money and wages

explain - give reasons

gathering technique - a way of collecting information

hierarchy - a list in order of size or importance

identify - point out and name

illustrate - give an example of

justify - give a good reason for

land use - the way the land is used

location - where something is

model - a simplified version of some feature, e.g. a city, in the real world

outline - describe the main features or characteristics

processing technique - reorganising information so it is more easily understood

questionnaire - a list of questions which have been devised to obtain information, opinions and/or ideas.

rank - put in order of size

relationships - links

sampling - taking a representative selection of measurements

state - name or give

suggest - put forward ideas or give an opinion

technique - a way of collecting or processing information

Exam Advice

- In general and credit papers, write one sentence for each mark that is available. So, for a six mark question write six sentences.
- Know the difference between describe and explain. For explain you have to give reasons for your answer.
- Use all the time available to you - if you are finished before the end check over your answers.
- Make sure you answer the question that has been asked. Check this by re-reading the questions.