Now Test Yourself: Answers
Component 1: The Physical Environment

Page 8
Name and locate an example of each of the UK’s main rock types.
Sedimentary: Sandstone – North Devon; Chalk – Kent.
Metamorphic: Schist - South Devon; Slate – Snowdonia.

Page 9
1. Which rock type is likely to be found in lowland landscapes?
Sedimentary.

2. Why is this rock type likely to be found here?
Sedimentary rocks are less resistant to physical processes.

3. Where in the UK can you find upland landscapes?
- Northwest Highlands
- Grampian Mountains
- Pennines
- Cambrian Mountains
- Cotswolds
- Chilterns
- North Downs
- South Downs
- Exmoor
- Dartmoor
- Mourne Mountains

4. What role did tectonic activity have in forming the UK’s landscape?
Rocks which form the upland areas were made when the UK had tectonic activity. Igneous rocks were formed from the cooling of molten rock (magma). Metamorphic rocks were formed when sedimentary rocks were heated and compressed during tectonic activity. Volcanic cones can still be seen in the UK landscape.

Page 10
List three physical processes that affect the landscape. Explain one of them.
- Ice
- Weathering and climate
- Mass movement

The UK has been covered by ice during ice ages on a number of occasions. During the last ice age, about 2,000 years ago, the ice mainly covered what is now the upland areas, which were formed by resistant rock. Their landscape has been defined by the physical processes of glacial erosion and deposition. The lowland areas were shaped by glacial outwash as the glaciers melted.

Page 11
List three human processes that affect the landscape. Explain one of them.
- Building of settlements
- Agriculture
- Forestry

Over time, much of the natural landscape has changed to a more human one. This is due to people building houses to live on, building structures and buildings used for industry, and building roads to connect settlements.
1. State three types of weathering.
   - Chemical weathering
   - Biological weathering
   - Mechanical weathering

2. Explain the process of mechanical weathering.
   Freeze–thaw weathering, or frost action, occurs when water gets into cracks in rocks. When the temperature falls below freezing, the water will expand as it turns into ice. This expansion puts pressure on the rock around it and fragments of rock may break off. This type of weathering is common in highland areas where the temperature is above freezing during the day and below freezing during the night.

State two differences between constructive and destructive waves.
Destructive waves have a powerful backwash. They carry sand and pebbles away from the shore. Destructive waves are high in proportion to their length. Constructive waves have a weak backwash and build up sediment on the beach.

Explain the formation of headlands and bays.
On coastlines where rocks of varying resistance lie at right angles to the sea, the bays are made from a less-resistant rock type and the erosion rates are greatest here, at first. In time, as the sea cuts the bays back, the waves reaching the coast are less powerful because they have to travel over a longer expanse of beach. At this point the headlands, which are further out to sea, start to experience the more powerful waves and are eroded at a faster rate than before.

Using examples, explain the effects of coastal recession.
Coastal villages are threatened. For example, Happisburgh in Norfolk has already lost its lifeboat station to the sea. Transport links are also at risk. For example, the main line to Cornwall through Dawlish collapsed in 2014.

Using examples, explain the effects of coastal flooding.
Effects on people, such as damage to homes. For example, in February 2014, the Cove House Inn on the Island of Portland was hit by 60ft waves which crashed over the top of the building throwing sea water and pebbles into the bar.

Effects on the environment. For example, in December 2013, 45 miles of the coastline of North Norfolk was flooded.

What are the differences between hard and soft engineering techniques?
Hard engineering involves major construction work and is usually expensive. Soft engineering works with the natural processes occurring in the area and does not involve major construction work.

Explain how physical processes formed the discordant coastline of the Isle of Purbeck.
The coastline to the east of the Isle of Purbeck is made up of rocks with varying resistance to erosion that lie at right angles to the sea. This has allowed the sea to erode the rock types at different speeds, forming headlands and bays.
Explain the process of biological weathering.
This is the action of plants and animals on the land. Seeds that fall into cracks in rocks will start to grow when moisture is present. The roots the young plant puts out force their way in and, in time, can break up rocks. Burrowing animals, such as rabbits, can also be responsible for the further break-up of rocks.

Describe three processes used by rivers to erode their bed and banks.
- Abrasion occurs when particles being carried by the river are thrown against the river banks.
- Hydraulic action is the pressure of water against the banks and bed of the river. It also includes the compression of air in cracks: as the water gets into cracks in the rock, it compresses the air in the cracks; this puts even more pressure on the cracks and pieces of rock may break off.
- Solution is a chemical reaction between certain rock types and the river water.

Describe how river characteristics change as a river flows from its source to its mouth.
It becomes wider and deeper. The velocity discharge and volume increase. The gradient and the sediment size decrease.

Explain the formation of oxbow lakes.
Meander bends can become very large. With continual erosion on the outside of the banks and deposition on the inside, the ends of the meander bend become closer. When flooding occurs, the river is able to cut through the gap and, in time, forms a new straight channel. Continued deposition of alluvium at times of low flow results in the old bend of the river becoming cut off.

Using examples, explain the effects of river flooding.
- Communication links are destroyed.
- There is a lack of food because crops destroyed.
- Fresh water supplies are contaminated by sewage water.
- Natural habitats and vegetation lost.

What are the differences between hard and soft engineering techniques?
Hard engineering involves major construction work and is usually expensive. Soft engineering works with the natural processes occurring in the area and does not involve major construction work.

Why is the Wye Valley a significant river landscape?
It forms part of the border between England and Wales. It has spectacular limestone scenery. It saw the birth of tourism due to the beauty of the area. Many of the viewpoints that exist today were built for tourists in the mid-18th century.

Explain how a glacier deposits material.
If there is a change in power of the glacier, it moves more slowly due to increased friction and material (such as moraine) will be deposited. Glacial streams under the glacier or flowing out of the glacier deposit materials.

1. State four landforms that are created by glacial erosion.
- Corries and arêtes
- Glacial troughs and truncated spurs
- Roche moutonnées
- Hanging valleys
2. Choose one and explain its formation.

Corries and arêtes:
Snow is compacted into ice on mountainsides. Ice starts to move due to the pull of gravity. Plucking forms the steep back wall. Abrasion shapes the bottom of the hollow. Erosion rates are slower here due to less pressure. Rock lip form; size increases due to deposition of rock material as the ice slows down to leave the corrie. After glaciation, the corrie fills with water kept in by this rock lip. If two corries form beside each other on a mountainside their sides will become knife-edge ridges known as arêtes. These are continually attacked by freeze–thaw weathering.

3. Explain the formation of a drumlin.
Drumlins were formed when the ice was carrying a lot of material. If the ice had to slow down due to an obstruction in its path it would deposit some of the material it was carrying. Due to a change in speed most material would be deposited at this point and then gradually less as the ice continued on its path.

Page 34
Describe how farming and forestry have changed upland areas.
Originally many of the UK’s glaciated areas would have been wooded but they are now moorlands with rough pasture. For many years, sheep were the main use of the land but this is changing with the demand for venison. The wood was felled for use as fire wood but also for shipbuilding and many other uses. In the latter half of the twentieth century native woodland was replaced with fast growing evergreens.

Page 36
Draw a table which shows the advantages and disadvantages of development in upland areas.

<table>
<thead>
<tr>
<th>Water storage and supply (Kielder Water in Northumberland)</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Kielder Forest employs 260 employees and huge volumes of timber are produced.</td>
<td>• 2,700 acres of farmland and habitat were lost due to the lake.</td>
<td></td>
</tr>
<tr>
<td>• Every year £6 million is raised through tourism as it is visited by 250,000 tourists a year.</td>
<td>• It flooded an area of scenic beauty.</td>
<td></td>
</tr>
<tr>
<td>• Kielder supplies water to settlements on the Tyne, Tees and Wear rivers, such as Newcastle and Middlesbrough.</td>
<td>• 58 families lost their homes under the water of the lake.</td>
<td></td>
</tr>
<tr>
<td>• The lake behind the dam can be used for recreational purposes such as kayaking, windsurfing and sailing.</td>
<td>• Kielder Forest has one of type of tree, Sitka Spruce. 1.5 million trees were cut down to build the reservoir.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Renewable energy (Windfarm at Whitelee)</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Visitor centre, cycling paths and well-marked walks.</td>
<td>• One of the main disadvantages is that the wind is unreliable.</td>
<td></td>
</tr>
<tr>
<td>• Generates 539 megawatts of electricity which is enough to power about 300,000 homes.</td>
<td>• Many people do not like windfarms because they are visually intrusive and ruin the natural look of the moorland.</td>
<td></td>
</tr>
<tr>
<td>• Wind turbines are quiet and aesthetically pleasing to many people.</td>
<td>• Birds can be killed because they fly into the blades of the turbines.</td>
<td></td>
</tr>
<tr>
<td>• Flora and fauna will be protected on the site in 2,500ha area of habitat management.</td>
<td>• Effect on fauna – bats can disorientate because the vibration interferes with their sonar.</td>
<td></td>
</tr>
</tbody>
</table>
### Recreation and tourism (Snowdon’s railway and footpath to the summit)
- Tourism supports rural services like buses, village shops and post offices. In Snowdonia, tourism is worth £396 million a year.
- 8,300 people are employed both directly and indirectly by tourism in Snowdonia.
- Tourists come to see scenery and wildlife so this puts pressure on areas to conserve them to ensure that tourists keep visiting.
- Local goods can become expensive because tourists will pay more, so it raises the price for the local people.
- Jobs in tourism are mainly seasonal, low paid, with long hours.
- Snowdonia has nearly 2,500 footpaths. The number of tourists that visit the area causes footpath erosion, especially on the paths leading up to Snowdon.

### Conservation (Conservation Snowdonia Project)
- An advantage of conservation is that it manages the development that takes place and ensures that it is done in a way that is in keeping with the local area.
- Maintaining footpaths means that most of the mountain is left natural and the visitors are kept to certain areas.
- There are special planning laws which stop the demolition of properties which are not listed if they are within the National Park.
- Trees in the National Park are also protected and any works on them need permission.
- Maintaining footpaths in the Snowdon area can have disadvantages because the footpaths can be a scar on the landscape to some people.
- A disadvantage is that due to conservation, sometimes settlements are not allowed to develop and an area is kept like a ‘chocolate box’ image, not the real world.
- There are also restrictions on advertising, which is only allowed in certain areas.

---

**Explain how circulation cells and ocean currents redistribute heat energy across the Earth.**

**Hadley cells:** Warm trade winds blow towards the Equator. At the Equator, the trade winds from each hemisphere meet. The warm air rises rapidly causing thunderstorms. An area of low pressure is formed in the ITCZ where the air from the two cells meets over the Equator. The air at the top of the troposphere moves towards 30°N and 30°S where it becomes cooler and starts to sink back to the Earth’s surface. As it descends, it warms and any moisture is evaporated. This creates high-pressure areas, with cloudless skies. The world’s hot deserts are found in these areas, such as the Sahara, in North Africa. On returning to the ground, some of the air returns to the equatorial areas as trade winds; this completes the circle.

**Ferrel cells:** Air on the surface is pulled towards the poles. This forms the warm south-westerly winds in the northern hemisphere and north-westerly winds in the southern hemisphere. These winds collect moisture as they blow over oceans on the Earth’s surface. At about 60°N and 60°S they meet cold air from the poles. The warm air rises over the cold air as it is less dense. This produces low pressure at the Earth’s surface and pressure systems known as depressions. Some of the air returns to the tropics and some is diverted to the poles as part of the polar cell. The cell has a motion to the right in the northern hemisphere and to the left in the southern hemisphere due to the spin of the Earth. This is called the Coriolis effect.

**Polar cells:** The air sinks over the poles producing high pressure. The air then flows towards the low pressure in the mid-latitudes, about 60°N and 60°S. Here it meets the warm air of the Ferrel cells.
Jet streams are bands of extremely fast-moving air in the upper atmosphere. The polar front jet stream is formed when cold polar air meets warm tropical air high above the Atlantic Ocean, usually between latitudes 40° and 60°N and 40° and 60°S. It moves in a westerly direction. It marks the division between the Polar and Ferrel cells.

The oceans transfer approximately 20 per cent of the total heat that is transferred from the tropics to the poles. Ocean currents are created by the surface winds generated by the global atmospheric circulation. The strongest currents are on the western side of oceans. For example, warm ocean currents such as the North Atlantic Drift transfers heat from low to high latitudes. This is particularly noticeable between latitudes 40° and 65° in winter.

Page 40

Explain Milankovitch cycles and their influence on world climate.

Axial tilt: The greater the degree of tilt is associated with the world having a higher average temperature.

Eccentricity: The path of the Earth’s orbit around the sun is not a perfect circle, it is an ellipse. It appears that colder periods occur when the Earth’s orbit is more circular and warmer periods when it is more elliptical.

Precession: The earth’s axis wobbles like a spinning top. This cycle has an impact on the seasons and can cause warmer summers.

Page 42

State the negative effects of climate change.

- Changing patterns of crop yield
- Rising sea levels
- Retreating glaciers

Page 45

State four characteristics of tropical cyclones.

Facts such as:
- They normally move from east to west with the trade winds.
- They have an ‘eye’ which is the calm centre of the storm.
- They feature strong winds and heavy rain, often thunderstorms.
- They develop over tropical and sub-tropical oceans between the Tropic of Cancer and the Tropic of Capricorn with a water temperature of over 27°C.

Page 53

How is the biosphere being exploited?

For energy: coal is used in the production of electricity.

For water: used for drinking, washing, toilets and cleaning.

For mineral resources: gold and silver are used to make jewellery.

Page 55

Define the term ‘aquaculture’.

This is the breeding of fish in pens under controlled conditions.

Page 57

State an animal or plant in each stage of the food web of the tropical rainforest.

e.g. Producer – coconut tree; primary consumer – grasshopper; secondary consumer – frog; tertiary consumer – jaguar.

Page 61

State an animal or plant in each stage of the food web of the deciduous woodland.

e.g. Producer – plant leaves; primary consumer – caterpillars; secondary consumer – blackbird; tertiary consumer – sparrowhawk.
How and why are deciduous woodlands being cut down?

As farming has changed through the centuries, the amount of forested area in the UK has declined. Some parts of the UK have kept more of their forested area, but overall the forested area declined to a low of 5% in 1919.

Timber has been extracted from forests of the UK for centuries. It was first used for house building and fuel. English oaks were also used in shipbuilding and the rise of the British Empire saw a great demand for timber to build ships in the late sixteenth century. A survey of the New Forest in 1608 found almost 124,000 trees fit for navy timber. By 1707 that figure had declined to less than 12,500.

Further timber extraction occurred during the First World War as it was needed to build trenches. This led to the forested area of the UK being at an all-time low at the end of the war.

As the population grew in the Middle Ages there was a greater demand for housing. This meant that trees had to be felled to provide beams to support the roofs. Forests were also cleared to make way for towns, especially in the north of England where the Industrial Revolution took place. Population growth between 1945 and 1975 meant that many of the remaining deciduous woods were cut down to make way for suburbs in the existing towns and cities, or for the ‘new towns’ that were built during that period. For example, Bracknell, a new town, was built by clearing large areas of Windsor Forest.
Component 2: The Human Environment

Page 65
Study the graph in Figure 1.
1. Which three continents had the highest urban populations in 1965?
   North America, Oceania, Europe.

2. Which three continents are experiencing the fastest growth of urban population?
   Africa, Asia, Latin America.

Page 66
What are the effects of high rates of urbanisation in developing countries?
- Agriculture – old people are left in the countryside because the young have gone to the towns looking for work. Soon food supplies will drop because the people who are left cannot work on the land.
- Shanty towns – people who move to the cities cannot afford to rent homes and there is a lack of housing so they build their own homes on wasteland from waste materials.
- Education – there are not enough places in the schools so in some countries only the boys go to school.
- Unemployment.

Page 69
What is the difference between the site and situation of a settlement?
Site is the land that the settlement is built upon.
Situation is where the settlement is compared to physical and human features around it.

Page 71
Study Figure 3. In which year is there evidence of the following processes?
- Urbanisation
  1901
- Counter-urbanisation
  1991
- Re-urbanisation
  2011

Page 72
Study the impacts of migration on Bristol. Explain the impacts on different areas of the city.
15 per cent of the population were born outside of the UK. This puts pressure on schools and other welfare provision because of issues such as English being the second language.

69 per cent arrived in the UK when they were of working age, therefore more jobs were required to cope with this influx of people of working age.

30 per cent arrived as children under the age of 16. Therefore school intake rose dramatically.

Strain on the housing stock in the inner city wards of Cabot and Lawrence Hill because many of the newcomers live there.
Explain how Bristol council has tried to improve the quality of life for the people who live in Bristol.

Recycling: Bristol has a good provision of recycling centres spread around the city for people to take their waste to. The council also provides a collection service for large bulky items for a fee of £15 for up to three items. Bristol has one of the highest recycling rates of any city in the UK. In 2012, the residents of Bristol recycled 50% of their waste. This has steadily increased from a rate of 12% in 2004. This is due to the council providing home owners with kerbside recycling which takes all of their recyclable waste. This saves the residents having to go to the waste disposal plants and therefore encourages people to recycle more.

Car sharing: Bristol council has set up a car club where you can hire a car from nearby whenever you need one. The council also has a car share page on their website. Some employers have a system for car sharing within their company; in many cases, car sharers are given priority parking, known as car club parking spaces. Bristol has 2+ people lanes for cars. This means that, at certain times during the morning and evening rush hour, only cars with two passengers can use these lanes on the road.

Walking: Bristol council has a partnership with walkit.com, a website which provides easy-to-read maps between any two points in Bristol. It displays the journey distance, the walking time at different paces, the number of calories used and the amount of CO2 saved.

Public transport: Most of the major roads around the city now have a bus lane which cannot be used by private vehicles. Regular buses go into the city centre and the council is working towards producing a system very like the Oyster card system in London.

Cycling: Bristol has many cycle routes and became the UK’s first cycling city in 2008. The government gave Bristol council £11.4 million to create dedicated cycle lanes, better facilities for bike users and more training for children. It created a dedicated cycleway which links the suburbs with the city centre. It has also provided many facilities for people who choose to cycle to work, with 300 cycle parking spaces in the city centre. The council has recently invested another £35 million in a plan to get a fifth of all commuters on their bikes by 2020, with the segregated cycle path numbers rising from 9% to 20% of the road area. There will be commuter corridors heading north, east, northwest and south from the city centre.

Affordable and energy-efficient housing: Houses are responsible for 25% of the UK’s carbon footprint. It is therefore important that the council does what it can to improve energy efficiency in housing in order for Bristol to be more sustainable and to improve the quality of life for its residents. All new developments need to submit a sustainable energy strategy to the planning committee before they can get planning permission. Grants are available for loft insulation.

Explain the impacts of migration on São Paulo.

- São Paulo is culturally diverse due to the great variety of ethnic groups; for example, Bela Vista is known for its Italian culture and Liberdade for its Japanese culture.
- The large number of migrants has resulted in a young age structure and a high birth rate.
- Favelas have developed as the city has failed to keep up with the demand for housing.
- Other services, such as schools and hospitals in poorer neighbourhoods, are also unable to keep up with the growing demands.

What are the effects of rapid urbanisation on São Paulo?

- Traffic congestion and pollution: The residents of Sao Paulo own 6.2 million cars and there are 16,000 buses on the road. At times there can be hundreds of kilometres of grid locked roads. There is also the problem of the pollution that so many vehicles cause.
- Unemployment: Sao Paulo could not provide jobs for all of its migrants which lead to high unemployment rates of 19% in 1998 which has now reduced to 11% in 2012.
- Favelas: The rapid industrialisation in the 1980s caused the growth of favelas across the city due to the acute housing shortages. The areas did not have proper sewerage systems. Much of the sewerage runs down the streets into the rivers, people access water from standpipes which serve hundreds of people.

Page 81

Explain how government policies have tried to improve the quality of life in São Paulo.

A government bank (BNH) has funded housing projects and provided low-interest loans to lower and middle-income people to help them to buy a home. A scheme to build housing which was government owned, which also funded self-help projects to upgrade housing in the favelas. An underground train system was built in the 1960s and was opened in 1974. There are now 6 lines and 65 stations carrying 3 million passengers a day. The city has also instigated busways (similar to our bus lanes) in an attempt to deal with the traffic problems. The buses have sole use of these lanes.

Page 82

Describe the different types of development.

- Economic development: An increase in a country’s wealth. This could be an increase in people working in the secondary sector and a decrease in the numbers of people working in the primary sector. It could be indicated by a greater use of natural resources, for instance, energy use per head of population increases.
- Social development: A number of changes that have a direct impact on the population’s quality of life. This could include improved levels of literacy through greater access to education, better housing conditions and more doctors.
- Political development: Freedom for the people to have a greater say in who governs their country.
- Cultural development: This could involve better equality for women and better race relations.

Page 85

Explain the factors that have led to variations in development globally.

Physical:

- Climate – countries which have average rainfall and moderate temperatures are able to support their populations with the food that they produce.
- Landlocked countries – countries which do not have a coastline find it difficult to trade their goods because they have to rely on the goodwill of their neighbours to allow them to drive their products to the coast and for them to receive imported goods.
- Natural hazards – floods, tectonic activity, droughts and hurricanes are more likely to occur in some countries than others. Many of the countries which suffer from these hazards are developing because income on a regular basis has to be diverted to help recover from these events.
- Natural resources – resources such as minerals and fossil fuels help a country to develop because the extraction and sale of these resources will bring income into the country.

Historic:

- Colonies – supplied food to the country which ‘owned’ them. For example, Brazil sent food and minerals to Portugal. This hindered the development of the colony but aided the development of the ‘mother’ country.
- Trade – many trading partnerships go back to colonial times. However, countries with good trading partners or countries on trade routes developed more quickly than countries which did not trade with other countries.
- Politics – countries with stable governments developed more quickly. If countries are at war or are suffering from civil wars, their income is spent on military weapons rather than on development. If a country is run by a dictator who is corrupt, development can be halted for most of the country as money is being spent on an affluent lifestyle for an elite group of people who rule the country.
Economic:
- **Foreign investment** – this can help a country to develop because it brings money into a country. Africa receives 5% of direct foreign investment with 15% of the world’s population. Europe receives 45% of direct foreign investment with 7% of the world’s population. However, things are changing as companies from developed countries start to invest in emerging countries. For example, Coca-Cola in India.
- **World trade** – the developing countries sell primary products to developed countries. Manufactured goods are worth more money than primary products so developed countries earn more from their trade than developing countries.
- **Infrastructure** – this is the roads, railways and facilities, such as electricity. Developed countries have good infrastructure and therefore companies want to invest in them because they know their goods will be produced and moved quickly.

**Page 87**

**Make a list of the international strategies that have been used to reduce uneven development.**
- Bilateral aid
- Multilateral aid
- Official and voluntary aid
- Voluntary aid
- Inter-governmental agreements

**Page 96**

**State three ways that Tanzania’s government and people are managing the impacts of rapid development.**

Answers such as:
- Primary education for all.
- The country’s infrastructure has improved.
- Government must provide drinking water and sanitation for all.
- Tanzania’s status in the global community is in some ways above that of its neighbours as it has never had a civil war and has indeed helped the UN on a number of occasions with refugees from countries which do have internal problems.

**Page 100**

**Use Figure 2 to describe the global calorie intake per day.**

North America, most of western Europe but excluding England and Wales consume over 3,500 calories a day. Some parts of central Africa consume less than 2,000 calories a day. Countries such as India consume 2,000 – 2,500 calories a day.

**Page 103**

1. **Draw a table which shows information on the production and development of coal and wind as energy resources.** Give one advantage and one disadvantage for each resource.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>Cheap to mine.</td>
<td>Deep-shaft mining can be dangerous, for example, nine miners died in China in May 2012 when a shaft collapsed.</td>
</tr>
<tr>
<td>Development</td>
<td>It is relatively easy to convert it into energy by simply burning it.</td>
<td>Acid rain is produced when coal is burnt. This has caused problems in the forests of Scandinavia.</td>
</tr>
<tr>
<td>Wind power</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>Turbines are relatively cheap, costing £1,500 for a 1 kilowatt wind turbine.</td>
<td>Some greenhouse gases are given off during the production of the turbine.</td>
</tr>
<tr>
<td>Development</td>
<td>New wind turbines are quiet and efficient.</td>
<td>They can be unsightly/visually intrusive.</td>
</tr>
</tbody>
</table>
2. Describe the changes in the use of coal and gas in the UK between 1961 and 2011.
There has been a decrease in the use of coal in the UK between 1961 and 2011 – the percentage use has gone from 80 per cent in 1961 to 31 per cent in 2011. On the contrary, there has been an increase in the use of gas in the UK – the percentage use has gone from 0 per cent in 1961 to 45 per cent in 2011.

Page 104
1. Qatar and Venezuela both have a plentiful supply of energy. Why is their consumption so different?
Their consumption is so different because their population is very different – Qatar has a population of 1 million, whereas Venezuela has a population of 26 million.

2. The UK has a smaller population than Bangladesh but its energy consumption is much higher. Why?
This is because the UK is a more developed and wealthy country. A more wealthy country is able to provide the energy required by its population, and the population will earn enough money to enable them to buy electrical equipment.

3. Explain why there are variations in the global energy mix between countries at different levels of development. Use information from Figure 7 in your answer.
There tends to be a greater use of fuelwood in developing countries and very little use of renewables, whereas in developing countries there is a greater use of renewables.

Page 107
Define the term ‘fracking’.
Fracking is the process of drilling down into the earth to a gas-bearing rock. Water, sand and chemicals are blasted at the rock at high pressure which releases the gas inside the rock layers. The gas then flows out through the top of the well.

Page 113
Research and learn the names of countries which have:
● high rainfall
Brazil

● low rainfall
Australia

● water surplus
Russia

● water deficit.
Australia

These may be the same countries or they may be different ones.

Page 116
Explain why there are differences in water usage between developed and developing countries.
Domestic: In developed countries, people have water piped into their homes, for use in, for example, washing machines and dishwasher. However, in developing countries, many people do not have piped water to their homes so they wash their clothes and dishes in local streams.

Agricultural: In developed countries, irrigation systems are used which are operated by computers. The computer can determine exactly how much water is required and supply the water quickly, up to 75 litres per second. However, in developing countries, plants are watered using buckets or very simple irrigation systems, which supply water slowly at approximately 1 litre per second.
Industries: In developed countries, factories are on a large scale and use thousands of litres of water. However, in developing countries, small-scale cottage industries use only a small amount of water.

Page 117
**Compare the maps in Figures 9 and 10.**
The least rainfall occurs where the majority of the population is. There is a high population of people in the east, and a high average rainfall in the north and west.

Page 119
**Define the term ‘desalination’.**
Desalination is the removal of minerals from salt water to make it drinkable.

Page 121
**State three reasons why water resources require sustainable management.**
- By 2050 the demand for water globally is likely to increase by 55%.
- In developing and emerging countries, 70% of industrial waste is dumped untreated into rivers.
- 2.1 billion people were given access to clean drinking water between 1990 and 2011. 800 million are still without access to clean water.
Component 3: Geographical Investigations

All answers in this component will depend on the individual student.

Page 124
1. What questions did you devise for your physical and human investigations?

2. Justify your choice of questions.

Page 125
Look at the table below. For the two investigations that you are revising, make sure you can answer the following questions about the techniques you used:
1. How did you carry out the technique?
   a) How did you use the equipment?
   b) If you were sampling, what was your method?

2. Why did you use this technique? (justification)

3. How successful was this technique? (evaluation)

Page 126
For your investigations, answer the question in the table below. Remember to name particular places and use your results.
- Is there a risk of flooding from the river you have studied?
- Is there a problem with longshore drift removing beach materials?
- Have physical features influenced the use of land in the central urban area?
- Has the physical environment influenced the flows of people in the area?