

GCE

Geography

Unit 1 Physical and Human Geography (GEOG1)
Exemplar Script 3

Spec no: 2030
Version: 0.1

Copyright © 2013 AQA and its licensors. All rights reserved.

AQA retains the copyright on all its publications. However, registered schools/colleges for AQA are permitted to copy material from this booklet for their own internal use, with the following important exception: AQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

1 Rivers, Floods and Management**1 (a)** Describe different types of load a river carries.

(4 marks)

Candidates Answer

There are a few different loads that a river is able to carry. One of these being Bed load, which is where material is moved along the bed of the river by the water, this is also usually large material. Material can also move by solution where it has been dissolved by CO₂ which has dissolved into the water making it acidic. Suspension is also another form of movement where lighter rock particles are held in suspension in the water and do not roll along the bed.

Clear identification of 3 types of load carried – 3 marks**1 (b)** Study figure 1 which shows the Hjulstrom curve**1 (b)(i)** State the velocity of which particles of clay of 0.001 mm are eroded and the velocity at which pebbles of 10 mm are deposited.

(2 marks)

Candidates AnswerClay particles of 0.001 are eroded at400... **cm/sec**Pebbles of 10 mm are deposited at 60....**cm/sec**...***2 marks – accurate answer*****1 (b)(ii)** Describe the relationship between velocity, load size and transportation.

(3 marks)

Candidates Answer

As velocity increases, the river has more energy and so will be able to carry not only more material but heavier material such as pebbles and boulders. However as velocity decreases, the water in the river loses energy and material is dropped, with the heaviest dropped first.

Recognises the initial point regarding velocity and size and transportation, but then drifts onto transportation – 1 mark

1 (c) Study Figure 2 which is an extract from a newspaper article about flooding in Cornwall, in November 2010

Using Figure 2, describe and comment on the different impacts of flooding
(6 marks)

Candidates Answer

In Figure 2 we can see that there were many impacts caused by the flooding. Many people woke up to see their houses flooded due to the obvious rise in the river bed and the rivers exceeding bankful. People's houses and shops had to be left and made the population of Cornwall be cut off. This was enhanced by the fact that both the main A30 and A38 were closed as well as the railway, meaning it made rescue and help much more difficult. The motorists that were trapped in their cars were able to be helped by helicopters, however if the situation had have been worse, this may not have been able to happen.

Clear description from Figure 2, relies on this but no comment L1 3 marks

- 1 (d) Describe how and explain why fluvial (river) landforms change downstream (15 marks)

Candidates Answer

There are a few reasons why river landforms change as we move downstream. Common landforms associated with the upper course of a river include, features such as waterfalls, potholes and rapids. This part of the river has a fairly rough surface and generally causes a more turbulent flow which increases the effect of erosion (ie abrasion and attrition). The hydraulic radius on the upper stretch of a river will be quite low and will also have a relatively low velocity. With a steep gradient, the factors of erosion are able to occur. V shaped valleys are another landform caused by a steep gradient and vertical erosion.

(Identifies upper course landforms and recognises importance of vertical erosion. Focus on channel characteristics. Reasons for this are not clear)

As we move downstream to the middle stage of the river, the gradient will have decreased however velocity will have increased due to the conversion of energy from potential to kinetic. The erosion processes here are more likely to be abrasion which is the smoothing of the bed and banks by rubbing rocks against it. The middle stage is more likely to see meanders – twisting river due to pools and riffles and alternating efficiency).

(Middle course – valid landform identified with some partial explanation)

Floodplains become more obvious as gradient has decreased in the lower stages of a river, the gradient is almost flat with the river water just moving with tides and momentum. The velocity will be at its highest here with the hydraulic radius being its highest as well, which means it will be the most efficient as there is little water in touch with this bed and banks in comparison with its whole volume. It will also be very smooth so little erosion and very little turbulent flow is reduced. Landforms in this stage include Deltas which is where the river reaches the sea and loses energy as the sea absorbs the energy. It therefore deposits its load and the alluvium rises above the water, partially blocking the river mouth. It then braids out into distributaries. The landforms change downstream due to many reasons including gradient, velocity, hydraulic radius.

(Some description of relevant landform in lower course – some explanation of landform)

Considers all 3 courses and sees relevant landforms somewhat individually – there is some description and partial explanation L2 11

2 Cold Environments

2 (a) Describe the distribution of polar and alpine cold environments (4 marks)

Candidates Answer

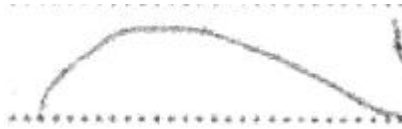
Polar environments are found at both poles – so is the Arctic and Antarctica, both of which are at high latitudes. Alpine cold environments are found at high altitudes (temperatures increase as you go higher), and they found above the treeline, as past this point, it is too cold for trees to grow.

A valid location of a polar environment is given, but high altitudes needed qualifying for a mark. High altitude/above tree line is recognised for a second mark.

2 (b)(i) Study Figure 3 which shows drumlins in the Lake District

With the help of **Figure 3** describe drumlins (4 marks)

Candidates Answer



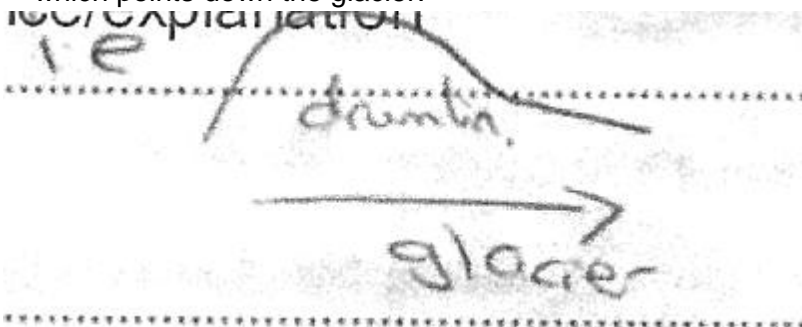
Drumlins are this shape. They can be up to 1500m wide, and are formed by the deposits of till in peaglacial areas. This means that the sediment within the drumlin is unsorted and it points in the direction of the glacier (although figure 3 does not have a glacier)

Recognises shape via diagram 1 mark. Width stated is too wide and answer drifts from description of a drumlin

2 (b)(ii) Explain the formation of drumlins (7 marks)

Candidates Answer

If a glacier is more than 0°C then it will start to melt. If this happens, the meltwater will flow down the glacier, but will pick up debris and sediment (from plucking and frost shattering), which is known as till. As it continues to carry this till down the glacier, it remains unsorted and is then left in a pile, which eventually form a drumlin – which points down the glacier.



L1 Recognition of deposition only – most is incorrect 1 mark

2 (c) Antarctica is a fragile wilderness; it's use can never be sustainable

Discuss this view

(15 marks)

Candidates Answer

Antarctica is considered to be a hostile and harsh environment, due to the extreme cold temperatures. Although it is in a remote location, it has valuable resources, such as oil, fish, whales and metal ores (from mining).

In 2004 – 2005, many people in Antarctica caught fish, particularly the Patagonian Toothfish. So many fish had been caught, which caused a depletion of fish stock. Since then, fishing quotas have been put in place to make it more sustainable, as it limits the number of fish that can be caught. However, some people do still fish illegally, so this is not totally sustainable.

A similar issue arose with whales and seals as they were being caught for their oil and skin/fur, but now a convention for the conservation of marine living resources has been established, which limits them from being caught.

Considers marine resources – tentative links to sustainability. Could be in chronological order with more support.

Antarctica has many tourists per year, and due to the cold environment, any pollution takes years to decay and break down. Therefore, cruise ships can no longer discharge their plastic or other waste, and only one ship is allowed in a landing place at any one time.

Tourism – implicit link to sustainability

Therefore, in conclusion to this, Antarctica's is a fragile wilderness, and it's use can never be totally sustainable, but there are methods to make it more sustainable, so that we meet the needs of people today, without effecting resources for future generations.

Conclusion – addresses question. Is discursive but lacking in support although links are made to sustainability. Fragile environment has some implicit understanding.

L2 9

5 Population Change**5 (a)** Study **Figure 6** which shows the population structure of four countries

Outline contrasts in population structure shown in Figure 6

(3 marks)

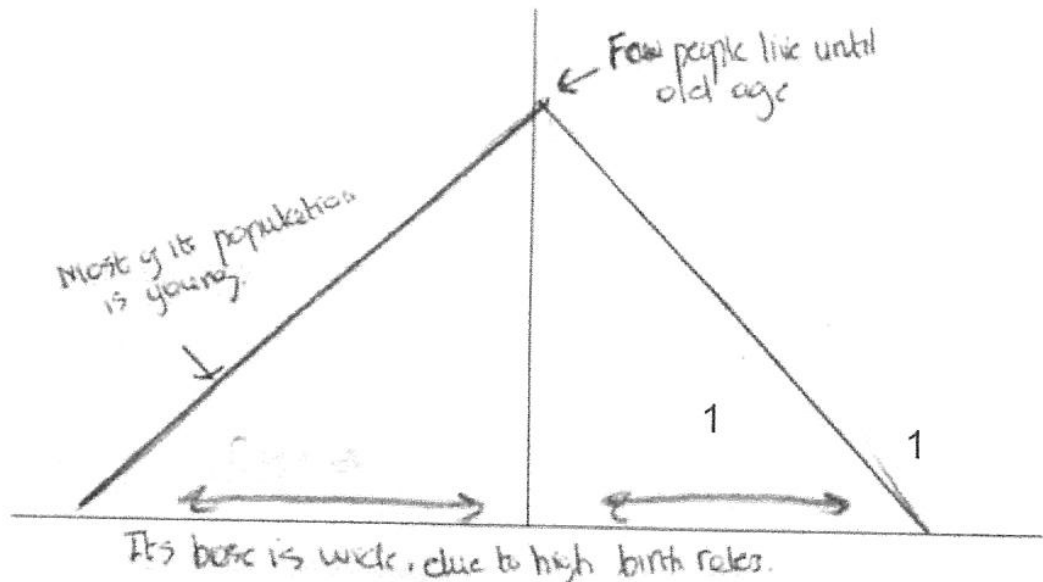
Candidates Answer

It is clear that Kenya has more young people compared to Germany, especially (42% of its population aged under 15, compared to 14% in Germany). In contrast, Germany has much older population than India or Kenya 20% of its population is over 65 years old.

Identifies 2 clear contrasts 2 marks**5 (b) (i)** Population structure changes throughout the stages of the demographic transition model.

Draw a sketch population pyramid to show the population structure of a country in stage 2 of the demographic transition model

(3 marks)

Candidates Answer**Wide base and just symmetrical enough as triangle for 2 marks**

5 (b)(ii) Figure 7 shows a population pyramid for people ages up to 85 in England and Wales in 2010.

The England and Wales population pyramid displayed the characteristics of country in stage 4 until 2001, but the evidence of this stage is less clear in 2010.

Provide evidence from Figure 7 for this statement

(3 marks)

Candidates Answer

At stage 4 population would have a narrow base, which would then get wider around the middle and becoming thinner at the top. Yet here the population fluctuates between getting wider and thinner (for example, there is a sudden dip in the 35 age gap which we have not expected), and also gets significantly wider for the 65 age group before narrowing again, which does not fit neatly into it being stage 4.

Describes but does not link correctly to pyramid shape expected of stage 4 before 2001. 0 marks

5(c) Discuss the implications of an ageing population

(6 marks)

Candidates Answer

An ageing population can have many implications. For example, it indicates that more money will need to be spent on healthcare for hip replacements, for example, as the elderly are more likely to use such services. It also indicates a change in the working age group, since there will be more elderly dependants and less young people to fill the working age group. Perhaps as a result, more migrants may be needed within the population, (those in the working age group) to help tackle such a reduced workforce) (may be done by making immigration, or more attractive)

Describes implications – aspects of demand for healthcare noted and discusses implications regarding immigration Level 2 5 marks

5(d)

Discuss the usefulness of at least two population measures (such as birth rate, death rate, fertility rate, infant mortality rate, life expectancy, migration rate and population density) as indicators of development.

(15 marks)

Candidates Answer

Population measure 1

One population measure used as an indicator of development is the infant mortality rate. This is the number of babies who die before the age of 1, per 000 live babies born per year. It is a useful measure of development as it is clear that countries with a low infant mortality rate are more developed than those with high rates. This is due to the fact that countries with a low infant mortality rate are more developed than those with high rates. This is due to the fact that countries with a low mortality rate (such as the UK, which is 4.69) have better knowledge and accessibility of healthcare, which prevents such deaths even taking place. (as well as better sanitation and diets).

Links to usefulness – brief discussion at end which continues below with high levels

Furthermore, countries with a high infant mortality rate (such as Uganda, which in 2010 was 63) are usually less developed, as this means that they lack such improvements in healthcare, sanitation etc. This fits the demographic transition Model as countries with a high mortality rate are in the early stages. (mainly stage 1 and 2), and this is shown how such countries have a high birth rate to ensure some children survive into adulthood. The infant mortality rate is therefore a very useful lead of development, as it is consistent with the DTM (the demographic transition model)

Pop measure 2

Yet other population measures do not follow the model so closely, and so are not as good as an indicator of development. An example of this is the population density. Population density is the amount of space each person in a country has for themselves, if anyone not given an equal plot of land (and by doing this the total amount of space by the total population) it can be assumed the larger the population density, the less developed the country is, as most LEAC's are in the earlier stages of the DTM and so suffers from rapid population increase (due to high birth rates and falling death rates, such as India) However, This isn't necessary the case. Monaco is a very small country, and yet it is one of the richest and most developed countries in the world. Therefore, it is not a truly usual indicator for development, as the size of the country does not necessarily offset its level of development – some small, densely populated countries, such as Gibraltar can be very developed, for example.

Some support begins to question the usefulness of population density Level 3 13 marks

7 Energy issues

7 (a) Figure 11 shows the primary energy mix of Brazil, China and France.

Figure 11

Energy Source	Energy consumption by type (%)		
	Brazil	China	France
Coal	5	68	5
Natural gas	7	3	16
Oil	49	21	35
Nuclear	1	1	38
HEP	36	6	5
Other renewables	2	1	1

7 (a)(i) Summarise contrasts in the primary energy mix shown in **Figure 11**

(4 marks)

Candidates Answer

China is by far the biggest consumer of fossil fuels. 68% of its energy comes from coal, in comparison to just 5% in France and Brazil. Oil makes up a large chunk of all three energy mixes. The biggest contrast comes in the use nuclear energy with 38% of all France's energy coming from nuclear, compared to just 1% in Brazil and China.

All three energy mixes show how a greater dependence on renewables than non-renewables, even though HEP and Nuclear are big in Brazil and France respectively.

Notes importance of fossil fuels in China, importance of coal in contrast to France and Brazil and contrast in nuclear 3 marks

- 7 (a)(ii)** For either Brazil or China or France, outline one or more issues likely to result from the energy mix (3 marks)

Candidates Answer

Country selected China

China has a heavy reliance on fossil fuels, and uses very few renewable energy resources. This will contribute greatly to the greenhouse effect, pumping large amounts of CO² into the atmosphere. This could potentially lead to acid rain and protests from environmental groups such as Greenpeace.

Develops environmental theme 3 marks

- 7 (b)(i)** Describe the pattern of heat loss shown in Figure 12 (3 marks)

Candidates Answer

Figure 12 shows that large amounts of energy are released from windows. This is indicated by the darkest orange colour in addition to this, two lights on front of the house are releasing heat, with very little coming from elsewhere.

Identifies greatest loss through windows 1 mark

- 7 (b)(ii)** Explain how homes may be designed and/or adapted to conserve energy. (5 marks)

Candidates Answer

The Bedzed development in the UK has aimed to conserve energy in homes by inserting large windows in the house, reducing the need for the light bulbs. In addition, the toilets only use the amount of water required to function. Significantly reducing the amount of water used. Along with this, south facing windows allow heat to be stored in the house through sunlight and better insulation. Finally much of the household waste is recycled reducing the need for the production and usage of additional materials.

Limited focus on energy – notes 2 points Level 1 3marks

7 (c)

With reference to case studies at a national scale, comment on two contrasting approaches to managing the demand for energy

(15 marks)

Candidates Answer***Country 1 Brazil***

Brazil is a so-called BRIC country, is newly industrialising and developing, so must therefore have large amounts of energy at its disposal. Previously, it relied on foreign imports for energy, whereas now through the development of renewable technology, it is relatively self-subsistent. The building of the Belo Monte Dam along the Xingu river in the Amazon is one of many developments fuelling the country's development. HEP now makes up 36% of its overall energy mix, representative of the lack or reliance on fossil fuels. The Santos basin off the east coast has proven oil reserves, and these are used to supplement other energy forms, making up 49% of its energy mix. These both work hand-in-hand in its development.

***Offers support – clear on HEP and oil – some comment integrated
Example 2 China – notes contrast at outset.***

Conversely China relies almost exclusively on fossil fuels. Also a BRIC country 92% of its energy mix comes from non-renewable sources such as coal and gas. Though there are proven reserves, much is imported from Russia and Kazakhstan to accelerate the rate of industrial growth. The cities of Beijing and Shanghai, are world cities, thus meaning that they require very large amounts of energy, hence the reliance on the fossil reserves. With a population of 1.2 billion, it is a continuous struggle to manage demand for energy, at the same time as continuing development. Unlike Brazil which exports energy to Bolivia, Chile and Argentina. China exports very little energy to neighbouring countries.

Offers support. Has appropriate scale – comments on ways try to ensure demand is met Level 3 13 marks