Zig Zag Education

Geography

GCSE (9–1) | Edexcel B | 1GB0

Topic Tests

for GCSE Edexcel B Geography

Consuming Energy Resources

zigzageducation.co.uk

POD 6739

Contents

Teacher's Introduction

This resource has five tests on *Topic 9: Consuming Energy Resources* for the *Edexcel B* (1GB0) Geography curriculum. Every key aspect of the specification is covered in this resource.

These topic tests are designed to test the students' knowledge and enable the teacher to diagnose the students' strengths and weaknesses in certain areas. Each test covers a range of question types, and there is a wide variety of stimulus material. These tests are not intended to mimic exam papers.

Remember!
Always check the exam board website for new information, including changes to the specification and sample assessment material.

Mark schemes for each topic test can be found at the back of this resource. For 'closed' questions, where only one answer is acceptable, a model answer has been provided. For 'open' and extended questions, indicative content has been included.

When to Use This Resource
This resource can be used at the end of a particular topic area, or at the end of the whole unit in order to enable consolidation of knowledge. The students can also use the tests towards the end of the course to assess knowledge either before or after revision. There is scope to provide your students with one test every two weeks if teaching this GCSE course over two years.

How to Use This Resource
The tests can be completed individually in class or set as homework tasks. The tests can be quickly marked by the student or the teacher, at home or in the classroom, as answers are provided.

These structured tests provide an opportunity to mark and score students in order to monitor progress. The tests are provided in write-on and non-write-on formats to suit the requirements of the teacher.

The Benefits to the Student
Students can be confident they have been tested on every key aspect of the specification. After completing a test, they will know which areas they are strong in, and which require further work, and can set their own goals for future learning. The answer sections also provide students with an indication of what a good answer entails.

Differentiation
In order to support lower-ability students while pushing the more able, each test has been written in two sections. The first section has approximately 40 marks and has been written to test knowledge of the core elements of the specification. These questions are for all students and the difficulty or complexity of questions increases throughout the test. The second section has 10–14 further marks of extension questions for higher-ability students.

October 2016

Topic Test 2: Access to Energy Reso

1. What does 'accessibility' mean in terms of extracting energy resources

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2. What elements of the physical environment affect how easy it is to ob

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3. Why is technology important for resource extraction?

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4. What is meant by the term 'energy use per capita'?

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5. Take a look at this graph showing energy consumption in 2015.

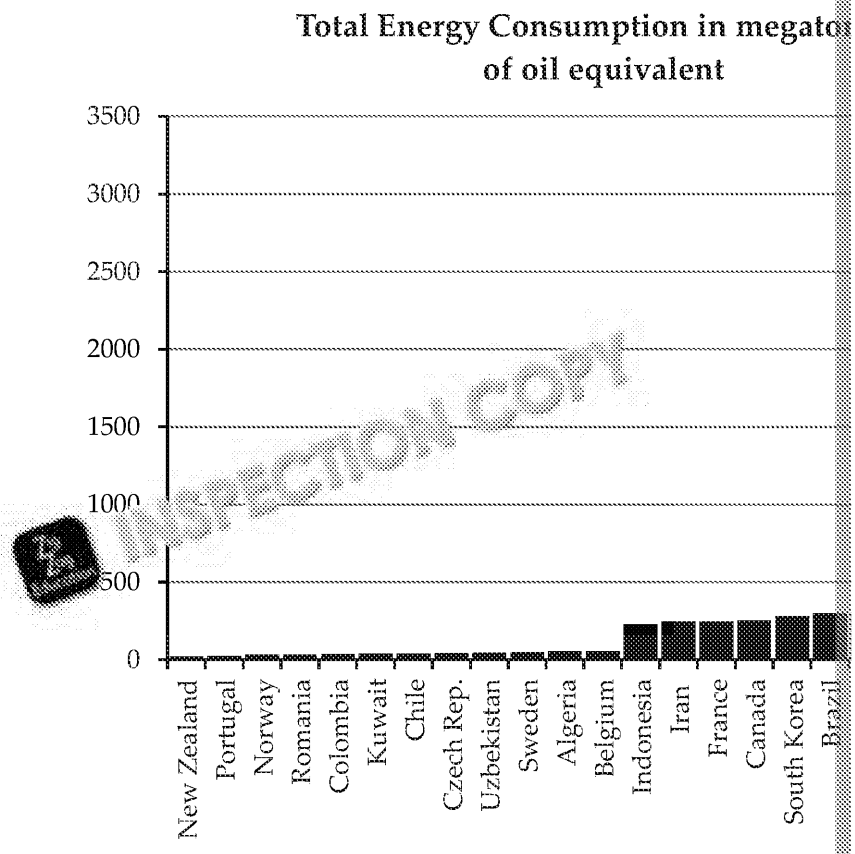

Figure 1: Total energy consumption

a) What is the total energy consumption of the following countries:

China: .....

Japan: .....

New Zealand: .....

b) Why do you think China consumes so much energy?

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c) In this example, 'Total En... ...ers to coal, gas, oil, electricity, h... in mind, why do ... hi... New Zealand has such a low level of ...

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6. Take a look at the table below showing the changing energy use of a r
1971 and 2013.

Location	Energy Use in 1971 (kg of oil equivalent per capita)	
Australia	3,990	
Brazil	709	
Cameroon	388	
Canada	6,53	
China	65	
Curacao	37,113	
France	3,022	
Kenya	451	
Oman	113	
Trinidad and Tobago	2,758	
United Kingdom	3,733	
United States of America	7,645	

Figure 2: Energy Use in 1971 and 2013. Source: World B

a) Rank the locations in order of energy use in 1971 *6 m*

	Curacao		Trinidad and
	United States of America		Brazil
	Canada		China
	Australia		Kenya
	United Kingdom		Cameroon
	France		Oman

b) Connect the locations to the correct boxes in columns a and b to c

Column A

	Curacao	has increased
	The United Kingdom	has decreased slightly
	Trinidad and Tobago	has decreased a lot

7. Give two suggestions why energy use would have:
   a) increased between 1971 and 2013

   .....

   .....

   .....

   b) decreased between 1971 and 2013

   .....

   .....

   .....

8. Take a look at the data, showing the distribution of nuclear power plants:

Country	Number
USA	
France	
Japan	
Russia	
China	
Korea	
India	
Canada	
United Kingdom	
Sweden	
Germany	
Spain	
Belgium	
Czech Republic	
Switzerland	
Hungary	
Slovak Republic	
Finland	
South Africa	
Brazil	
Mexico	
Slovenia	
Netherlands	

Figure 3: Countries operating nuclear plants. Source IA

a) Which countries have the largest number of nuclear power plants

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b) Describe the pattern that can be seen on the map in terms of deve
country name.

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c) W you think this is?

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9. Choose the correct statement and explain your choice.

a) As economic development increases in a country, the consumptio

b) As economic development increases in a country, consumption o

c) There is no simple correlation between the level of economic dev

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Extension Questions

1. Give some examples of the technological advancements that have res
consumption of certain countries, such as the UK, to decrease.

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2. Have a look at figure 1, showing the changing ener use of the UK b

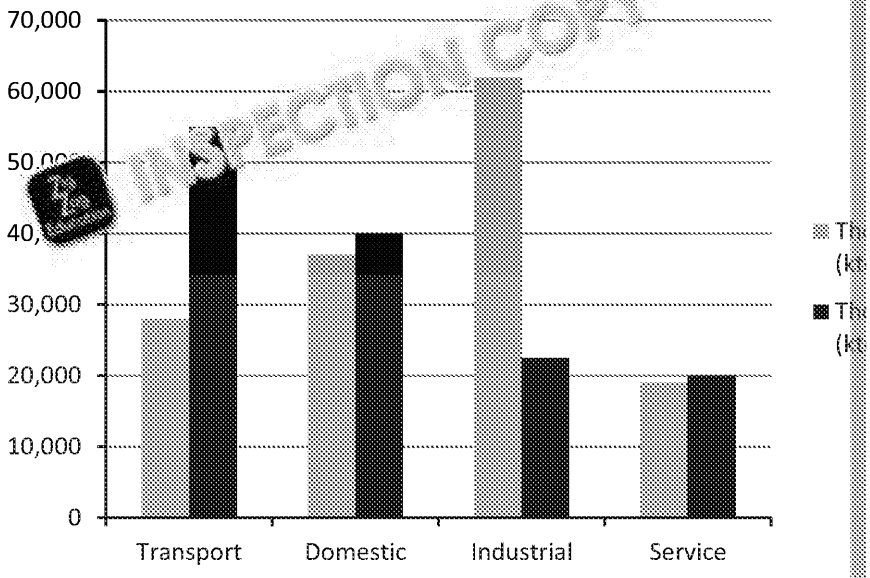

Figure 1: The UK's changing energy use, by sector. Source of data:

a) Describe what the graph shows, using statistics taken for the gra

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b) Why do you think there has been such a ... difference in en
sector?

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c) In 2008, the UK was in recession. How might this have affected t
consumption?

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3. Use the information in the fact file to answer the following questions.

The UK's Coal Industry

- In the 1910s the coal industry in the UK was booming, an source of energy. Now oil, gas, nuclear energy and renew widely used.
- The most easily accessible coal has now been used and fu much deeper into the ground or around geological faults
- Mining and drilling for coal is expensive, particularly for l reserves.
- Colombia and Russia have coal re es and it is now m coal from countries such a th s han to mine it in Engl
- There has been a gr g awareness of climate change a emissi Ou of all the available fossil fuels, coal produc se gas emissions.

a) H as geology affected the UK's use of coal?

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.....

.....

b) Despite coal being available for import from Colombia and Russi develop alternatives to using coal once UK reserves were harder

.....

.....

4. Explain how the landscape and/or climate can influence the renewabl developed in an area.

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1. What does 'accessibility' mean in terms of extracting energy resources

2. What elements of the physical environment affect how easy it is to ob

3. Why is technology important for resource extraction?

4. What is meant by the term 'energy use per capita'?

5. Take a look at this graph showing energy consumption in 2015.

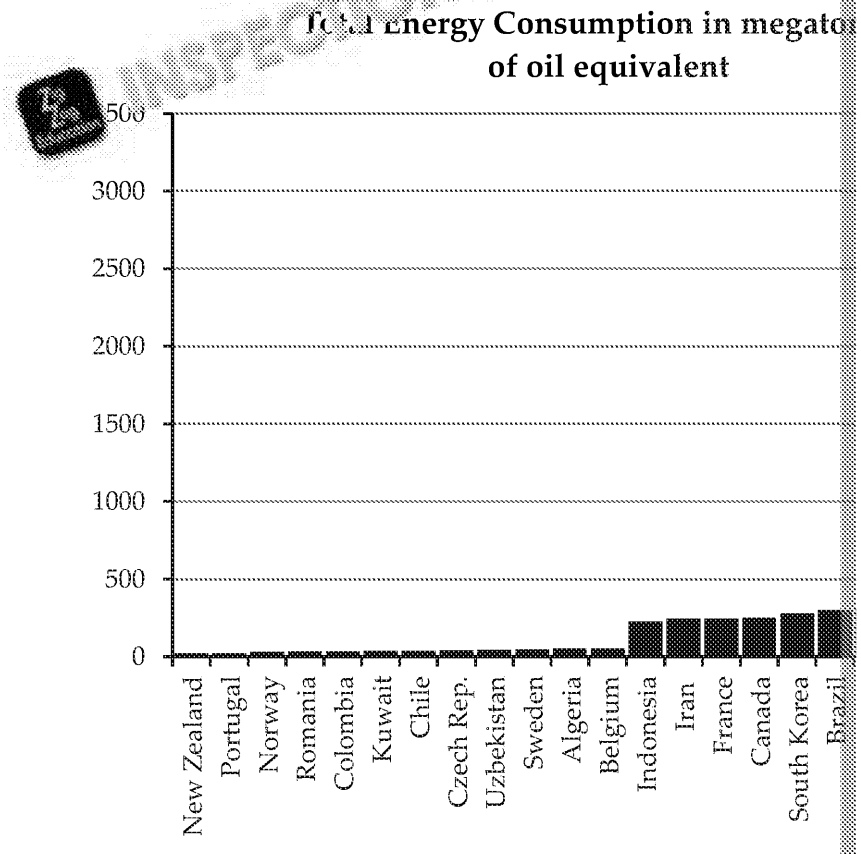

Figure 1: Total energy consumption

a) What is the total energy consumption of the following countries:
   - China
   - Japan
   - New Zeal

b) W y do you think China consumes so much energy?

c) In this example, 'Total Energy' refers to coal, gas, oil, electricity, h in mind, why do you think New Zealand has such a low level of

6. Take a look at the table below showing the changing energy use of a r
1971 and 2013.

Location	Energy Use in 1971 (kg of oil equivalent per capita)	
Australia	3,990	
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France	3,022	
[illegible]	451	
Oman	113	
Trinidad and Tobago	2,758	
United Kingdom	3,733	
United States of America	7,645	

Figure 2: Energy Use in 1971 and 2013. Source: World B

a) Rank the locations in order of energy use in 1971 *6 m*

b) Use the information in the boxes to write out a sentence about the following locations.

		Column A	
Energy use in...	Curacao	has increased	
	The United Kingdom	has decreased slightly	
	Trinidad and Tobago	has decreased a lot	

7. Give two suggestions why energy use w[illegible] ve:
   a) increased between 1971 a[illegible] 20[illegible]
   b) decreased betwe[illegible] 71 a[illegible] 2013

8. Take a look at figure 3, showing the distribution of nuclear power pla

Country	Numbe
USA	
France	
Japan	
Russia	
China	
Korea	
India	
Canada	
United Kingdom	
Sweden	
Germany	
Spain	
Belgium	
Czech Republic	
Switzerland	
Hungary	
Slovak Republic	
Finland	
South Africa	
Brazil	
Mexico	
Slovenia	
Netherlands	

Figure 3: Countries operating nuclear plants. Source IA

a) Which countries have the largest number of nuclear power plants

b) Describe the pattern that can be seen on the map in terms of deve country name.

c) Why do you think this is?

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Extension Questions

1. Give some examples of the technological advancements that have resu consumption of certain countries, such as the UK, to decrease.

2. Have a look at figure 1, showing the changing energy use of the UK by

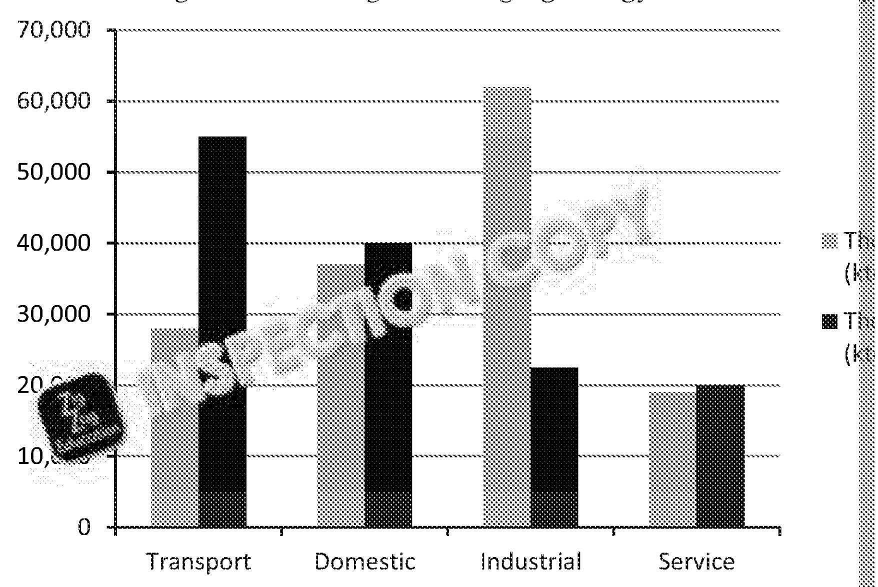

Figure 1: The UK's changing energy use, by sector. Source of data: U

   a) Describe what the graph shows, using statistics taken for the grap

   b) Why do you think there has been such a massive difference in ene sector?

   c) In 2008, the UK was in recession. How might this have affected th consumption?

3. Use the information in the fact file to answer the following questions.

The UK's Coal Industry

- In the 1910s the coal industry in the UK was booming, and source of energy. Now oil, gas, nuclear energy and renew widely used.
- The most easily accessible coal has now been used and fu much deeper into the ground or around geological faults
- Mining and drilling for coal is expensive, particularly for le
- Colombia and Russia have coal resources and it is now mu coal from countries such as these, than to mine it in Engla
- There has been a growing awareness of climate change an emissions. Out of all the available fossil fuels, coal produc greenhouse gas emissions.

   a) How has geology affected the UK's use of coal?

   b) Despite coal being available for import from Colombia and Russia, alternatives to using coal once UK reserves were harder to reach. W

4. Explain how the landscape and/or climate can influence the renewabl developed in an area.

Preview of Questions Ends Here

Answers

Topic Test 1: Classification of Energy Resources

1. a) Infinite sources of energy [1] that will not run out / will replenish themsel
   b) Finite energy sources [1] that will one day run out / are not being replenis
   c) Energy sources that can be reused/reprocessed [1].

2. Biofuel – c [1]
   Gas – b [1]
   Wind – a [1]
   Coal – b [1]
   Nuclear – c [1]
   Solar – a [1]
   Oil – b [1]
   Hydroelectric power – a [1]
   Geothermal – a [1]
   Tidal power – a [1]

3. 6 avail[illegible] effects (3 for each impact) and 1 mark for giving the c

Environmental Impact	Effect
Landscape scarring	• Drilling and mining can leave physical n • Habitats are destroyed [1] • The area becomes unsightly [1] • It is expensive and difficult to undo the • Landscapes may not recover[1] (Any three from the above points)
Oil spills	• Kills wildlife such as birds and fish • Very difficult and expensive to clean up • Damages ecosystems such as coastal we
Loss of forests	• Destruction of habitats [1] • Destruction of ecosystems [1] • Loss of biodiversity [1] • The area is often unable to recover [1] (Any three from the above points)

4. a) A naturally occurring energy source [1] found buried underground [1] wit
   and natural gas are examples [1].
   b) Students must say burning fossil fuels emits greenhouse gases for 1 mark.
   the effects of increased greenhouse gases.
   - Rising sea levels [1]
   - Damaged ecosystems [1]
   - Acid rain [1]

   Or any other suitable suggestion.
   Example answer:
   Burning fossil fuels causes greenhouse gases to be emitted to the atmosph
   contribute to global warming [1] which causes [illegible]as[illegible]d sea levels [1] due

5. a) Development of renewable energy [illegible]n visually change how the lan
   b)
   - Hydroelectric power [illegible] flooding large areas of land when the
     and reservoir [illegible] are often large scale and significantly chang
   - Wind [illegible]1] are constructed on vast areas of open land [1]. The
     [illegible]y are an eyesore [1].
   - [illegible] panels [1] are put on houses or in open spaces [1]. They are ver
     place [1].

   To obtain full marks the student must provide three examples of renewabl
   landscape impact.

6. - Solar energy can only be harnessed when the sun is shining [1]
   - Wind power can only be harnessed when the winds are strong enough [1]
   - Supply is not reliable [1]
   - It is often difficult to generate large amounts of energy from renewable so
   - Initial set up costs of renewable energy sources are high [1]

Extension Questions

1. a) The main energy source used for generating electricity was coal (40%) in 2
The use of renewable energy has increased [1] from 11% to 25% [1], an in
The use of coal has decreased [1] from 40% to 23% [1], a decrease of 17 pe
b) What type of renewable energy is being used [1].
What 'other' energy sources are included in the 'oil and other' section.

2.

Environmental Impact	Location
Landscape scarring	• Xilinhot, China [1] • Fife, Scotland [1] • Queensland, Australia[1] Any other suitable suggestion
Oil spill	• Gulf War oil spill – Kuwait, Iraq and Persian G • BP oil spill - Gulf of Mexico 2010[1] Any other suitable suggestion
Deforestation	• Amazon rainforest, Brazil [1] • Philippines [1] • Panama rainforests [1]
Carbon emissions	Global issue – although developing countries are l

3. Arguments for renewable energy resources:
- No long-term impact on the environment. [1]
- Do not contribute to climate change or global warming. [1]
- The running cost of renewable resources is often lower than for non-renew
- Renewable energy sources will not run out, so we can rely on them in the f
- Renewable energy sources are more sustainable, and using them will not c
- Renewable energy resources are not limited. [1]
- Renewable energy resources do not cause landscape scarring in the same w
- Wind farms can be constructed at sea and so will not take up land space. [1

Or any other suitable suggestion.

Argument for non-renewable energy resources:
- We already have the facilities to generate electricity from coal, oil and gas.
- It is expensive to set up new facilities to harness renewable energy resour
- Renewable energy sources often create landscape impacts which can be ey
- The 'NIMBY' attitude prevents many renewable projects going further. [1]
- Solar, wind and tidal energy can only be collected in certain climatic condit is not influenced by the weather. [1]
- Setting up hydroelectric power stations causes the flooding of large areas o
- Switching to renewable gases will put many large TNCs that work in the bu sources out of business. This could impact on the economies of certain cou

Or any other suitable suggestion.

Preview of Answers Ends Here