Edexcel GCSE Geography A Scheme of Work

Component 2, Topic 6: Resource management

Introduction

Edexcel GCSE Geography A Geographical Themes and Challenges offers a thematic approach to studying geography, with the content split between physical and human geography. As with all GCSEs, the guided learning hours total 120 over two years for the full course. This document provides a sample Scheme of Work for teaching Component 2, Topic 6 that can be adapted by centres to fit their timetabling and staffing arrangements. It is intended to be an example approach only and should not be viewed as prescriptive. This Scheme of Work follows the order of content in the Geography A specification. This document can be edited and updated over time to allow for development of a resource bank. The Scheme of Work contains suggestions for resources that you can use to support your teaching. These are suggestions only for material you may find useful and you are encouraged to use a wide range of resources that suits the needs of your students. Pearson is not responsible for the content of external websites.

Overview of Component 2

- Component 2 is worth 37.5% of the GCSE.
- All students are required to study three topics: Topic 4 Changing cities; Topic 5 Global development; Topic 6 Resource management – including optional sub-topics from which students choose **one** from two: 6A Energy resource management and 6B Water resource management.
- You should allow roughly 45 hours to teach Component 2 and roughly 15 hours to teach each topic.
- Component 2 will be assessed in Paper 2, which is worth 37.5% of the GSCE assessment and is 1 hour and 30 minutes long. The paper is marked out of 94.
- The Sample Assessment Materials (SAMs) can be used for question practice to enable students to gain confidence and skills as part of their revision and exam practice.

Health and safety

The practical work and fieldwork suggested within the scheme of work are those which we believe are not banned or restricted in any way and are still currently used in most schools and colleges. We advise teachers and technicians to discuss the merits of the suggested practical work and fieldwork when deciding which to carry out and how they will be carried out. You may have ideas for practical work and fieldwork which we have not suggested but would work just as well. As with all practical work and fieldwork, a risk assessment is expected as part of good health and safety practice in all centres. Reference to health and safety in the field is made in the specification.

Scheme of Work for Component 2, Topic 6: Resource management

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
Resource Management Overview					
2 lessons (2 hours)	**Key idea 6.1:** A natural resource is any feature or part of the environment that can be used to meet human needs. **Suggested learning objectives:** To know how natural resources can be defined and classified in different ways To have an awareness of the ways people exploit environments in order to obtain water, food and energy. To understand how environments are changed	**6.1a** Natural resources can be defined and classified in different ways (biotic, abiotic, renewable and non-renewable). **6.1b** Ways in which people exploit environments in order to obtain water, food and energy (extraction of fossil fuels, fishing, farming and deforestation). **6.1c** How environments are changed by this exploitation (reduced biodiversity, soil erosion and reduced water and air quality). **Key words:** Exploitation Biodiversity Deforestation Renewable Non-renewable			**Starter** *Match-up* – Provide students with the key words – *abiotic, biotic, renewable and non-renewable*. Students match the key word to the correct definition. Review responses and discuss any misconceptions. **Main activity** Divide students into groups of four and allocate them one of the ways in which people exploit environments – overfishing, oil extraction, deforestation. Provide information packs on the different exploitation types. 1. Oil extraction in Ecuador – the WWF website have a range of resources for students to use. 2. Overfishing – the Greenpeace website could be used for relevant information. 3. Deforestation in Cameroon – the Save Wildlife website provides a detailed overview of deforestation in the country. **First lesson** Using the information either provided by the teacher or from internet research, students produce a two-minute speech. The speech is written as a representative for the prospective country outlining the ways the environment has been exploited and the impact this has had on their environment. **Second lesson** Students spend the first part of the second lesson finishing their speeches. Then students present their speeches to the rest of the group. During the speeches the students make

<table>
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<tr><td></td><td>from exploitation.</td><td>Abiotic
Biotic</td><td></td><td></td><td>notes on each presentation using a summary table. Format suggested below:
<table>
<tr><td></td><td>Oil extraction in Ecuador</td><td>Overfishing</td><td>Deforestation in Cameroon</td></tr>
<tr><td>What’s happening?</td><td></td><td></td><td></td></tr>
<tr><td>Impact on the environment</td><td></td><td></td><td></td></tr>
</table>

Plenary
Plenary Pyramid – Provide students with a pyramid shape split into three sections. Students complete the following:
A. One question you are left with
B. Two concepts you understand that you didn’t know before
C. Three new pieces of vocabulary you now know and what mean.</td></tr>
<tr><td>2 lessons (2 hours)</td><td>Key idea 6.2:
The patterns of the distribution and consumption of natural resources varies on a global and a national scale.

Suggested learning objectives:
To have an awareness of the global and UK variety and distribution of natural resources.</td><td>6.2a
Global and UK variety and distribution of natural resources (soil and agriculture, forestry, fossil fuels, water supply, rock and minerals).
6.2b
Global patterns of usage and consumption of food, energy and water.

Key words:
Agriculture
Forestry</td><td></td><td>Use and interpretation of UK and world maps showing the distribution of resources

Using different choropleth maps and visualisations such as Gapminder.</td><td>Starter
Everything you know – Students write down everything they know about how the world consumes resources in three minutes. Bring all students ideas together as a class mind map.

Main activity
Provide students with a series of UK and World maps to illustrate the distribution of natural resources, as well as the consumption of food, energy and water.

Students then rotate around the room investigating the distribution of natural resources and consumption of food, energy and water. During the challenge students write down a key fact taken from each of the maps. Students should aim to</td></tr>
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Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
	To know the global patterns of usage and consumption of food, energy and water. To recognise patterns and trends from choropleth maps and data visualisations on usage and consumption of food, energy and water.				gather at least 10 key facts based on their interpretation of the different maps. Review student responses through a whole-class discussion. **Plenary** *One minute challenge* - Students tell a partner what they have found out about the distribution of natural resources.
Optional sub-topic: Energy resource management					
1 lesson (1 hour)	**Key idea 6.3:** Renewable and non-renewable energy resources can be developed. **Suggested learning objectives:** To understand the advantages and disadvantages of the production and development of a non-renewable energy resource. To understand the advantages and disadvantages of	**6.3a** Energy resources can be classified as renewable and non-renewable. **6.3b** Advantages and disadvantages of the production and development of one non-renewable energy resource. **6.3c** Advantages and disadvantages of the production and development of one renewable energy resource.			**Starter** *Photo reveal* – Recap students understanding of the difference between non-renewable and renewable energy sources. Show a series of images related to non-renewable – coal, oil, natural gas and uranium and renewable – HEP, wind and solar power. Show the images one at a time with students writing down the type of energy source, whether it is renewable or non-renewable and one fact they might know about the energy source. **Main activity** Teacher sets up a series of stations on wind energy and coal. This could be four stations focusing on the following: 1. Overview of the energy resource 2. Advantages 3. Disadvantages 4. Development Students then use the following A3 table outline and spend five minutes at each station to make notes.

<table>
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<tr><td></td><td>the production and development of a renewable energy resource.</td><td>Key words:
Renewable
Non-renewable
HEP
Solar energy
Wind energy</td><td></td><td></td><td>
<table>
<tr><th></th><th>Renewable</th><th>Non-renewable</th></tr>
<tr><td>Definition (overview)</td><td></td><td></td></tr>
<tr><td>Locations (where extracted or used) - development</td><td></td><td></td></tr>
<tr><td>Advantages</td><td></td><td></td></tr>
<tr><td>Disadvantages</td><td></td><td></td></tr>
</table>
Plenary
Question pose – Students answer the following question: Explain one advantage and one disadvantage of a renewable energy resource.</td></tr>
<tr><td>1 lesson (1 hour)</td><td>Key idea 6.4:
To meet demand, countries use energy resources in different proportions. This is called the energy mix.

Suggested learning objectives:
To know the composition of the UK’s energy mix.

To understand the factors that cause global variations in energy.</td><td>6.4a
The composition of the UK’s energy mix.

6.4b
How global variations in the energy mix are dependent on a number of factors: population, wealth and the availability of energy resources.

Key words:
Energy mix
Choropleth mapping</td><td></td><td>Use and interpretation of world maps showing the distribution of energy resources.</td><td>Starter
Question pose (peer review) – Using the answers produced from the previous lesson, students assess their peers work using the following success criteria:
1. One advantage and one disadvantage is discussed
2. A point is made and clearly explained
3. The points are accurate

Main activity
Teacher discusses the UK’s energy mix through displaying a pie-chart with the breakdown. Using the pie chart, students answer the following questions:
1. Describe the distribution of the UK’s energy mix.
2. Suggest one reason why the UK still relies heavily on non-renewable energy sources.
Teacher reviews answers through a whole-class discussion.

Then share the global distribution of energy consumption. A useful choropleth map to represent this can be sourced from the Collins Student World Atlas.</td></tr>
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Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
					Teacher provides a copy of world energy consumption graph from BP's statistical report of world energy 2012 for each student and they answer the following interpretation questions: 1. The difference in total energy consumption between 1965 and 2010. 2. The percentage of fossil fuels used in 2000. Students initially discuss in pairs why they think there are variations in energy consumption and write two suggestions. Teacher reveals the three key factors – population, income and wealth, and availability of resources. Students then suggest how each of the factors causes variations in energy consumption. Review answers as a group. **Plenary** *Recap* – Students complete the following review tasks: 1. How many places with low energy consumption can you remember? 2. Why do these places have low energy consumption?
1 lesson (1 hour)	**Key idea 6.5:** There is increasing demand for energy that is being met by renewable and non-renewable resources. **Suggested learning objectives:** To know how and why global	**6.5a** How and why global demand and supply has changed over the past 100 years due to human intervention: world population, growth increased wealth, and technological advances.			**Starter** *Thought-provoking question* - What do you have in your home today that might not have been there 50 years ago? Review responses as a whole teaching group. **Main activity** Teacher creates a story about how and why global energy demands have changed. The story should incorporate the key reasons of world population, growth, increased wealth, and technological advances. Read the story to the students and ask them to complete a mind movie from your story by drawing what they hear.

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
	demands of energy have changed in the past 100 years.				Mention the two key rules – no words, only allowed to use pictures, symbols and numbers. Encourage students to share their mind movies with the rest of the group. Students consolidate their understanding of the changes in energy demands by answering the following question: *Explain two reasons why energy consumption has changed in the past 100 years.* **Plenary** *Tell me three* – Students share three things they have learnt about how and why global energy demand and supply has changed in the last 100 years.
1 lesson (1 hour)	**Key idea 6.5:** There is increasing demand for energy that is being met by renewable and non-renewable resources. **Suggested learning objectives:** To understand how the development of non-renewable resources is affecting people and the environment.	**6.5b** How non-renewable energy resources (coal, oil, natural gas and uranium) are being developed and how this can have both positive and negative impacts on people and the environment.			**Starter** *What is it?* – Show an image of the tar sands in Alberta, Canada and ask students to decide what they think the image represents. Share student's thoughts as a whole class and then reveal the answer. **Main activity** Provide students with a series of speech cards representing the views of different groups of people on the impact of developing the use of non-renewable energy resources – coal, oil, natural gas and uranium. Articles from The Guardian and The Daily Telegraph provide a wealth of information on the development of these resources. Divide the class into different groups focusing on one of the non-renewable resources – coal, oil, natural gas and uranium.

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
					Students categorise the speech bubbles into either impacts on people or impacts on the environment. Once categorised they then decide which impacts are positive and which are negative. After sorting the information, students present one A4 summary in the format of their own choice on the development on their non-renewable energy resource. Students share their summaries with the rest of the group. Teacher to photocopy the summaries so that every student has a copy of each of the four energy resources from their peers. Follow-up activity with a homework consolidation task to check students' understanding. **Plenary** *A to Z* – Using a random generator, students pick a letter from the alphabet and have to describe or explain something linked to the development of non-renewable resources and their impacts on people and the environment.
1 lesson (1 hour)	**Key idea 6.5:** There is increasing demand for energy that is being met by renewable and non-renewable resources. **Suggested learning objectives:** To understand how the development of renewable	**6.5c** How renewable energy resources (hydro-electric power (HEP), wind power and solar power) are being developed and how this can have both positive and negative impacts on people and the environment.			**Starter** *Higher or lower?* – Show an image of the London Array and ask students to guess higher or lower for the following facts: Does the London Array have less than/more than 180 wind turbines? **(ANSWER – 172)** The London Array can potentially generate more/less than 600 megawatts of energy? **(ANSWER – 630)** **Main activity** Use the following sources to provide students with a series of articles on the three renewable energy resources: Wind Power - London Array

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
	resources is affecting people and the environment.				HEP - The Three Gorges Dam Solar Parks Using the articles students actively read the information by highlighting the important points. Students could use different coloured highlighters to indicate impacts on people and impacts on the environment. From the active reading task ask students to produce mind map on the positive and negative impacts of developing these renewable resources on people and the environment. **Plenary** *Hot seat* - Students (or the teacher) take on a role in the 'hot-seat' and answer questions posed by the rest of the class.
1 lesson (1 hour)	**Key idea 6.6:** Meeting the demands for energy resources can involve interventions by different interest groups. **Key idea 6.7:** Management and sustainable use of energy resources are required at a range of spatial scales from local to international. **Suggested learning objectives:** To have an awareness of how	**6.6a** How attitudes to the exploitation and consumption of energy resources vary with different stakeholders (individuals, organisations and governments). **6.7a** Why renewable and non-renewable energy resources require sustainable management. **6.7b** Different views held by individuals, organisations and governments on the management and sustainable use of energy resources.			**Starter** *Ranking opinions* – Create opinions on the exploitation and consumption of energy resources. Students to rank each opinion 1–5 depending on which they agree with the most. 1 = most agree, 5 = least agree. Students to justify their ranking decisions. **Main activity** Recap the concept of sustainable development through students sharing what they understand by it, and then share the UN definition. Review the concept by using 'Sustainability explained through animation' video on the Green College Online website. Students research the different views of individuals, organisations and governments. This could be done as an internet-based activity with students guided towards the following case studies: Individuals – solar panels on homes,

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
	attitudes to the exploitation and consumption of energy resources vary with different stakeholders and why they require sustainable management.	**Key words:** Stakeholders Sustainable development			Organisations – Google, McDonalds and Eddie Stobart trucks Government – Woking council and the UK government's energy road map 2011. **Plenary** *Tell me three* – Students describe their top three learning points from the lesson.
1 lesson (1 hour)	**Key idea 6.7:** Management and sustainable use of energy resources are required at a range of spatial scales from local to international. **Suggested learning objective:** To know the reasons why one emerging country is attempting to manage their energy resources in a sustainable way. To understand how one emerging country has attempted to manage their energy resources in a sustainable way.	**6.7c** How one developed country and one emerging country or developing country have attempted to manage their energy resources in a sustainable way.	China		**Starter** *True or false?* – Students decide if the following statements are true or false: 1. China burns more coal than the United States, Europe and Japan combined, causing significant air pollution. [TRUE] 2. China has become the world's third biggest producer of carbon dioxide, the major greenhouse gas responsible for climate change. [FALSE] 3. Seven of the world's 10 most polluted cities are in China. [TRUE] 4. In 2007 China produced 100m tonnes of CO_2, with Britain producing around 600m tonnes. [FALSE] **Main activity** Review and explain further the statements from the starter for the reasons why China must continue to develop its use of renewable energy. Students then complete a research-based activity on the following strategies used by China to manage its energy resources: 1. HEP – Three Gorges Dam 2. Geothermal - Yangbajain geothermal field 3. Solar – Roof top solar water heaters 4. Biomass - Kaiyou Green Energy Biomass (Rice Husks) Power Generating project 5. Wind – Wind farms, for example in Xinjiang.

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					Students produce a PowerPoint presentation with a slide for each of the projects listed above. **Plenary** In your own words – Students answer the following question: *In no more than 100 words, summarise why China needs to rely less on non-renewable sources and more on renewable sources.*
1 lesson (1 hour)	**Key idea 6.7:** Management and sustainable use of energy resources are required at a range of spatial scales from local to international. **Suggested learning objective:** To know the reasons why one developed country is attempting to manage their energy resource in a sustainable way. To understand how one developed country have attempted to manage their energy resources in a sustainable way.	**6.7c** How one developed country and one emerging country or developing country have attempted to manage their energy resources in a sustainable way.	Germany		**Starter** *Scramble review* – Scramble the definition of sustainable development. Students have to re-arrange the words to establish the correct version of the concept. Students provide one example of how people might demonstrate steps towards being more sustainable in the way they lead their lives. **Main activity** Introduce the case study of Germany through a series of facts highlighting why they have moved towards developing further use of renewable resources. This could be linked to the Fukushima disaster and the drive towards sustainability through 'Energiewende'. Provide students with information on the following strategies used in Germany: 1. Solarparks - Bavaria Solar Park 2. Windparks - Nordsee Ost wind farm Using the information provided, students produce an advertisement display outlining Germany's drive towards sustainable energy use to the rest of the world. Review students advertisements through a whole class discussion with students justifying the layout and information included for their piece of work. **Plenary**

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					Three–two–one RIQ: Students show their learning by giving three recalls (facts), two insights and asking one question.
Optional sub-topic: Water resource management					
1 lesson (1 hour)	**Key idea 6.8:** The supply of fresh water supply varies globally. **Suggested learning objectives:** To know the global distribution of fresh water To understand how the availability of fresh water varies on a global, national and local scale To understand why some parts of the world have a water surplus or a water deficit	**6.8a** Global distribution of fresh water. **6.8b** How the availability of fresh water varies on a global, national and local scale. **6.8c** Why some parts of the world have a water surplus or a water deficit. **Key words:** Water deficit Water surplus		Use and interpretation of UK and world maps showing the distribution of freshwater resource supply and demand.	**Starter** *How many?* – Students answer the following question: *How many uses of water can you think of?* • Put them in categories. • Why did you choose these? • What do they have in common? Students share responses and then show the following video clip as a follow up: Where do we get our fresh water from? **Main activity** Provide students with a copy of a world map showing the distribution of people's access to safe water. A suitable map can be used from the Collins World Atlas. Students describe the global pattern of the access to safe water. Provide students with a copy of a world map showing the areas of water surplus and water deficit. Share the definition of the two concepts. Students use the map to suggest reasons why the water surplus and deficits exist. **Plenary** *Draw your learning* - Students illustrate what they have learned from the lesson and use a maximum of 30 words to describe each image.

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1 lesson (1 hour)	**Key idea 6.8:** The supply of fresh water supply varies globally. **Suggested learning objectives:** To know how and why the demand for water has changed in the past 50 years	**6.8d** How and why the supply and demand for water has changed in the past 50 years due to human intervention.		Use and interpretation of line graphs showing the range of future global population projections, and population in relation to likely available water resources.	**Starter** *Gap fill* – Students complete the following gap fill exercise: **Word box** – saving, luxuries, considerable, increases, wealth, stronger. As a country's economy becomes ....., then the ..... of each individual increases and there is more money available for ..... . There has been an incredible growth in labour ..... devices that use a ..... amount of water. **Main activity** *Video clip* – search for the animation accompanying TakePart's latest documentary 'Last Call at the Oasis', named 'How much water do we really use everyday?'. Teacher creates a fact file on the different factors that have caused a change in the supply and demand for water. Using the information provided, students produce a storyboard to represent the changes over the past 50 years. Students consolidate their understanding by answering the following question: *Using examples, explain how greater wealth leads to increased water consumption.* **Plenary** *KUW* – Students complete the following sentence stem to reflect on their learning from the lesson. *As a result of the lesson:* *I know…* *I understand…* *I will investigate further…*

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
1 lesson (1 hour)	**Key idea 6.9:** There are differences between the water consumption patterns of developing countries and developed countries. **Suggested learning objectives:** To know how water usage is distributed between agriculture, industry and domestic in different countries To understand the reasons for differences in water usage by countries	**6.9a** The proportion of water used by agriculture, industry and domestic consumers in developed countries and emerging or developing countries. **6.9b** Why there are differences in water usage between developed and emerging or developing countries. **Key words:** Agriculture Industry Domestic Developed country Emerging country Developing country			**Starter** *Comparing pie charts* – Show two pie charts to present the breakdown of water use between the different sectors in developed and developing countries. Students describe the differences between them and suggest a reason. Teacher reviews responses with the group. **Main activity** Teacher discusses the key reasons why the differences in water usage exist between the countries and sectors. This could be done as clue cards and a whiteboard reveal exercise as a whole class. Provide students with the percentage data for the different sectors for the following countries – USA, China, Kenya and Bangladesh. Students produce their own pie charts to represent the breakdown of water usage. After producing their pie charts, students describe the differences between the countries and suggest reasons for the differences. **Plenary** *Extended writing task* – Student review their understanding from the lesson by answering the following question: *Using examples, describe and explain why developed countries use more water than developing countries.*
2 lessons (2 hours)	**Key idea 6.10:** Countries at different levels of development have water supply problems.	**6.10a** Why the UK has water–supply problems (imbalances of the supply and demand for rainfall, seasonal imbalances and an ageing infrastructure:			**Starter** Developing or developed? – Show a series of images to represent the common water supply problems in developing and developed countries. Students decide in which type of country the problem is found, justifying their decisions. **Main activity**

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	Suggested learning objectives: To understand the reasons why the UK and developing countries have water-supply problems	sewage and water pipes). **6.10b** Why emerging or developing countries have water–supply problems (access to only untreated water, pollution of water courses, and low annual rainfall). **Keywords:** Infrastructure Seasonal imbalance Water pollution			Provide students with information packs on water supply problems in developing and developed countries: • Developing countries: Low annual rainfall, water pollution, and untreated water. • Developed countries: Seasonal imbalance, imbalances of supply vs demand, and ageing pipes. For the first lesson students use the information provided to work in groups of four to produce a presentation about one of the water supply problems. For the second lesson students present their water supply problem to the rest of the group. During the delivery of the presentations, students make notes using a summary table. **Plenary** *Fiendishly tricky* – Students come up with three fiendishly tricky questions based on today's lesson to ask their partner.
1 lesson (1 hour)	**Key idea 6.11:** Meeting the demands for water resources could involve technology and interventions by different interest groups **Key idea 6.12:** Management and sustainable use of water resources are required at a range of spatial scales from local to international.	**6.11a** How attitudes to the exploitation and consumption of water resources vary with different stakeholders (individuals, organisations and governments). **6.12a** Why water resources require sustainable management. **6.12b** Different views held by individuals, organisations and		Use and interpretation of UK and world relative water stress maps.	**Starter** *Map interpretation* – Display a copy of the following world water stress map - World water scarcity map. Students describe the pattern shown on the map. Students could also be asked to compare this map to the map on water deficit and water surplus, considering the similarities and differences. **Main activity** Create a number of different characters to represent the different stakeholder's views on the exploitation and management of water resources. The characters could include the following: 1. A WaterAid representative 2. A UK government representative

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	Suggested learning objectives: To appreciate why water resources require sustainable management. To know how the attitudes and views on the use and management of water resources will vary between different stakeholders.	governments on the management and sustainable use of water resources. **Key words:** Water stress Stakeholders			3. An Indian government representative 4. A UK resident 5. A villager from Malawi 6. An environmentalist 7. A Walkers Crisps representative 8. A Walkers Crisps employee For each of the different stakeholders, students create a short view that each may hold about the exploitation, consumption and management of water. Before revealing their thoughts, show students the different stakeholders and ask them in pairs to decide what they think their attitudes and views might be on the use and management of water. Using the different views, students write a summary to describe and explain how and why different stakeholders will have different views. **Plenary** *One minute challenge*: Students tell a partner what they have learned about the different views of the use and management of water resources.
1 lesson (1 hour)	**Key idea 6.12:** Management and sustainable use of water resources are required at a range of spatial scales from local to international. **Suggested learning objectives:** To understand how one developing country	**6.12c** How one developed country and one emerging or developing country have attempted to manage their water resources in a sustainable way. **Key words:** Rainwater harvesting Sustainability	India		**Starter** *Top three* – Students share three facts they know about the country of India. Review student responses as a whole class. **Main activity** Provide a series of resources on the following strategies used by India to manage their water resources: 1. Kolkata recycling system 2. Rainwater harvesting 3. Waste water treatment

Lessons	Learning objectives	Content (vocabulary, concepts, processes, ideas)	Place exemplification	Integrated skills	Teaching activities and resources
	has attempted to manage its water resources in a sustainable way.				Students complete an active reading task from the information on each of the strategies. From this students then answer the following 8-mark exam-style question: *Evaluate the success of one developing country in the sustainable management of water resources.* **Plenary** *Peer review* - Students swap books with a partner to mark the essay providing a WWW (what went well) and an EBI (even better if) from the success criteria.
1 lesson (1 hour)	**Key idea 6.12:** Management and sustainable use of water resources are required at a range of spatial scales from local to international. **Suggested learning objectives:** To understand how one developed country has attempted to manage its water resources in a sustainable way.	**6.12c** How one developed country and one emerging or developing country have attempted to manage their water resources in a sustainable way. **Key words:** Water stress Water meters Hippo bags Reservoir Sprinkler systems	The UK		**Starter** *Distribution* – Show a map of the relative water stress in the UK. Students describe the distribution. Resource can be found on page 22 in the following DEFRA document - Future Water, DEFRA (2008) **Main activity** Create three learning stations with a range of resource types on the sustainable management of water in the UK. The learning stations could be set up as follows: 1. Household behaviour – water meters, dual flush toilets, hippo bags – Future Water ('Top water saving tips', p.24) 2. Reservoirs – Kielder Water: 'The workings of the reservoir' Kielder Water: 'The workings of the reservoir' 3. LEAF demonstration farm (sponsored by ASDA) – Simply Sustainable Water at Overbury Farms (This could be set up with a laptop on video loop). Students spend five minutes at each of the learning stations gathering notes on the strategies used to manage water sustainably.

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					After collecting the information, students choose one of the following formats to present their understanding of how the UK has attempted to manage water in a sustainable way: Newspaper article, speech or fact file. **Plenary** *Question pose* – Students answer the following question: *Explain how the UK could manage water supplies more sustainably.*

Independent learning/homework

Optional sub-topic: energy resource management		
Task 1	*Research task*	Students research another EU country's energy mix. From their research they present their findings as a comparison between the energy mix of that country and the UK. Students try to offer reasons for the differences between the two countries.
Task 2	*Extended writing task*	Using the four A4 summaries on the development of non-renewable energy resources (Key idea 6.5b) students write an answer to the following question. *'Discuss the impact of continuing to develop non-renewable energy resources on people and the environment' (12 marks).*
Task 3	*Cartoon strip*	Students research the process of fracking and present their understanding in the form of a comic strip.
Task 4	*Mind maps*	Students produce an A3 revision mind map for the energy resource management topic.
Task 5	*Energy management top five*	Students review their learning for energy management identifying 5 aspects that they are confident about, and 5 aspects that they need to revise further.
Task 6	*Peer quiz*	Students create a 10 question quiz for their partners about energy resource management as preparation for their end of unit assessment. This could then be used as a starter activity.
Optional sub-topic: water resource management		
Task 1	*Newspaper article*	Students create a newspaper article to raise awareness of the problems of drinking dirty water in developing countries.
Task 2	*Extended writing task*	Following on from the lesson on the sustainable management of water in a developed country, students answer the following question. *'Explain how the UK manages its use of water resources in a sustainable way' (4 marks).*

Task 3	*Mind maps*	Students produce an A3 revision mind map for the water resource management topic.
Task 4	*Water management top five*	Students review their learning for water management identifying 5 aspects that they are confident about, and 5 aspects that they need to revise further.
Task 5	*Peer quiz*	Students create a 10-question quiz for their partners about water management as a preparation for their end of unit assessment. This could then be used as a starter activity.