The Asian International School
Unit Backward Design
Geography, TOEFL-Inter, 2018-2019

5.1 Saturday 30 April, 2050

Stage 1 - Desired Results

Established Goals:

- Understand that climate change will have a big and often harmful effect on many places around the world

Understandings:	**Essential Questions:**
Students will understand… •the world is likely to continue to get warmer •some consequences will be benign • but many consequences will be harmful for living things.	•What do you think the world will be like in 2050? •Should we be concerned about climate change? •How could climate change affect me in my country and others in theirs? •How could global warming affect the population and distribution of different species? •What was the one key theme the three stories had in common?
Knowledge: *Students will know…* •that climate change effects the whole planet in many different ways	**Skills:** *Students will be able to…* •define key vocabulary •understand and explain the effects of global warming •describe current climates in different parts of the world and make predictions based on evidence

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
•'Your turn' questions in the students' book p.71 •Workbook Unit 5.1 •Teacher's Handbook, p.94. Ideas for a Starter •Teacher's Handbook, p.95. Ideas for Plenaries •Teacher's Handbook, p.104. Further suggestions for class and homework, Activities 1 – 6 •Creative and journalistic writing	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Read and analyze three accounts from three different places in the world set on the same day in the future
- Classify the changes as positive or negative and give reasons
- Locate and identify different features on aerial photographs and OS maps

- Determine and explain the cause and effects of changes
- Write a fictional account of a day in the life of a teenager in Vietnam in 2050 with projected global warming

5.2 Our changing climate

Stage 1 - Desired Results

Established Goals:

- Understanding different approaches to coastal defence and their pros and cons
- Being able to evaluate the best and most sustainable form of defence for a given area
- Being able to explain a plan of action with a presentation including maps and charts

Understandings:	**Essential Questions:**
Students will understand… that global warming is taking place •that global warming leads to climate change •that climate change is likely to have many harmful consequences, for living things	•What is climate? •Will climate change affect me? How? •What is the worst effect of global warming?
Knowledge: *Students will know…* •climate change is more than global warming •the effects of climate change	**Skills:** *Students will be able to…* •define and explain key vocabulary •explain how we know climate change is taking place •explain the predicted consequences of climate change

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
• 'Your turn' questions in the students' book p.73 • Workbook Unit 5.2 • Teacher's Handbook, p.96. Ideas for a Starter • Teacher's Handbook, p.97. Ideas for Plenaries • Teacher's Handbook, p.104. Further suggestions for class and homework, Activities 7 - 15	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Analyze and describe a global temperature map and graph

- Read about and rate the seriousness of different consequences of climate change

5.3 What's causing global warming?

Stage 1 - Desired Results

Established Goals:

- Understanding of the greenhouse effect
- Understanding that there is some debate about the cause of global warming but that the general consensus amongst scientists is that humans are the leading factor

Understandings:	**Essential Questions:**
Students will understand that… •greenhouse gases are considered the main cause of the current global warming •we humans are causing greenhouse gases to form •carbon dioxide is considered the chief culprit, in the current global warming	•Why does the Earth get warm? •What are the greenhouse gases? •What do we do that produces greenhouse gases? •What are the main gases in the atmosphere?
Knowledge: *Students will know…* •what causes global warming •what the main greenhouse gases are and how we produce them	**Skills:** *Students will be able to…* •define key vocabulary •explain what greenhouses gases are, and how they work •describe and draw a diagram to explain the greenhouse effect •recognize that humans are a cause of global warming

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
•'Your turn' questions in the students' book p.75 •Workbook Unit 5.3 •Teacher's Handbook, p.98. Ideas for a Starter •Teacher's Handbook, p.99. Ideas for Plenaries •Teacher's Handbook, p.104-105. Further suggestions for class and homework, Activities 16 – 21	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher

	•Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Read Bout and react to opinions on a sliding scale and a scientific consensus
- Read and learn about the different greenhouse gasses
- Analyze a line graph showing carbon emissions
- Analyze a diagram of the Earth's orbit around the sun and explain how it affects climate
- Make correlations between human activity and climate change
- Come up with explanations, reaching conclusions and giving reasons

5.4 More about carbon dioxide

Stage 1 - Desired Results

Established Goals:

- Understanding how carbon dioxide is produced by many of our daily activities
- Understanding that local actions can have global effects

Understandings: *Students will understand that…*	**Essential Questions:**
• nderstand that we humans are causing greenhouse gases to form • nderstand that carbon dioxide is considered the chief culprit, in the current global warming • nderstand that richer countries produce more carbon dioxide per person, but poorer countries may suffer more from the impacts of global warming	• ho is producing carbon dioxide right now? Does this cause global warming? • ow much do you depend on burning fuels? • o you think rich countries might be able to cope better than poor countries with global warming?
Knowledge: *Students will know…*	**Skills:** *Students will be able to…*
• here carbon dioxide comes from • hich countries produce the most carbon emissions • he problems caused by excess carbon emissions	• define and explain key vocabulary • xplain what 'local actions, global effects' means and give examples •

	ecognize and explain how dependent they are on fossil fuels
Stage 2 - Assessment Evidence	
Performance tasks: •'Your turn' questions in the students' book p.77 •Workbook Unit 5.4 •Teacher's Handbook, p.100. Ideas for a Starter •Teacher's Handbook, p.101. Ideas for Plenaries •Teacher's Handbook, p.105. Further suggestions for class and homework, Activities 22 – 29	**Other Evidence:** The following will also be observed, recorded, and considered for the final grade of students in each lesson activity • motivation • ngagement • ollaboration • ommunication pattern among peers and with the teacher • eactions • espect to others and different opinions
Stage 3 – Learning Plan	
Learning Activities: •Read about the activities that produce CO_2 •Analyze a bar chart showing CO_2 production around the world •Identify and classify daily activities that depend on fossil fuels •Assess the extent of dependence on burning fuels •Devise a personal plan to reduce dependence of fossil fuels	

5.5 So can we stop global warming?

Stage 1 - Desired Results
Established Goals: •Understanding that we can't stop global warming but we can limit it •Being able to make a persuasive argument for a strategy to limit global warming

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Understandings: *Students will understand that…* •we probably can't stop global warming •we can try to slow global warming down and limit it by reducing carbon dioxide emissions •Governments need to agree on targets and schedules for reducing emissions but there is conflict over the economic reliance of fossil fuels	**Essential Questions:** •What are emissions and where do they come from? •Why are carbon dioxide emissions rising? •Do you think we could do anything to slow down global warming?
Knowledge: *Students will know…* •that there are different ways to slow down global warming •governments, scientists and individuals can combat global warming	**Skills:** *Students will be able to…* •define key vocabulary •explain why we can't stop global warming •explain ways of limiting global warming •describe ways individuals can help reduce emissions
Stage 2 - Assessment Evidence	
Performance tasks: •'Your turn' questions in the students' book p.79 •Workbook Unit 5.5 •Teacher's Handbook, p.102. Ideas for a Starter •Teacher's Handbook, p.103. Ideas for Plenaries •Teacher's Handbook, p.105. Further suggestions for class and homework, Activities 30 - 39 •Class presentation •Review of 'Your goals for this chapter' on page 69 of geog.2 students' book	**Other Evidence:** The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions
Stage 3 – Learning Plan	
Learning Activities: •Read a journalistic report from a scientific publication •Analyze a line graph and make calculations •Assess possible explanations •Rank options, giving reasons for chosen order •Devise and present a list of things that individuals could do to reduce carbon emissions	

6.1 Energy, fuels and electricity

Stage 1 - Desired Results

Established Goals:
•Understanding how electricity is generated

•Identifying renewable and non-renewable energy sources

Understandings: *Students will understand…* • that we depend on the fossil fuels for most of our energy •how electricity is made, and that different sources of energy can be used to make it •why some energy sources are considered renewable and some are not	**Essential Questions:** •What change takes place when you turn on a light or use a gas cooker? •What is a fuel? •What is a fossil fuel? •What is a nuclear fuel? •Why do we like electricity so much? What advantages does it have over oil or gas?
Knowledge: *Students will know…* •how electricity is produced and transported •about different energy sources •what a renewable energy source is •which energy sources are renewable •what the most common sources of energy are	**Skills:** *Students will be able to…* •define and explain key vocabulary •give examples of different forms of energy •explain how energy is converted from stored energy in fuels into electricity •explain how energy is converted from kinetic forms into electricity •give examples of and explain renewable and non-renewable energy sources

Stage 2 - Assessment Evidence

Performance tasks: •'Your turn' questions in the students' book p.83 •Workbook Unit 6.1 •Teacher's Handbook, p.108. Ideas for a Starter •Teacher's Handbook, p.109. Ideas for Plenaries •Teacher's Handbook, p.124. Further suggestions for class and homework, Activities 1 – 14	**Other Evidence:** The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

•Read about energy, fuels and electricity

•Study a flow chart showing how electricity is generated and distributed

•Analyze and describe a pie chart showing sources of energy

•Create a flow chart to show how electricity is generated by burning gas as a fuel

- Identify and classifying energy sources

6.2 A red card for fossil fuels?

Stage 1 - Desired Results

Established Goals:

- Understanding and being able to explain the problems caused by fossil fuels
- Understanding our dependence on oil

Understandings:	**Essential Questions:**
Students will understand… • that we depend on the fossil fuels for most of our energy • that we are trying to become less dependent on fossil fuels • the problems caused by fossil fuels	• Why do fossil fuels play a big part in our life? • Of all the ways the fossil fuels help us, which one is the most important to you? • Which fossil fuel does the world depend on most? • What is the main problem linked to fossil fuels?
Knowledge:	**Skills:**
Students will know… • fossil fuels cause a lot of problems • at the moment we are heavily reliant on oil • there are alternatives to fossil fuels	*Students will be able to…* • explain key vocabulary • give examples of our dependence on fossil fuels • explain why we are so dependent on oil • explain the problems caused by our consumption of fossil fuels

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
• 'Your turn' questions in the students' book p.85 • Workbook Unit 6.2 • Teacher's Handbook, p.110. Ideas for a Starter • Teacher's Handbook, p.111. Ideas for Plenaries • Teacher's Handbook, p.124. Further suggestions for class and homework, Activities 15 – 21	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity • Motivation • Engagement • Collaboration • Communication pattern among peers and with the teacher • Reactions • Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Read about and discuss the problems caused by fossil fuels
- Explain why we so dependent on fossil fuels
- Analyze a pie chart and describe the global energy sources
- Find links between fossil fuels and our everyday activities

- Classify problems as environmental or economic and assess their severity
- Write imaginary prose using knowledge of fossil fuel dependence

6.3 Energy sources in the UK

Stage 1 - Desired Results

Established Goals:

- Reviewing and expanding on knowledge of energy sources
- To think of more alternative power uses

Understandings:

Students will understand…

- that the UK and the world has many natural renewable sources of energy available to it
- the advantages and disadvantages of different energy sources

Essential Questions:

- What are the natural energy sources available in the UK? Which are renewable?
- What are the advantages and disadvantages of different sources of energy?
- Why are hydro-electricity sources limited?

Students will know…

- which energy sources are renewable
- that governments are planning to increase production of energy from renewable sources

Students will be able to…

- define and explain the key vocabulary
- list and describe energy sources, identifying renewable ones

Stage 2 - Assessment Evidence

Performance tasks:

- 'Your turn' questions in the students' book p.87
- Workbook Unit 6.3
- Teacher's Handbook, p.112. Ideas for a Starter
- Teacher's Handbook, p.113. Ideas for Plenaries
- Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 22 – 24

Other Evidence:

The following will also be observed, recorded, and considered for the final grade of students in each lesson activity

- Motivation
- Engagement
- Collaboration
- Communication pattern among peers and with the teacher
- Reactions
- Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Analyze a map of the British Isles and its natural energy sources
- Read about different renewable and non-renewable energy sources
- Analyze and sketch a pie chart
- Classify information according to different criteria
- Analyze a relief map to make a correlation between terrain and the production of hydroelectricity
- Assess the possible impact of different energy sources on the environment
- Suggest ways to use wave energy to power a car

6.4 More nuclear power?

Stage 1 - Desired Results

Established Goals:

- Understanding how nuclear fuel works
- Being able to describe the pros and cons of nuclear power
- Planning and explaining where a nuclear power station should be located
- Giving and responding to opinions

Understandings:	**Essential Questions:**
Students will understand… •how electricity is produced from nuclear fuels? •the pros and cons of nuclear power •the UK is likely to build some new nuclear power stations	•What is a nuclear fuel? •How does nuclear power work? •What are the pros and cons of nuclear fuel? •Where is the best place to build a nuclear power station?
Knowledge:	**Skills:**
Students will know… •what a nuclear fuel is •that there is great debate over the use of nuclear power •about the Chernobyl disaster	*Students will be able to…* •define and explain key vocabulary •explain in simple terms how nuclear power works •give advantages and disadvantages of nuclear power

Stage 2 - Assessment Evidence

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Performance tasks:	**Other Evidence:**
•'Your turn' questions in the students' book p.89 •Workbook Unit 6.4 •Teacher's Handbook, p.114. Ideas for a Starter •Teacher's Handbook, p.115. Ideas for Plenaries •Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 25 - 28 •Class debate	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Read how nuclear power is produced
- Read about the Chernobyl disaster
- Identify key advantages and disadvantages of nuclear power
- Examine an opinion and agree or disagree, giving reasons supported by evidence

6.5 A wind farm for Corfe Castle?

Stage 1 - Desired Results

Established Goals:

- Learning how waves shape the coast
- Understanding the processes of erosion, transport and deposition and their roles in shaping the coast

Understandings:	**Essential Questions:**
Students will understand that… •The benefits and drawbacks of wind farms •That a site for a wind farm must be carefully chosen	•What are the benefits of wind power? Are there any drawbacks? •Where is the best place to build a wind turbine? •Who would benefit and who would be negatively impacted by the construction of a wind farm?
Knowledge: *Students will know…* •What factors to consider when choosing a wind farm site	*Skills:* *Students will be able to…* •define the key vocabulary •give factors to consider when choosing a site for a wind farm •understand that different people will have different opinions about a wind farm proposal

Stage 2 - Assessment Evidence	
Performance tasks: •'Your turn' questions in the students' book p.91 •Workbook Unit 6.5 •Teacher's Handbook, p.116. Ideas for a Starter •Teacher's Handbook, p.117. Ideas for Plenaries •Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 29 - 33 •Group work to plan a construction site and make a persuasive presentation	**Other Evidence:** The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Examine facts about wind power
- Read and analyze an OS map of the land surrounding Corfe Castle
- Explain how a wind turbine would impact different groups of people and animals
- Plan a site to locate a wind turbine
- Draw a sketch map from an OS map and plan an access route

6.6 Are biofuels the answer?

Stage 1 - Desired Results

Established Goals:

- Understanding what biofuels are and the positive and negative impacts of growing crops for fuel

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Understandings: *Students will understand…* •how biofuels work •what carbon-neutral means •the pros and cons of biofuels •that biofuels are growing in use, but the current ones are causing problems	**Essential Questions:** •What is a biofuel? •Do you think ethanol is really a carbon-neutral fuel? •What does carbon-neutral mean? •What is the best or worst thing about biofuels? •Are biofuels sustainable?
Knowledge: *Students will know…* •what biofuels are •that there are ethical issues involved in producing biofuels	**Skills:** *Students will be able to…* •define and explain key vocabulary •describe the advantages of biofuels •describe the negative impacts of growing crops for fuel instead of food
Stage 2 - Assessment Evidence	
Performance tasks: •'Your turn' questions in the students' book p.93 •Workbook Unit 6.6 •Teacher's Handbook, p.118. Ideas for a Starter •Teacher's Handbook, p.119. Ideas for Plenaries •Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 34 – 37 •Class debate	**Other Evidence:** The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions
Stage 3 – Learning Plan	
Learning Activities: •Read a drawing about ethanol production and its impacts •Infer and explain whether ethanol is carbon neutral based on given evidence •Assess how the production of ethanol impacts different groups of people and the economy •Evaluate the benefits of other forms of biofuels	

6.7 Solar power: a winner?

Stage 1 - Desired Results
Established Goals:

- Understanding what solar power is, how it works and its uses.
- Understanding the advantages of solar power over other sources of energy

Understandings:	**Essential Questions:**
Students will understand… •how solar power works •that solar power is growing in use around the world, including in poorer countries •the benefits of solar power, particularly in developing countries	•What is solar power? • What is a PV cell? •What are the advantages of solar power? •Which countries are best suited to solar power? •How could solar power be harnessed more in everyday life?
Knowledge: *Students will know…* •the advantages of solar power •in a simple way how solar power works	**Skills:** *Students will be able to…* •explain key vocabulary •explain that the strength of sunshine varies around the world and say why •give advantages and disadvantages of solar power

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
•'Your turn' questions in the students' book p.95 •Workbook Unit 6.7 •Teacher's Handbook, p.120. Ideas for a Starter •Teacher's Handbook, p.121. Ideas for Plenaries •Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 38 - 41 •Group presentations of ideas for new solar powered device	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Examine a diagram of how a PV cell works
- Analyze a world map of solar radiation
- Compare maps to find correlations and answer questions
- Identify statements as true or false with the aid of photos
- Design and present ideas for solar powered devices

6.8 Going solar in Gosaba

Stage 1 - Desired Results

Established Goals:

- Apply knowledge learned about solar power to a case study in Gosaba

Understandings:	**Essential Questions:**
Students will understand… •that solar power is growing in use around the world, including in poorer countries •the impact of solar power on developing countries	•What are the problems with bringing power to a delta? •What is solar power? What kind of equipment does it use? •Which would you prefer, solar power or wind power? Why? •Could solar power be the answer for all the people who don't have electricity around the world?
Knowledge:	**Skills:**
Students will know… •why solar power is suitable for many developing countries •the negative effects of using wood and kerosene as a fuel source	*Students will be able to…* •define and explain key vocabulary •describe the difficulties in bringing power to a delta •describe the benefits solar power has brought to the people of Gosaba

Stage 2 - Assessment Evidence

Performance tasks:	**Other Evidence:**
•'Your turn' questions in the students' book p.97 •Workbook Unit 6.8 •Teacher's Handbook, p.121. Ideas for a Starter •Teacher's Handbook, p.123. Ideas for Plenaries •Teacher's Handbook, p.125. Further suggestions for class and homework, Activities 42 - 47 •Review of 'Your goals for this chapter' on page 81 of geog.2 students' book	The following will also be observed, recorded, and considered for the final grade of students in each lesson activity •Motivation •Engagement •Collaboration •Communication pattern among peers and with the teacher •Reactions •Respect to others and different opinions

Stage 3 – Learning Plan

Learning Activities:

- Read facts about the Sundarbans
- Identify an area on a map and describe its location
- Describe an area's physical characteristics and identify issues with developing infrastructure
- Analyze data in a table

- Display data in a suitable graphical form
- Write an informal letter