

**St. Peter's CE Primary (& Nursery) - Creative Topic Planning**

<b>TEACHER:</b> Mrs Nartey	<b>TA:</b> Nida Fletcher	<b>CLASS:</b> 4	<b>TOPIC:</b> Sustainability	<b>TERM:</b> Summer	<b>Duration:</b> 6 weeks
<b>Core value:</b>		<b>Book:</b>			

<b>KEY/FERTILE QUESTIONS FROM CURRICULUM OVERVIEW</b> <i>CURRICULUM OBJECTIVE</i> To describe and understand key aspects of human geography, including; economic activity and the distribution of natural resources including energy and water. To describe and understand key aspects of physical geography, including: climate zones, biomes and vegetation belts.  <i>FOCUS</i> On our use of non-renewable fossil fuels to produce energy and the potential problems this may cause. Renewable sources of energy are investigated.			<b>RESOURCES</b>	<b>USEFUL WEBSITES</b>
<b>Inputs - engaging and exciting the children</b>			How could you use P4C in this topic? What other speaking & listening opportunities are there?	How will you address the core value that you have identified?
What opportunities are there for <b>active</b> learning? (e.g. which of the 25 ways of teaching without Talking will you use?)	What will you do on your immersion days/theme weeks?	What will your role play area look like?		
Where will you go (trips/visits/visitors)	What lessons will you teach outside?	What writing opportunities are there?	<b>Outcomes - making the work meaningful and purposeful</b> What are the display /project/home learning opportunities? <ul style="list-style-type: none"> <li>Home learning will be linked to Topic. Children given a 4 weeks project.</li> </ul>	<b>Outcomes - For whom will you perform? What other celebration will you have? Parent engagement? (link to theme week)</b> <ul style="list-style-type: none"> <li>Welcome Wednesday to be linked to Topic.</li> <li>Parents/carers to</li> </ul>

				support children at home with project.
What will you make?	What opportunities are there for using technology in your teaching?	<b>What legacy will this learning leave?</b> <ul style="list-style-type: none"> <li>• Children to make considered decision about their lifestyle choices. They can make a difference through reducing, reusing and recycling</li> <li>• An understanding of British values - To understand the consequences of our actions.</li> </ul>		

LESSON	SUBJECT FOCUS	SKILLS *	OBJECTIVE / W.A.L.T	LESSON OUTLINE / ACTIVITIES (INCLUDING DIFFERENTIATION)	PLENARY INC. AFL QS
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1		<p><b>KEY VOCABULARY:</b></p> <p>Atmosphere, carbon dioxide, mesosphere, nitrogen, oxygen, ozone, stratosphere, thermosphere, exosphere, troposphere</p>	<p>To know that the Earth's atmosphere acts like a blanket, protecting the planet and enabling life to exist on Earth.</p> <p>* To know the different gases in the atmosphere.</p> <p>* To know about the different layers in the atmosphere.</p> <p>W To generate questions and answered through paired research.</p> <p><b>FOCUS</b> Earth's atmosphere</p>	<p>Introduction - Caring for the world we live in.</p> <p>Investigate the human impact on the environment and how it has increased over the last 200 years. Explore how we use energy, the sources used to produce energy and why our inappropriate use of Earth's resources is having a detrimental effect on the environment.</p> <p><b>Whole Class</b></p> <p>Ask children to hold their hand in front of their faces and breathe in deeply. Breathe outward towards their fingers. Describe the sensations they feel. Explain that what was blowing past their hands and fingers was air. Another name for air is <b>atmosphere</b>.</p> <p>Did you see, smell or taste anything? Explain that we can only see and smell the effects of the atmosphere moving around when dust, pollen, sand, smoke, pollution, leaves, washing and so on are blown around. Explain that the atmosphere (made of various gases) surrounds the Earth like a blanket. The atmosphere helps to protect the Earth and makes life on Earth possible. Without it, we would be burned by the intense heat of the Sun during the day or frozen by the very low temperature at night.</p> <p>What do we breathe in? Explain that the most abundant gases in our atmosphere are nitrogen (78%), and oxygen (21%). The remaining 1% is made up of argon, hydrogen, carbon dioxide and other gases. Explain that with each breath they take they are breathing in nitrogen oxygen and argon. Show video clip of Earth's atmosphere. Children to complete Activity 1, Explain to children that the atmosphere is divided into several layers. Troposphere - stratosphere - mesosphere - thermosphere - exosphere. Show a video clip. On the IWB children to match images onto the correct layer. Compete Activity 2</p> <p><b>Activity 1 - Paired work</b></p> <p>Represent different gases in the world's atmosphere using a bar chart. Research interesting facts about the following gases: Nitrogen, oxygen, carbon dioxide, ozone, water vapour. Use reference books to find out 2 facts and 2 questions. Share their facts about the different gases.</p> <p><b>Activity 2 -</b></p> <p>Pictorial/diagram representation of the different layers of atmosphere surrounding Earth.</p>	<p><b>Next Step:</b></p> <p>Where is the ozone layer located and what it does it do?</p> <p>The ozone layer is found in the lower stratosphere. The ozone layer absorbs the Sun's ultraviolet radiation and acts like a giant screen of sunscreen, preventing us from getting too much of the Sun's damaging ultraviolet rays.</p>
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2		<p><b>KEY VOCABULARY:</b> Acid rain, carbon dioxide, coal, decay, energy, fossil fuel, fuel, gas, greenhouse effect, non-renewable, oil, oxygen, renewable, source</p>	<p>To know what fossil fuels are and why they are 'non-renewable' sources of energy * To know and understand the impact of burning fossil fuels. * To know that greenhouse gases impact on the climate.</p> <p><b>FOCUS</b> Greenhouse effect and the impact of burning fossil fuel</p>	<p>Write the title 'Fossil fuels' on the IWB and ask the children to discuss in pairs, and record on mini WB what they would like to find out about fossil fuels. After a few minutes, bring the class together and record what the children would like to find out. Questions might include What is a fuel? What is fossil fuel? What are the names of some fossil fuels? How are fossil fuels formed? How do we use fossil fuels?</p> <p><b>Whole Class</b> Discuss with children why energy is so important to us and how fossil fuels make modern life possible. Show children a video clip and media resource 'How are fossil fuels formed?'</p> <p>Explain to the children how coal is formed, introducing the terms fuel, fossil fuel and non-renewable. Coal is fossil fuel. The energy in coal is from trees, giant plants and ferns that lived in swamps million of years ago. As these plants died, they decayed and formed layers at the bottom of the swamps. Water, mud, rocks and soil piled on top of the dead plants and, over the million of years, have pressed and squashed them, turning them into coal. Coal is a non-renewable source of energy, as it has taken so long to form. What is in the ground now is all there is. Oil is also a fossil fuel. The energy in oil is from tiny plants and animals that lived in the oceans million of years ago. As these plants and animals died, they were trapped under sand, mud and rocks, which pressed and squashed them, turning them into oil. Oil is a non-renewable source of energy, as we can't wait million of years for more oil to be made.</p> <p>Children to complete Activity 1. Watch a video clip about the greenhouse effect. Discuss with the children how a greenhouse works and how the Earth and its atmosphere act like a greenhouse.</p> <p><b>Activity 1</b> Answer a spidergram of questions about fossil fuels.</p> <p><b>Activity 2</b> Label a diagram of the effects of the greenhouse. Write a brief explanation of what is the greenhouse effect.</p>	
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3

KEY  
VOCABULARY:

Carbon cycle,  
carbon dioxide,  
decay, decompose,  
photosynthesis,  
wildfire

To know about what  
the carbon cycle is  
and understand how  
humans impact on the  
environment

\*To answer questions  
on the carbon cycle.

\* To identify the  
climate change and  
global warming.

W To form opinions  
about change and  
global warming

FOCUS:

Carbon cycle and the  
impact of human  
activities on the  
environment

Explain the carbon cycle to the children in simple terms. All living things are made of carbon. The carbon is recycled through various processes, which are described in the carbon cycle. For example, plants use carbon dioxide and sunlight to make their own food and grow. The carbon becomes part of the plant. The plants that die become buried and may turn into fossil fuels. When burned, these fossil fuels release the carbon back into the atmosphere as carbon dioxide.

Is there anything the children find interesting or unusual about the carbon cycle?

Paired work - Ask the children to complete interactive activity 'The carbon cycle'. Ask the children to take turns to describe the carbon cycle to their partner. They may use drawings to support their verbal explanations. Ask the children to comment on the strengths of each other's descriptions and to identify an area for improvement (Use 2 stars and a wish strategy).

Activity 1 - Independent

Match up the questions with their correct answers.

Activity 2 - Paired work / Independent

To discuss their thoughts about the human impact on climate and global warming.

Complete chart by writing notes to say what they know about the human impact on climate and global warming, what they think about it and what they need to find out.

What I know (facts)	What I think (opinion)	What I need to find out (questions)

4

KEY  
VOCABULARY:  
Global warming,  
greenhouse  
effect, ozone  
layer

To know some of the ways in which climate change may affect people, landscapes and the environment,  
\* To list the effects of global warming on animals.  
\* To identify animals that are affected by climatic change.  
W Present finding to class

FOCUS:  
Impact of global warming

The children will be looking at the effects of global warming, which are already being felt around the globe. Explain that in a few weeks time, they will look at the types of activity we can all undertake to slow down climate change.

Recap and review global warming and the greenhouse effect

Write on the IWB: Global warming - why should anyone care?  
Ask the children to talk to their partners about their responses to this question. After 5 minutes, ask the children to give their opinions and points of view. (For example: If there is too much global warming, plants, animals and people can't live). Record the children's comments on a flip chart.

Activity 1 - Group work

Give each group a set of photographs from 'Global warming' media. Ask the children to look carefully at each photograph and discuss what it shows about the impact of global warming. They could use the following chart to support their discussion of each photograph.

What I see	What I think	What I wonder

Activity - Independent

Children to complete the 'Impact of global warming' matrix using notes, illustrations or diagrams.

5

**KEY VOCABULARY:**  
American pika, biomes, global warming, green sea turtle, habitat, ozone layer polar bear, temperature, migration, hibernation

To know some of the ways in which climate change may affect people, landscapes and the environment,  
\* To list the effects of global warming on animals.  
\* To identify animals that are affected by climatic change.  
W Present finding to class

**FOCUS:**  
Impact of global warming on animals and their habitats.

**Introduction**

Make sure that the children have completed the 'Impact of global warming' matrix from the previous lesson. Ask some of the children to explain their notes and illustrations for the different aspects of global warming. Invite other children to contribute ideas, suggestions and opinions.

**Whole Class -** Focus is the effect of global warming on animals and their habitats. Explain to the children that most plants and animals live in areas called biomes, with very specific climate conditions (such as temperature and rainfall patterns) that enable them to thrive. Any change in the climate of an area can affect the plants and animals living there.

Some species are already responding t a warmer climate by moving to cooler locations. Climate change also alters the life cycles of plants and animals. For example, as temperatures get warmer , many plants are starting to grow and bloom early in the spring. Some animals are waking from hibernation sooner or migrating at different times

**Activity - Group work**

Children to discuss in their groups which animal they would like to the focus of their investigation (Polar bear , American pika , green sea turtles, birds) Ask the children to think about and list what questions about their animal they would like to investigate for example: Where does this animal live? What sort of climate does it like? What does this animal eat?

Ask the children to complete the first two columns of a KWL grid like the one shown here, listing their questions in the second column. Give the children time to research the impact of global warming. They can use a variety of sources of information. Children should decide how they will present their findings to the class. Encourage them to think carefully about the best format for their presentation, for example, a storyboard, a PowerPoint presentation, drama,

<b>K: What we think we know about</b>	<b>W: What we want to find out about</b>	<b>L: What we have learned about</b>

[www.nwf.org](http://www.nwf.org)  
[wwf.panda.org](http://wwf.panda.org)

6		<p>KEY VOCABULARY: Biomass energy, clean energy, energy, geothermal, green energy, hydroelectricity (HEP), non- renewable energy, solar power, sustainable, wind power</p>	<p>To know about and be able to describe some of the clean air technologies and renewable energy sources. * Identify the different type of renewable energy. * Discuss the advantages and disadvantages of renewable energy. W Express an opinion on renewable energy</p> <p>FOCUS: Consider green, clean and sustainable sources of energy</p>	<p>Introduction Write the word energy on the IWB. Ask the children to share what energy mean to them. Record answers on board. Discuss the difference between non-renewable energy sources (will run out and cannot be replaced) and renewable energy sources (can be replaced and will not run out). Remind the children that the majority of the energy used today comes from fossil fuels. Explain to the children that there are many sources of energy that are clean, renewable and considered to be sustainable that can replace fossil fuels. Renewable energy involves natural phenomena such as wind, water, sunlight and geothermal heat. Show the children six photographs of renewable energy sources. Show a videoclip of green energy. <a href="http://www.bbc.co.uk/education/clips/zccb4wx">http://www.bbc.co.uk/education/clips/zccb4wx</a></p> <p>Group work Work in groups to write a caption for each photograph. Show the children the images one by one of the IWB and ask the children to concentrate on noting down key points. They will have time to edit and refine their captions at the end.</p> <p>As a group they should then discuss the pros and cons of renewable and non-renewable energy sources and write these down. When they have finished ask the children to record their group's responses ton their own individual sheets.</p>	<p>Discuss the captions and paragraphs that the groups have produced. Decide, possibly by voting, on a class set of captions for the photographs.</p> <p>Next Step: Why don't we use renewable energy all the time?</p>
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7		<p><b>KEY VOCABULARY:</b> Compost, global warming, greenhouse gas, recycle reduce, reuse</p>	<p>To understand how we can make a difference</p> <ul style="list-style-type: none"> <li>* Identify activities that contribute to global warming.</li> <li>* Consider ways in which you can reduce our impact on the environment.</li> </ul> <p>W Design a poster to encourage others to</p> <p><b>FOCUS:</b> Making a difference through reducing, reusing and recycling</p>	<p><b>Introduction</b> Explain to the children that the effects of global warming are already being felt around the world. Ask the children if they realise that they are all contributing to global warming in some ways. Many greenhouse gases come from things we do everyday. Do they know how? Explain that many simple activities and appliances use electricity. Electricity comes from power stations. Power stations use coal to generate electricity. Burning coal and oil produces greenhouse gases, which trap energy in the atmosphere and make the Earth warmer, so contributing to global warming. Discuss activities that use electricity, such as watching TV, using a computer, playing on a games console, using a light, cooking a meal, and so on</p> <p>Activity 1 - Independent / Paired Ask the children to think about the activities that they did yesterday. Ask them to make a list of all these activities. Then they are to compare their activities with a partner.</p> <p>Whole Class Explain to the children that using electricity or driving a car is not wrong. We just have to be smart about it. There are many little things we can do to make a difference and slow down global warming. Show video clip suggesting ways in which we can help save the environment.</p> <p>Activity 2 - Independent / Paired Children to discuss in pairs how the activities on the 'Together we can make a difference' help to reduce global warming. Go back to their list of activities yesterday and complete alternative activities if unfinished.</p> <p>Whole Class - Show children a bag of clean waste. Ask the children to help you sort the waste into 4 categories: reuse, recycle, reduce and compost.</p> <p>Activity 3 - Independent Make a poster to encourage others to take simple steps to reduce greenhouse gases and pollution.</p>	<p>What did you do that contributed to global warming?</p> <p>Can they think of any alternative activities that would have less of an impact on the environment?</p>
8				<p>Assessment - renewable and sustainable energy</p>	

END OF BLOCK EVALUATION:

TOPIC