

<b>SUBJECT:</b> Science
<b>GRADE:</b> 6
<b>DATE:</b> September 2018
<b>DURATION:</b> 60 minutes
<b>TOPIC:</b> Unit: The environment Sub-topic: Climate change causes and effects
<b>ATTAINMENT TARGET:</b> <ul style="list-style-type: none"> <li>Recognise the variety of living things, their interdependence and their inter-relationship with the environment</li> <li>Gain an understanding of and apply aspects of the engineering design process.</li> <li>Demonstrate positive interpersonal skills in order to foster good working relationships</li> </ul>
<b>BENCHMARKS:</b> <ul style="list-style-type: none"> <li>Be aware of some environmental problems and how to mitigate against them</li> <li>Plan and carry out fair tests to identify aspects of a model or prototype that can be improved.</li> <li>Display curiosity, objectivity and perseverance in their approach to activities</li> </ul>
<b>SPECIFIC OBJECTIVES:</b> Students will: <ul style="list-style-type: none"> <li>Formulate a simple working definition of climate change</li> <li>Use evidence from everyday local/regional/international situations to explain the effects of climate change on humans</li> <li>Show the relationship between causes and effects of climate change</li> <li>Be aware of their responsibility to carry out good environmental practices</li> <li>Value individual effort and teamwork</li> </ul>
<b>KEY SKILLS:</b> Gather data, communicate, collaborate, create, manipulate, think critically – analyse, infer, draw conclusions, define operationally
<b>KEY VOCABULARY:</b> climate change, global warming, causes, effects, factors, reduce, reuse and recycle
<b>MATERIALS/RESOURCES:</b> Videos, pictures, textbooks, fudge sticks, plastic bags, tape, scissors, cardboard, computer, Internet, markers, cartridge paper,
<b>CONTENT OUTLINE:</b> Human activities can affect the environment positively and negatively. One example of a negative impact is Climate Change, which refers to a change in Earth’s overall average weather. An increase in the average temperature of the Earth’s atmosphere (global warming) has led to harsher weather conditions such as increased droughts, flooding, hurricanes and distortion of natural habitats. Through principles of conservation, recycling and reuse some of these effects can be reduced.
<b>PRIOR LEARNING:</b> Check that students can: <ul style="list-style-type: none"> <li>Identify human activities that affect the environment</li> <li>Relate increase in average atmospheric temperatures to global warming</li> </ul>

**LEARNING OUTCOME:** Students who demonstrate understanding can:

- Cite evidence of climate change
- Show the relationship between human activities and climate change
- Show good stewardship in their efforts to preserve the environment

**ASSESSMENT CRITERIA:**

- Workable definition of climate change
- Creative presentations/ reports with accurate information about the causes and effects of climate change
- Green House models how global warming is caused
- Awareness campaign contains correct concepts, is creative and original
- Environmental project focuses on issues in their immediate environs and details the expected benefits to the environment

### PROCEDURES/ACTIVITIES

**Engage** - *How can I get students interested in this?* Use of an interesting picture. (8 min)

- Students will view a video on global warming or on the effects/ evidences of climate change (<https://youtu.be/0F3QPY83NZQ> or <https://www.youtube.com/watch?v=ld2maUitnTg> ).

OR Students will discuss what the images below represent (*with guidance from teacher*).



- *Teacher will form mixed ability groups with the students and give instructions to carry out the next activity.*

**Explore** - *What tasks/questions can I offer to help students puzzle through this?* Use of a simple investigation. (10 min)

- In groups, students will use the video OR their scientific research skills (Internet) to determine the causes and effects of climate change. They will be guided by the following questions:
  1. What is climate change?
  2. Identify some effects of climate change on the environment.
  3. What are the factors (human activities) that are thought to cause climate change?

Students will identify the effects of climate change from pictures.

*Teacher observes groups and offer guidance where needed.*

**Explain** - *How can I help students make sense of their observations?* Class presentation and discussions. (15 min)

- Students will present the results of their research on the causes and effects of climate change using chart/ poster/ cartoon/ song/ drama or other forms. The definitions for Climate Change will also be presented
- Students and teacher will assess the presentation given.  
*Teacher notes information presented by students on the board and offers clarifications of any misconceptions held and provides additional information to students.*

**Elaborate** - *How can my students apply their new knowledge to other situations?* Application of what they learned. (17 min)

- Students will investigate how climate change is influenced by global warming by designing a model of a Greenhouse to explain Global Warming using a teacher-prepared rubric as a guide.
- OR\_Students will create an illustration of how Global Warming is caused.  
OR Students will suggest how humans can help to reduce the effects of Climate Change through an Awareness Campaign.  
*Teacher offers guidance to the groups and directs them to follow the rubric given.*

**Evaluate** - *How can I help my students self-evaluate and reflect on the teaching and learning, and how can I evaluate the students learning of concepts and skills.* Assessment (10 min)

1. Students will present their Awareness Campaigns and Greenhouse designs to the rest of the class for peer-evaluation using a teacher-prepared rubric.
2. Students will complete an Exit Card to show what they did or did not understand.
3. A checklist will be used over several weeks to assess students' skills/commitment in supervising or taking care of garden or separation of solid waste initiatives.

**EXTENDED LEARNING:** As a class, students will design an environmental project to care for their immediate school environment such as the reuse/ recycling of plastics; separation of solid waste on school compound; planting and/maintaining a class /school garden.

**LINKS TO OTHER SUBJECTS:**

- Social Studies, Resource & Technology

**POST-LESSON REFLECTION:**

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