



Corals Reefs In Hot Water

A Global Climate Change Lesson

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LESSON TITLE: Corals Reefs in Hot Water

RECOMMENDED GRADES: Middle School

TIME NEEDED: 1 - 1.5 hr per session

OBJECTIVES:

The students will be able to:

- explain the carbon cycle - the greenhouse effect
- list down carbon sources and carbon sinks
- demonstrate how human activities affect the carbon cycle
- connect the imbalance in the carbon cycle to global climate change
- explain how global climate change affects the ocean ecosystem (coral bleaching)
- find and present possible solutions/actions to mitigate and reduce the effects of climate change on coral reefs (extension activity)

MATERIALS:

- papers - pencils - coloured pencils - paint - felt tips - laptop - internet connection - electronic device - white board - whiteboard markers - TV

PREPARATION: All infographics classroom resources (hands-out) should be ready.

DIRECTIONS: This Global Climate Change Lesson is actually in 3 sessions to explicitly explore deeper the full spectrum of scientific and hands-on activities to have a meaningful understanding of the topic.

Session 1: The Greenhouse Effect & Carbon Cycle

- Classroom brainstorming about the carbon cycle & the greenhouse effect
- Video viewing + taking notes - What is the Greenhouse Effect?
- Group session: Form small groups and each group will create an infographic model of the greenhouse effect based on notes taken from viewing the video.
- Caroussel visual gallery of all infographics; each group will take note of what could be missing in each infographic and give feedback.
- Explore The Greenhouse Effect Models
- Research of carbon sources and carbon sinks on the internet - divide the classroom into 2 and create 2 posters: Carbon Sources & Carbon Sinks

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Session 2: Human Activities & Climate Change

- Video viewing: [Climate 101 - National Geographic](#)
- Explore more about the [GHE](#)
- Students will make a list of all possible human activities that produce carbon dioxide, then sharing human activities and represent it on a bar chart or pie chart.
- Connecting human activities to climate change: put them in small groups with a key question: *How are human activities contributing to climate change?* They will have the choice to present their finding (poster, drawings, digital presentation...). They will have 30 mins to prepare so that they can present in Session 3.

Session 3: Climate Change & Coral Reefs

- Presentation of *How are human activities contributing to climate change?* (30 mins)
- Discovery Video: [Collapse of The Oceans](#) + taking notes of what they see in the video
- Common sharing
- Exploring infographics - put the students in 3 groups to analyse infographics about climate change & coral reefs: [Coral Bleaching](#), [Climate Crisis & Ocean Warming](#) and [Threats to Coral Reefs](#)
- Each group will share with the classroom what they have discovered in the infographic.
- After sharing, each student will create a 'Cause & Effect Coral Bleaching Model' to show how climate change is affecting the coral reefs ecosystem.
- Discovery video: [Coral Restoration](#)

PRIOR SKILLS & UNDERSTANDING NEEDED:

Since the lesson is already in 3 sessions all the necessary skills and understanding are being included for the students to complete the lesson.

MODIFICATIONS:

I believe that the lesson is an inclusive one as it is taught at different levels of approach: individually, groupwise, classwise, creative input. Thus each student can fully fit in each activity and work collaboratively.

EXTENSIONS:

One extension activity that can be done is to design and create a school poster or presentation: Helping to reduce our carbon footprints

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VOCABULARY

A glossary classroom poster or individual list can be prepared with new words from the lesson. The educator using the lesson will have to analyse/check, particularly new words from infographics and videos which she/he feels are new for the students.

ASSESSMENTS

As you will see, at the end of each session there is always an informal approach to assess the students' understanding of the topic at the hand: poster, infographic or presentation.

RESOURCES

All resources needed are included as links in the lesson. The resources can be viewed and used for educational purposes.

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EDUCATOR