



SeaKeepers K-12 Curriculum

Protecting Coral Reefs



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Grade Level: 8-11

Estimated Time: 75 mins

Lesson Overview:

Our oceans face many threats today, including climate change and pollution. In order to protect and preserve our oceans, we need to understand these threats and how the oceans respond to them. The International SeaKeepers Society supports marine research and education by connecting scientists with yacht owners, creating research opportunities for scientists to better understand our oceans - and to create plans to protect them.

Our oceans house a myriad of marine organisms, providing all of them with a habitat to thrive in. Approximately 25% of these organisms rely on coral reefs in some form - usually for protection or food. Coral reefs, despite looking like rocks, are living structures created by colonies of coral polyps held together by limestone skeletons. Coral reef ecosystems support the food supplies and livelihoods of half a billion people in the world. However, the rise in human activities and climate change have threatened the sustainability of many marine organisms. In order to protect and preserve them, we need to understand the values and threats to coral reefs.

In this lesson, students will learn about the **value of coral reefs** and the threats that human activities and climate change has presented to them.

Lesson Breakdown:

- Presentation about topic ([PDF here](#)) (20 minutes)
- Assessment: Discussion (5-10 minutes)
- Activity: Infographic Development & Presentation (40 minutes)
- Self Reflection Questions (5 minutes)

*Email Maggie@Seakeeper.org for powerpoint file

Educational Standards Addressed:

- Florida: Standard 5 SS.912.G.5 : Understand how human actions can impact the environment.
- Florida: Standard 3 SS.912.G.3 : Understand the relationships between the Earth's ecosystems and the populations that dwell within them.

Anticipated learning objectives:

- Understand the value and importance of coral reefs
- Understand the threats presented to coral reefs, especially due to human activities
- Understand what every individual can do to help protect coral reefs

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Preparation & Materials

A powerpoint presentation is included for the lesson, but feel free to use other materials you have to explain these concepts. You can [download the PDF of the presentation here](#), or email Maggie@seakeepers.org for the powerpoint file.

During the presentation:

- At slide 7 of the presentation, watch the video titled: “What Would Happen If All The Coral Reefs Died Off?” A direct link to this video is accessible [using this link](#).

For the activity, students will need:

- A blank A5 sheet of paper
- Colorful Markers/Pens
- Phones/Laptops to conduct further research

For reflections after the activity:

- Student Reflection Questions

Activity instructions for teachers:

1. In preparation for this activity, students will need an A5 sheet of paper, colorful markers and pens.
2. Divide the students into pairs and allow them to use their phones/laptops to conduct the research process.
3. Allow the students to conduct research for about 10-15 minutes about coral reefs.
4. Have students use the researched data and the markers/pens to create a creative, comprehensive and colorful infographic. The students can choose to create an infographic that can be used to educate others about coral reefs, hence including information such as what are coral reefs, where they can be found and some fun facts about the marine organisms etc. They can also choose to create a infographic campaign that serves to protect coral reefs, hence including information such as reasons why should we protect coral reefs and how we can protect and restore them. (infographic examples are provided at the end of the presentation).
5. Infographics should contain 3 main components: An issue, a call to action, and at least one source where they found their information.
6. Given the students about 25-30 minutes to complete their infographic. Once completed, each group can present their infographics to the class and learn more about coral reefs and marine ecosystems from each other's groups.

If you'd like to provide feedback on this lesson plan, click [here](#)! We'll use your comments to improve existing and future SeaKeepers lessons.

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Student Reflection Questions

Thank you for your interest and enthusiasm throughout this lesson! We hope that this presentation has allowed you to consider how vital coral reefs are to the environment, our livelihoods and the ecosystem. To round off our learnings for today, please complete these student reflection questions.

1. What is coral bleaching? List two potential causes of coral bleaching. (2 pt)
2. Give 2 outcomes of what would happen if there no longer were coral reef ecosystems. (2 pts)
3. How do coral reefs provide for the marine creatures living around them? (2 pts)
4. How can we, as a society, prevent further harm to coral reefs? (2 pts)

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Student Reflection Questions - KEY

1. What is coral bleaching? List two potential cause of coral bleaching. (2 pts)

Coral beaching is the process in which corals turn due to the loss of the coral's symbiotic algae and occurs when the corals die. Potential causes of coral bleaching:

- Increases in seawater temperature
 - Changes in seawater chemistry due to pollution or ocean acidification
 - Use of sun-blocking chemicals in the ocean
 - Sedimentation
2. Give 2 outcomes of what would happen if there were no longer coral reef ecosystems. (2 pts)
 - Biodiversity would suffer due to loss of essential food, habitats and spawning grounds for fish and other marine organisms
 - Coastal fishing industries would be greatly affected
 - Coastlines would be affected due to coastal erosion
 3. How do coral reefs provide for the marine creatures living around them? (2 pts)
 - Provides habitats and shelters for fishes and other organisms
 - Marine organisms get food from there
 - The algae of the corals produce oxygen
 4. How can we, as a society, prevent further harm to coral reefs? (2 pts)
 - Prevent pollution through recycling and proper disposal of trash
 - Minimizing chemicals such as fertilizer usage
 - Practice responsible diving when swimming near coral reefs
 - Reduce rate of global warming through acts such as environmentally friendly transportation, saving energy
 - Conserve water. Less water, less surface runoff and wastewater being deposited back into ocean
 - Choose sustainable seafood