

HOW DOES POLLUTION IMPACT OUR ENVIRONMENT? SARAH LUCAS, GEORGETOWN K-8 SCHOOL

Unit Overview

During this one to two week unit, students explore the effects of pollution on our environment and conduct research using a variety of print and electronic sources. In addition to learning about pollution, students address English Language Arts standards by taking notes on print and digital sources, collaborating with peers, and writing an essay about recyclable and non-recyclable items. At the end of the unit, students share their knowledge through a presentation in the format of their choice, such as a PowerPoint, video, diorama, poster or play.

Standards Addressed

1. **ELA.3.RI.4:** Use text features and search tools (e.g., key word, side bars, hyperlinks) to locate information relevant to a given topic effectively.
2. **ELA.3.W.2:** Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
 - a. Introduce a topic and group related information together, include illustrations when useful to aiding comprehension.
 - b. Develop the topic with facts, definitions, and details.
 - c. Use linking words and phrases (e.g. also, another, and, more, but) to connect within categories of information.
 - d. Provide a concluding statement or section.
3. **ELA.3.W.7:** Conduct short research projects that build knowledge about a topic.
4. **ELA.3.W.8:** Recall information from experience or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
5. **ELA.3.SL.1:** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
 - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
6. **ELA.3.SL.4:** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant descriptive details, speaking clearly and at an understandable pace.

7. **S.3.L.2:** Students will recognize the effects of pollution and humans on the environment.
 - a. Explain the effects of pollution (such as littering) to the habitats of plants and animals.
 - b. Identify ways to protect the environment.
 - i. Conservation of resources
 - ii. Recycling of materials

Essential Questions:

1. How does pollution impact animals and their habitats?
2. How can we help animals and their habitats?

Day One¹

Standards Addressed: 5, 7

1. To introduce the topic of pollution, show students a video about the Great Pacific Garbage Patch: <https://www.youtube.com/watch?v=1qT-rOXB6NI>.
2. Using the **Pollution PowerPoint**, have students pollute their own “oceans.” Start by giving each group a plastic bin filled with water. Instruct them to add a plastic boat and animals to the water. Then, have students pollute their “oceans” with the following items:
 - Fishing Line (dental floss)
 - Fish Hooks (paper clips)
 - Newspaper
 - Paper Bags
 - Fishing Net (mesh netting)
 - Soapy Water
 - Food Scraps (plastic food)
 - Aluminum Cans
 - Pet Waste (chocolate sprinkles)
 - Factory Waste (green food coloring)
 - Six Pack Rings
 - Plastic Bottles
 - Styrofoam
 - Glass Bottle
 - Oil (soy sauce)
 - Plastic Bag

A TIP FROM THE TEACHER

As students pollute their oceans, be sure they add each pollutant at the same time as their classmates. I usually start by giving students a plastic bag with all of the pollutants in it. Then, I have them add only the pollutant they see on the PowerPoint slide. For messier items, such as the factory waste (red food coloring) and oil (soy sauce), add the pollutants yourself into each group’s ocean.

¹ This activity is adapted from Sun, Sand and Sea Turtles by Alicia B. Marin.

As students add each item to their plastic container, discuss how these items might impact the ocean and the animals that live there. When students add recyclable items, such as aluminum cans, newspaper, and food scraps, discuss with them how else they could dispose of these items. Additionally, share the amount of time each item typically stays in the ocean and the harm this causes.

Day Two and Three

Standards Addressed: 1, 3, 4, 5, 7

1. Have students select their top three choices for the questions they would like to research. They can choose from the following questions:
 - What types of trash can we find in the ocean?
 - What happens when oil spills into the ocean?
 - How can we reduce the amount of trash in the ocean?
 - How can we prevent ocean pollution?
 - How else do humans impact the ocean aside from trash and oil spills?
 - What is conservation and how can we partake in conservation efforts?
2. Divide students into groups of three or four based on the research question they are most interested in. Have each group elect a leader. This leader will be responsible for keeping track of technology and supplies, as well as keeping the project on track.
3. Provide students with the **Ocean Pollution Culminating Task Rubric**. Discuss with students the expectations for their research and their final product.
4. Have students work in groups to begin researching their question. Students can use the internet, encyclopedias, nonfiction texts and other books about pollution, such as *Just a Dream* by Chris Van Allsburg and *The Paperbag Prince* by Colin Thompson.
5. Instruct students to take notes in their journals based on the information they find. To help guide their research, provide students with note-taking and research goals each day based on their progress. For example, on the first day, instruct students to take notes on any facts and information they find. On the second day, have students narrow down their research by identifying the sources that best answer their research question. Have them take additional notes on those sources. On the third day, have students find and define five vocabulary words related to their research topic.

Day Four and Five

Standards Addressed: 1, 2, 3, 4, 6, 7

1. Independently, have students research the pollutants they used in Lesson One and determine which items are recyclable. Additionally, students should record which pollutants are found most often. As they research, students should take notes on the information they find.
2. Based on their research, have students write a five-paragraph essay in class discussing their research about recyclable and non-recyclable items. Use this activity for students to practice writing a well-organized essay with an introductory and concluding paragraph and relevant details and facts from their research. Conference with students or have students peer-conference to improve their writing.
3. Conclude with a discussion on how students can start recycling efforts in their own homes.

Day Six, Seven and Eight (*allow more time if needed*)

Standards Addressed: 1, 3, 4, 5, 6, 7

1. Students use the research they collected throughout the unit to create a final product of their choice, such as a video, PowerPoint, diorama, poster or play. Reinforce to students that their final product must meet the expectations in the **Ocean Pollution Culminating Task Rubric**.
2. Groups present their final product to their classmates.
3. As time permits, allow students to write letters to any groups they found in their research and wish to contact to improve pollutant occurrences.