

Plastic Soup: A PSA for the Ocean

Author	Liz Gingrich
Grade Level	8 th
Duration	3-5 class periods

National Standards

GEOGRAPHY
Element 5:
Environment and Society
 14. How human actions modify the physical environment
 18. How to apply geography to interpret the present and plan for the future

AZ Standards

ELA
Reading
Key Ideas and Details
 8.RI.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
Writing
Production and Distribution of Writing
 8.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Science
Physical Science
 8.E1U3.8 Construct and support an argument about how human consumption of limited resources impacts the biosphere.

Arizona Social Science Standards

GEOGRAPHY
The use of geographic representations and tools helps individuals understand their world.
 8.G1.1 Use geographic tools and representations to analyze historical and modern political and economic issues and events.
Human-environment interactions are essential aspects of human life in all societies.
 8.G2.1 Examine impact of and responses to environmental issues such as air, water, and land pollution, deforestation, urban sprawl, and changes to climate.
Global Interconnections and spatial patterns are a necessary part of geographic reasoning.
 8G4.1 Take an active stance on a geographic issue reflecting its scale (local, regional, state, national, or global)

SIOP Elements

Preparation

Adapting content
Linking to background
 Linking to past learning
 Strategies used

Scaffolding

Modeling
Guided practice
 Independent practice
Comprehensible input

Grouping Option

Whole class
Small groups
 Partners
 Independent

Integrating Processes

Reading
Writing
Speaking
Listening

Application

Hands on
 Meaningful
 Linked to objectives
Promotes engagement

Assessment

Individual
Group
Written
Oral

Arizona English Language Proficiency Standards

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Stage IV

Basic

Listening and Speaking

Standard 1: The student will listen actively to the ideas of others in order to acquire new knowledge:

B-8: responding to questions and statements in an academic discussion by using key vocabulary in complete sentences

Reading

Standard 4: The student will analyze text for expression, enjoyment, and response to other related content areas. The student will demonstrate knowledge of reading comprehension by:

B-8: summarizing the main idea and supporting details from text.

B-13: identifying the cause and effect relationship between two related events in a literary selection.

B-14: drawing conclusions from information implied or inferred in a literary selection.

Writing

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres.

B-6: writing a variety of functional text (e.g., *instructions, directions*) that addresses the audience, stated purpose and context.

Overview

Is there a pollution problem in the ocean ecosystems? By researching ocean pollution and how it effects the world's ecosystems as a whole, students will understand the depth of the problem and can generate solutions.

Purpose

In this lesson students will create a thirty second to one minute Public Service Announcement (PSA) that utilizes knowledge obtained from reading scientific articles, watching videos, and investigating internet resources. This lesson includes strategies for teaching diverse learners.

Key Vocabulary

- **ocean:** a very large area of salt water
- **ecosystem:** animals/plants living in their natural environment
- **environment:** the surroundings in which a person, animal, or plant lives
- **action:** process of doing something to achieve a goal
- **interpret:** explain the meaning of
- **solution:** a means of solving a problem
- **advocate:** publicly recommend or support

Materials

- Large bag of plastics (bottles, caps, straws, packaging, bags, broken household items) collected by teacher/students
- Access to internet
- Dictionaries
- Ocean photos (non-polluted and polluted)
- Access to video (phones, laptops, tablets)
- "New plastic-eating bacteria has potential to ease world's trash glut" -- Newsela article
- Atlas
- World Map
- PSA Assignment and Grading Rubric
- PSA Props (student gathered printed, found, built, sewed, borrowed materials)
- Science/Social Studies Notebook
- "Away On the Bay" poem
- Station Directions/Labels
- Vocabulary Cards and Test
- Self Grading Sheet/Reflection

Objectives

The student will be able to:

- Describe the interactions between human populations and the environment.
- Formulate a logic argument.

Procedures

Prerequisite Knowledge: Students have been introduced to the concepts of what is an ocean and are familiar with its ecosystems.

SESSION ONE

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Engage:

1. Scatter plastic pieces all over the classroom desks and chairs before the students enter the room
2. Write on the board “ Quick Write in Your Science/Social Studies Notebook: What do you notice? How does it make you feel? What should be done?”
3. Give the students adequate time to complete the quick write. **(Integrated Processes: Writing)**
4. Use “Stand Up, Hand Up, Pair Up” to have the students discuss their responses with at least five other students. Have them write down any new ideas that they discuss. **(Integrated Processes: Speaking, Listening)**
5. Now write on the board “Notice,” “Feel,” and “Action” as headings for three columns.
6. Collect student responses to fill in the columns based on the previous activity. Have students add ideas to their notebooks. **(Grouping: Whole)**

Explore:

1. Set up 6 stations with the following items and directions. Have the students rotate for the rest of the class period and complete all 6 stations. **(Grouping Option: Small group, Application: Hands on)**
 - At least one atlas and enough blank World Maps for students to label in the world’s oceans. Watch <http://oceanservice.noaa.gov/education/kits/currents/05currents3.html> on a laptop or other device. Then draw and label the 5 gyres from what they have learned, and tape their work into their notebook.
 - A set of polluted ocean photos for students to write at least 2 observations for each in their notebooks.
 - A pan of plastic waste for students to observe and select at least 4 plastic items they use daily. Write in their notebooks ideas of how this plastic can be properly recycled/disposed
 - A displayed set of Vocabulary Cards for students to define the words and draw an image (to represent the definition) in their notebooks.
 - A set of clean or non-polluted ocean photos for students to write at least 2 observations for each in their notebooks.
 - Enough copies of New plastic-eating bacteria has potential to ease world's trash glut” -- Newsela article for each student to read the article, highlight 10 important sentences, and as a group (or individually)

write a summary about the article in their notebooks.

Note: Station 6 will take a longer period of time than the other 5 stations. It is suggested that the highlighting and summary become homework if the next group is ready to use the station.

SESSION TWO

Explain:

1. Begin this session by reviewing the vocabulary for this lesson. Place the vocabulary words on the word wall. **(Scaffolding: Comprehensible Input)**
2. As a whole group, read the poem: “AWAY On the Bay.” Discuss what visuals/emotions came from the story as a whole class.
3. Watch the following video (50 min): <http://www.plasticizedthemovie.com/> or use a shorter video such as <https://www.youtube.com/watch?v=7i8pjniZcF8> (5 min) If you use the shorter video, you will go on to number 6 below in the same day.
4. Have students take at least 10 good notes (facts, observations, questions, connections, or drawn images) while watching the video. **(Integrating Processes: Writing, Listening)**

SESSION THREE

Elaborate

1. Arrange seats/desks in a circle or several concentric circles. Have students share their video notes (not already stated) adding to the conversation and depth of knowledge. Students will record the new ideas in their notebook. **(Integrating Processes: Writing, Listening)**

Elaborate and Evaluate:

2. Distribute the PSA Assignment and Grading Rubric. Discuss the assignment and how it will be graded. Have a student repeat the directions. **(Scaffolding: Comprehensible Input)**
3. Group students (2 to 4 people in a group). **(Grouping Option: Small Group)** If all students are expected to complete all parts of the assignment then make sure that is clear. If the groups will have roles for each member, then allow time for groups to decide who will be the scriptwriter, the artist (storyboard), the director (camera directions, lighting, music) and narrator for the PSA.

SESSION FOUR and FIVE

1. Give Vocabulary Test. **(Assessment: Independent)**

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2. Have students prepare and practice (or record) their presentations. (**Grouping Option: Small Group, Application: Promotes engagement**)
3. When groups are ready have them give their presentations (live or recorded).
4. Have students evaluate themselves using Self Grading Sheet/Reflection. (**Assessment: Oral, Written, Individual, Group**)

Assessment

To be considered mastery, students will score:

- 80% or higher on the Vocabulary Quiz.
- 32 points or higher on the PSA Rubric.
- Write a complete Reflection and give themselves a grade of C or higher.

Extensions

Students may take action and advocate for cleaning up the ocean by:

- Writing an argument proposing alternative materials for items made with plastic and sending it to a company that manufactures the plastic items.
- Promoting recycling in a different classroom.
- Creating a bumper sticker for the family car.
- Forming a prototype of a solution made with recycled materials and posting it on social media.
- Writing a letter to Congressman.
- Interviewing an employee of a company that has possible solutions for cleaning up oceans.
- Creating a big book for younger students.
- Composing a song/chant/jingle, or slogan and sharing it through the school's news channel or newspaper.

Sources

Plasticized :Movie

<http://www.plasticizedthemovie.com/>

NEWSELA

<https://newsela.com/articles/plasticeating-bacteria/id/15687/>

Away On the Bay

Ranger Rick Magazine, Nature Scope 1985

World Map (blank) Arizona Geographic Alliance

<http://geoalliance.asu.edu/sites/default/files/maps/World-at.pdf>

Additional Websites for student/teacher use during research or to gain background information:

The Five Oceans

<http://five-oceans.co/category/ted-talks/>

The Five Gyres

<https://oceanservice.noaa.gov/facts/gyre.html>

What Happens to Animals

<https://newsela.com/articles/plastic-turtles/id/12014/>

<https://vimeo.com/25563376>

Innovations in Cleaning Up the Ocean

<http://www.ecowatch.com/20-year-old-claims-he-can-rid-the-worlds-oceans-of-plastic-1882027182.html>

<http://www.newsy.com/videos/this-floating-bucket-could-be-a-solution-to-ocean-pollution/>

https://www.youtube.com/watch?v=IX_ePbTnSDI

<https://www.youtube.com/watch?v=8pE0bv8eAuw>

Ocean Currents

<https://www.youtube.com/watch?v=1ifoCIFKYXQ>

How Can We Clean Up the Oceans

<https://www.youtube.com/watch?v=7i8pjniZcF8>

Groups Working on the Plastic Problem

<http://www.5gyres.org/>

<http://www.theoceancleanup.com/>

<http://www.surfrider.org/programs/plastic-pollution>