Plastic Soup: A PSA for the Ocean

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Grade Level
8

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.
8.G4.1 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
Grade 6-8
Basic
Listening and Reading
Plastic Soup: A PSA for the Ocean

Overview
Is there a pollution problem in the ocean ecosystems? By researching ocean pollution and how it affects 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
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
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 class)

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, Integrating Processes: Reading)
   • 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=7i8pjnjZcF8 (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
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: Individual)
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).

Assessment

ELA and Geography
The Vocabulary Quiz can be given to measure language acquisition. Mastery will be considered a score of 80% or higher.

The PSA can be graded using the PSA Rubric. Mastery will be considered a score of 32 points or higher.

Reflections can be self-graded. Mastery will be considered a self-assigned grade of 80% 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/plastic-eating-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.newsy.com/videos/this-floating-bucket-could-be-a-solution-to-ocean-pollution/
https://www.youtube.com/watch?v=lx_ePbTSnSI

ARIZONA GEOGRAPHIC ALLIANCE
### Plastic Soup: A PSA for the Ocean

[https://www.youtube.com/watch?v=8pE0bv8eAuw](https://www.youtube.com/watch?v=8pE0bv8eAuw)

### Ocean Currents

[https://www.youtube.com/watch?v=1ifoCIFKYXQ](https://www.youtube.com/watch?v=1ifoCIFKYXQ)

### How Can We Clean Up the Oceans

[https://www.youtube.com/watch?v=7i8pjnjZcF8](https://www.youtube.com/watch?v=7i8pjnjZcF8)

### Groups Working on the Plastic Problem

- [http://www.5gyres.org/](http://www.5gyres.org/)
- [http://www.surfrider.org/programs/plastic-pollution](http://www.surfrider.org/programs/plastic-pollution)