Campaign: Community Trash Assessment and PSA

6th Grade - Watersheds and Water Pollution

SAN DIEGO COASTKEEPER

GOAL

Using the information learned throughout the unit, students will educate their community about the effects of urban runoff.

OBJECTIVES

- Collect data on trash in their community
- Explain how trash in their community connects to larger watershed pollution issues
- Evaluate the pros and cons of different pollution mitigation strategies
- Create a video PSA that educates their community about urban runoff

OUTCOME

Students will create a video PSA that raises awareness of urban runoff in their community.

GUIDING QUESTION

How does trash in my community affect the health of my watershed?
How can I educate others about the effects of urban runoff?

STANDARDS

MS-ESS3-3: Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
See also: CCSS.ELA-LITERACY.RST.6-8.3, CCSS.ELA-LITERACY.W.6.1

GRADE

6th

TIME

2-4 days (PSA creation can be extended if desired)

OVERVIEW

In this campaign, students will conduct a brief trash assessment of their neighborhood and weigh the pros and cons of different solutions to litter. After they have considered different options, they will create a video PSA on the importance of keeping their neighborhood-- and by extension, watershed-- clean.

Public service announcements (PSAs) are designed to educate and raise awareness about a particular issue to change a particular behavior or attitude in society. This project seeks to apply concepts learned throughout the SWELL unit in a relatable context for students.

The finished PSA should be <2 minute for audio/video formats, or <7 slides for presentation formats. Each PSA should:

- Define urban runoff
- Explain how preventing polluted urban runoff keeps the water clean
- Explain why people in their community should help, including 2-3 action items
- Include citations for any outside sources used, using citation style rules that you provide to students

Materials

- Pencil or pen for data collection
- Trash Assessment Data Sheet
- Student Guide
- PSA Planning Worksheet
- Materials for trash cleanup (optional)- gloves or trash grabber, trash bag

Instructions

1. This campaign is designed to reinforce and apply concepts that students have learned throughout the SWELL 6th grade unit. Before beginning campaigns, students should have completed the following:
   - Watched the video lesson and activity, OR participated in a live virtual lesson with San Diego Coastkeeper staff
   - Completed the 6th grade activity book
   - Watched the bonus virtual field trip video
2. To conduct the trash assessment in their neighborhood, students need to select a site to conduct their cleanup— outdoors near their home, along the sidewalk, at a local park, etc. Students should be accompanied by an adult while conducting the assessment. Using the provided data sheet, they will spend 15 minutes walking and counting each piece of trash they find. Each piece will be tallied in a specific category in their data sheet (i.e. hard plastic, soft plastic, metal).
   - Students are encouraged, but not required, to clean up trash. If cleaning up, they should use either a trash grabber or gloves to collect trash safely. Be sure to emphasize hand washing afterwards!
3. After finishing their trash assessments and answering the questions at the bottom of the data sheet, students will submit data sheets to their teacher.
   - Optional Extension: If you would like to work more with the trash assessment data, you can pool students' data into a single class dataset. From there, you can analyze the data in several ways. For example, you can calculate the most common types of trash and compare to local, state, or national cleanup data. If you're interested in local data, check out our 2019 beach cleanup report (co-authored with our friends at Surfrider Foundation San Diego County) linked in the Resources section.
4. Next, students will analyze three possible solutions to mitigate urban runoff. The Student Guide will review some of the pros and cons on each approach: ocean cleanups, cleaning stormwater, and source reduction. We recommend emphasizing that each approach has its unique benefits and drawbacks, and that they are often used together to more fully address environmental issues.
   - Optional Extension: You may choose to extend this experience by leading an all-class discussion about the three solutions, and when each might be used in the real world.
5. Students will use the new information learned from their trash assessment and solution analysis to create their PSAs. The PSAs will focus on source reduction-- one of the three solutions they explored in their worksheets. Each PSA video should be <2 minutes long or <7 presentation slides and educate their community about preventing polluted urban runoff. The provided PSA Planning Worksheet will help students brainstorm ideas. We don't specify how students should cite supporting information, so remember to provide them with citation style and formatting guidelines!
6. Once students have finished their PSAs, share them with the class. You can publish them on a classroom website or host a virtual "conference" to share student work. If you'd like to share finished projects with San Diego Coastkeeper, email us at projectswell@sdcoastkeeper.org.

Resources

- San Diego Coastkeeper and Surfrider Foundation San Diego County (2019). San Diego County Beach Cleanup Report 2019. Retrieved from https://drive.google.com/file/d/1urmFrfEGEO1vZL7zFk4dVjdSQL8Er3ph/view
- San Diego Coastkeeper (2021). Stormwater Capture. Retrieved from https://www.sdcoastkeeper.org/stormwater-capture
- Stanford Woods Institute for the Environment (2015, September 10). Stormwater Reuse Animation. Retrieved from https://www.youtube.com/watch?v=iw0mLuG7_2s
- The Ocean Cleanup (2018, July 21). The Ocean Cleanup Technology Explained. Retrieved from https://www.youtube.com/watch?v=O1EAeNdTFHU
- NOAA National Ocean Service (2015, June 5). Trash Talk: What Can We Do About Marine Debris? Retrieved from https://oceantoday.noaa.gov/trashtalk_whatcanwedo/welcome.html

Campaign: Community Trash Assessment and PSA

Student Guide

In this project, you will collect data on trash in your community, consider how this trash is connected to urban runoff in your watershed, and compare possible solutions to pollution. Using what you've learned, you will educate your community by creating a public service announcement (PSA) about preventing urban runoff pollution. Your finished PSA should be between 1-2 minutes long.

Materials

- Pencil or pen for data collection
- Materials for trash cleanup (optional)- gloves or trash grabber, trash bag
- Trash Assessment Data Sheet
- PSA Planning Worksheet

Instructions

1. To conduct your trash assessment, you need to first select a site to collect data. This can be outdoors near your home, along the sidewalk, or at a local park. Make sure to take a parent or guardian with you while conducting the assessment.
2. Using the provided data sheet, spend 15 minutes walking around your study site. Count each piece of trash you find with a tally mark. Each item will be sorted in a specific category on your data sheet (For example, a plastic bag would be considered "soft plastic").
3. During your trash assessment, you are encouraged, but not required, to clean up the trash you find. If cleaning up, make sure you use either a trash grabber or gloves and wash your hands afterwards. Remember, don't pick up anything sharp or dangerous, any dead animals, or anything like pet waste.
4. When the 15 minutes are up, answer the questions at the bottom of the data sheet and add up the tally marks to get totals for each category. Make sure to submit data sheets to your teacher.
5. Now that you've learned about watershed pollution and seen how urban runoff affects your community, it's time to talk about solutions. There are many ways to fight pollution, with benefits and drawbacks to each. It's important to consider these things when we're choosing how to address a problem. In many cases, more than one solution is used at the same time by different groups of people. The table below discusses three common solutions to urban runoff pollution.

	OCEAN CLEANUPS	STORMWATER CAPTURE	SOURCE REDUCTION
What it is	Sending boats to clean up trash from hotspots in the ocean, like the Great Pacific Garbage Patch Example: The Ocean Cleanup nonprofit	Capturing and cleaning the water that goes into storm drains Examples: Combined sewer systems, bioswales, "green streets"	Reducing the amount of trash we make and stopping it *before* it enters the water Examples: Educational campaigns, waste reduction initiatives
+	Data collected allows scientists to better understand the issue Actually removes trash from the water	Stops many types of pollutants *before* they get into creeks, rivers, and the ocean, reducing the need for cleanups Water can be further cleaned and used as an eco-friendly source of drinking water	Stops many types of pollutants *before* they get into creeks, rivers, and the ocean, reducing the need for cleanups Small actions can make a difference
—	Expensive and often difficult on a large scale Does not stop new trash (or other pollutants) from entering the water	Can be difficult to get approved by local government Requires a lot of infrastructure, which can be expensive to build	Requires lots of people to be aware of an issue and willing to change their habits

6. Now that you're familiar with the issue and some possible solutions, you'll create a PSA video to raise awareness on how people can help. For our PSAs, we will focus on source reduction, or reducing the amount of pollution that enters the streets and waterways. In particular, we will consider how reducing trash keeps our neighborhoods, and in turn our watersheds, clean.
7. Watch the PSA examples:
    - U.S. Environmental Protection Agency- It All Leads to The Ocean (00:30)
    - UN Environment Programme- World Nature Day 2017 (01:27)
8. Using the space below, answer the questions for each video.
    - What is the topic of the PSA?
    - What is the message? What are they asking you to do?
    - What is something you liked about the PSA?
9. Complete the PSA Planning Worksheet as you brainstorm ideas.
10. Create or record your PSA. You can record yourself speaking to the audience directly, you can act out a story, or you can record yourself speaking while you show videos or photos.
11. Before submitting your PSA, check that it meets all requirements. Your PSA must:
    - Define urban runoff
    - Describe how polluted urban runoff hurts rivers, creeks, and/or the ocean
    - Explain how preventing urban runoff keeps the water clean
    - Explain why people in your community should help, including 2-3 action things they can do
    - Cite any outside sources of information (facts, quotes, supporting information) using citation rules provided by your teacher
12. Submit your finished PSA to your teacher. Share it with family and friends, too-- they might learn something new.

Project Checklist

- ☐ I watched the PSA example videos and answered the questions
- ☐ I completed the PSA Planning Worksheet

My PSA…

- ☐ defines what "urban runoff" means
- ☐ explains how urban runoff pollution hurts rivers, creeks, and/or the ocean
- ☐ explains how preventing urban runoff keeps water clean
- ☐ explains why people in my community should help, including 2-3 things they can do
- ☐ includes facts to support my claims
- ☐ is a maximum of 2 minutes long (for audio/video) or 7 slides (for presentations)
- ☐ cites all outside sources of information, using citation rules provided by my teacher

- ☐ I submitted my PSA to my teacher

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Trash Assessment Data Sheet

Name: Teacher: Date: Study Site:

Instructions

1. Take 15 minutes to walk around your study site. Tally each piece of trash you find in the category that best matches it. Important: For the glass and metal category, tally the pieces and items but **do not** pick it up, as glass and metal pieces can be dangerous.
2. When you have completed your data collection, calculate the total for each category and record it.
3. Use your data to answer the questions at the bottom of the page.

ITEM	TALLY	TOTAL
Cigarettes & cigarette butts		
Soft plastics *Plastic bags, wrappers*		
Hard plastics *Water bottles, plastic containers, straws, lids*		
Polystyrene foam *Items or pieces*		
Glass & metal *Glass bottles, glass pieces, metal cans, metal bottle caps* **Note:** Do not pick up, as glass and metal can be dangerous		
Paper & cardboard		
Other		

What was the most common type of trash you saw?

How many total pieces of trash did you see?

How could a piece of trash in your neighborhood end up in the ocean?

PSA Planning Worksheet

Name: _____ Teacher: _____

WHO: Who is your audience? (Examples: 5th graders, your school, your family, students who live in San Diego)

WHAT: What is urban runoff, and how does it hurt our rivers, creeks, and/or ocean? How does preventing it keep our water clean?

Supporting facts:

WHY: Why should your audience care? How does this issue affect them?

HOW: How can your audience help prevent urban runoff? Give at least 2-3 actions.

1._____

2._____

3._____

Remember: Your actions should make sense with the audience you chose. A single person can't change a law, but could they write to their government representative? Think about how the audience you chose can make a difference.

Don't forget:

- Videos should be 1-2 minutes long.
- Cite all outside sources you use (supporting facts, quotes from scientists, etc).
- PSAs can be funny or serious. Some use songs or stories to tell their message. Be creative!

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