

Week 4: The Trouble with Trash

Focus: Plastic Pollution & Watersheds

Grade Level: K-2

Session Length: Four activities of 25-30 minutes each

Driving Questions

- What kind of trash is found on Crystal Cove State Park's beach?
- Where does it come from?
- How can we help clean it up?

During Week 4: The Trouble with Trash, students investigate the plastic pollution that is ending up on Crystal Cove State Park's beaches.

On Day 1, a breaking news story introduces students to the trouble with trash on Crystal Cove's beach. On Day 2, they build a watershed model to explore how trash gets to the beach. On Day 3, students design a poster to help inform others about why it's important to pick up trash. Finally, on Day 4, they take an excursion around their school to help look for any trash.

Learning Outcomes and Assessments

<i>By the end of this module, students will be able to...</i>	<i>You can assess this using...</i>
1. Count and sort a trash sample into different categories.	Student discussions on Day 1
2. Relate the watershed model to the real world and explain how trash travels through a watershed to get to the beach.	Student discussions on Day 2
3. Design a sign that communicates the importance of picking up trash.	Student-created posters on Day 3
4. Reflect on the importance of picking up trash at places like their school.	Student discussions on Day 4

Weekly Sequence

Section	Description	Length	Format
Day 1	<p>Trash Investigation: Sorting Samples</p> <p>Students are introduced to the problem with plastic pollution on Crystal Cove State Park’s beach during a breaking news story. Afterwards, they sort a trash sample into different categories and count the number of pieces in each category to see which is the most common.</p>	25-30 minutes	Classroom
Day 2	<p>Trash Investigation: Watershed Model</p> <p>Students build a simple watershed model and simulate how trash gets to the beach when it rains.</p>	25-30 minutes	Outside or Inside Classroom
Day 3	<p>Trash Investigation: Designing a Poster</p> <p>Students design a poster that communicates the importance of picking up trash.</p>	25-30 minutes	Classroom
Day 4	<p>Trash Investigation: Trash Hunt</p> <p>Students take a walk around the school and look for trash. At the end, they reflect on why it’s important to pick up trash at places like their school.</p>	25-30 minutes	School Campus

Big Science Idea

Nothing ruins a beach day like seeing plastic bags, bottle caps, and other trash scattered across the beach. But plastic pollution and other trash is more than just unsightly: it can be deadly to the marine creatures and birds that call beaches like Crystal Cove home.

Trash doesn't just come from beachgoers: it can also flow from inland communities to the ocean through something called a watershed. Once trash gets into the marine waterway and becomes marine debris, it can be extremely challenging to clean it up.

If you want to learn more...

- *National Geographic: Beach Clean-Up Study Shows National Scope of Plastic Pollution*
- *Ocean Health Index*
- *California Coastal Commission: The Problem with Marine Debris*
- *NOAA: What is a Watershed?*

If you want to share more with students...

- *How Big the Great Pacific Garbage Gyre Really Is*
- *Kids Take Action Against Ocean Plastic*
- *What is a Watershed?*

Day 1

Day 1: Sorting Trash Samples
(30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <input type="checkbox"/> Day 1 Slideshow <input type="checkbox"/> Computer, projector, and speakers 	<ul style="list-style-type: none"> <input type="checkbox"/> Reporter notebooks <input type="checkbox"/> Pencil <input type="checkbox"/> Plastic trash sample <input type="checkbox"/> Plastic trash counting page <input type="checkbox"/> Digital Trash Field Guide

Before you start teaching...

- Open the day's slideshow and check to make sure that the videos play with sound.
- Decide how you will distribute the plastic trash samples and counting pages to students. You might pass out the bags to students, or ask each student to come to the front of the class to collect their sample.
- Gather beach trash samples, a trash grabber, and mason jars from a teacher in Grades 3-5.

Instructional Learning Sequence

1. Open the slideshow and play the video on **Slide 2** for the class. Holly will give a breaking news report and explain the problem with plastic pollution on Crystal Cove's Beach. Today, students are tasked with determining what kind of trash is the most common on the beach.
2. Advance to **Slide 3**, where Holly will demonstrate how to identify and sort the trash samples into four different categories: Hard Plastic, Soft Plastic, Foam, and Other. After she identifies a trash piece, she places it in the correct box on the counting page.
3. Move on to **Slide 4**, which has a virtual trash identification guide. Review the four possible categories of trash with students:
 - Hard Plastic: Any hard plastic, like plastic bottle caps or straws.
 - Soft Plastic: Any soft and flexible plastic, such as plastic bags.
 - Foam: Anything squishy, such as packing peanuts.
 - Other: Any other trash, such as netting, cardboard, etc.

4. Once you've reviewed the different categories of trash with students, move on to **Slide 5**, which has written directions for sorting the plastic trash. Remind students that once they get their trash sample, they will need to identify it, and then put it in the correct box on the counting sheet.

5. Pass out one trash sample and one counting sheet to each student. Give students time to sort and count the trash samples on their desks. As they do so, move between their desks and check to see that they are sorting and counting correctly. They can use their digital field guide to help them identify the different pieces of trash.

6. Once students have finished creating their graphs, move on to **Slide 6** and ask students to share out loud:

- Which type of trash was the most common in your sample?
- Which type of trash was the least common in your sample?
- How many more hard plastics are there than soft plastics? (There are ____ more hard plastics than soft plastics.)
- What type of trash do you think would be important to clean up?

Day 2

Day 2: Where Does the Trash Come From?
(30 minutes)

Each teacher will need...	Each student will need...
<input type="checkbox"/> Day 2 Slideshow <input type="checkbox"/> Computer, projector, and speakers <input type="checkbox"/> Spray bottle	<input type="checkbox"/> Reporter notebook <input type="checkbox"/> Pencil <input type="checkbox"/> Tray <input type="checkbox"/> One mason jar <input type="checkbox"/> One cup <input type="checkbox"/> Plastic trash bag <input type="checkbox"/> Sprinkles <input type="checkbox"/> Food coloring

Before you start teaching...

- Open the day's slideshow and check to make sure that the videos play with sound.
- Decide where you want students to set up their watershed models. Since it will involve water and food coloring, you may want to plan a way to rinse off the materials afterwards or have students move outside for the activity.
- Decide how you will distribute materials to students.

Instructional Learning Sequence

1. Open the slideshow and play the video on **Slide 2**. Holly will review what the students did on Day 1, and will tell them that their next task is to investigate where the trash on Crystal Cove's beach may have come from. To do that, they will create a model of a watershed.
2. Move on to **Slide 3**, and play the video there to introduce the idea of a watershed.
3. On **Slide 4**, Holly will demonstrate how to create a watershed model using a tray, upside-down containers, and plastic. She'll tell students to add candy sprinkles or food coloring to represent trash, and then use a spray bottle to make it rain and see where the trash goes.
4. After students watch the video, move on to **Slide 5**, which gives written instructions for the watershed model. You may want to walk students step-by-step through the process of building the model step-by-step.

As you do so, be sure to make clear connections between the model and the real world, such as by emphasizing that the containers represent mountains, the valleys represent the place where a river would run (like Los Trancos Creek at Crystal Cove), and the open space at the edge might represent a beach.

5. After students have built their models, have them add sprinkles or food coloring to represent trash. Finally, they can use the spray bottle to make it rain and see where the trash goes.
6. Once students have finished seeing how trash moves through a watershed, move on to **Slide 6** and ask them to share their findings as a class:
 - In your model, where did the trash on the mountains go?
 - In the real world, what do you think happens to the trash when it rains?
 - Make a prediction: Where did the trash on Crystal Cove's beach come from? Why do you think this?
 - Is there anything we can do to help prevent trash from getting to the beach?

7. Finally, ask everyone to clean up and return the materials to you!

Day 3

Day 3: Design a Sign
(30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <input type="checkbox"/> Day 3 Slideshow <input type="checkbox"/> Computer, projector, and speakers 	<ul style="list-style-type: none"> <input type="checkbox"/> Reporter notebooks <input type="checkbox"/> Pencil <input type="checkbox"/> White paper <input type="checkbox"/> Colored pencils

Before you start teaching...

- Open the day's slideshow and check to make sure that the videos play with sound.
- Decide how you want students to share their posters. If there is time, you may have them present to the class, participate in a gallery walk, or something else.

Instructional Learning Sequence

1. Open the slideshow and play the video on *Slide 2*. Holly will introduce the task for the day, where students will be invited to design a poster to help encourage others to pick up trash, recycle, or reduce their use of materials.
2. Move on to *Slide 3*, and ask students to first design a draft of their sign in their reporter notebook. Tell them that when they're done, they can come to you to get a blank piece of paper to make their final sign.

Spend a few minutes asking students for their initial ideas. What are some things they might want to communicate with their signs? What could they draw? Are there any phrases they want to know how to write? (You can write these on the board to help them.)

3. Give students time to work. As they do so, move between their desks to give feedback as they work. You might need to assist with helping them to spell out phrases or words.

4. Once students are done, if there's time, move on to *Slide 4* and invite a few students to share what they've designed!

Day 4

Day 4: Trash Hunt
(30 minutes)

Each teacher will need...	Each student will need...
<ul style="list-style-type: none"> <input type="checkbox"/> Day 4 Slideshow <input type="checkbox"/> Computer, projector, and speakers <input type="checkbox"/> Trash grabber <input type="checkbox"/> Trash bag 	<ul style="list-style-type: none"> <input type="checkbox"/> Reporter notebooks <input type="checkbox"/> Pencil

Before you start teaching...

- Open the day's slideshow and check to make sure that the videos play with sound.
- Decide how you want to conduct the trash hunt. You might think about timing, where you want to go, and how you will give students boundaries or assign tasks. Since there is only one trash grabber per class, you can designate one student to carry it.

Instructional Learning Sequence

1. When you open the slideshow, advance to *Slide 2* and play the video. Holly will thank students for their help this week and invite them to help pick up around the school.
2. Advance to *Slide 3* and give students guidelines for the trash hunt.
 - Designate one student to use the trash grabber and another to carry the trash bag.
 - Choose another 1-2 students to help keep track of what you find in their reporter notebooks.
 - Everyone else can help as spotters and keep their eye out for trash.
3. As a group, go outside and begin your trash hunt. Go over any safety rules, such as staying together as a group. Stay with students as they hunt for and pick up trash in the area that you've designated.

4. When you're done, return to the classroom. Ask the reporter(s) to share what kind of trash was found and ask the class to discuss the following questions on *Slide 4*:

- What types of trash did you find?
- Was the trash at your school similar or different from the trash on Crystal Cove's beach?
- Why do you think it's important to pick up trash? How can this help places like your school or Crystal Cove State Park?

5. Finally, move on to the final *Slide 5*, where Holly will thank students for all of their help this week!