

RESOURCE LIBRARY
ACTIVITY : 1 HR

Perils of Plastic

Students learn about the world's largest "landfill," make a connection to their own lives, and calculate how much trash they generate in a week, a year, and ten years.

GRADES

6 - 12+

SUBJECTS

Geography, Human Geography, Mathematics

CONTENTS

1 Image

OVERVIEW

Students learn about the world's largest "landfill," make a connection to their own lives, and calculate how much trash they generate in a week, a year, and ten years.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/perils-plastic/>

Program



DIRECTIONS

1. Build background.

Explain the following to students: Over a lifetime, each American throws away nearly 15 tons of packaging. Much of this ends up in the oceans, and much of it is plastic. As plastic ages it

breaks into pieces called “nurdles” or “mermaid tears.” These pieces make their way into the food chain and can sicken or kill wildlife. Show students the map of the Great Pacific Garbage Patch. Explain to students that the Great Pacific Garbage Patch is an area that covers an estimated five million square miles of ocean waters—an area the size of the United States, Mexico, and Central America combined. The trash is carried and trapped by a system of surface currents called the North Pacific Subtropical Gyre. Almost 80% of the trash is plastic and carried from the shores of Asia and the Americas.

2. Introduce the week-long activity.

Tell students that they are going to collect their recyclable trash for a week. Students should bring in “clean” trash only. Bottles and cans should be rinsed and dried. All paper, plastic, and metals should be clean.

3. Set up an area of the classroom for collection.

Set aside an area of the classroom for students to put their trash over the course of the week.

4. Weigh and calculate trash.

After one week, have students measure and weigh the accumulated trash. Then ask students to calculate:

- how much trash they generated in one week
- how much trash they would generate in one year
- how much trash they would generate in ten years

5. Have students reflect on their experience.

Ask: Why is plastic harmful to the environment? What could people do to produce less trash?

Ask students to share what they learned from the activity.

Informal Assessment

Rate students on a scale of one to five based on the following components:

- participated in a classroom discussion about plastic trash
- contributed clean, recyclable trash to the class collection
- participated in the “weigh-in” of collected trash
- extrapolated one week’s worth of recyclable trash to a year and ten years

- made a connection about personal consumption and how the waste each of us generates can have a negative impact on the environment

Extending the Learning

Go to the [National Geographic Society](#) website to find out where you can get the *Human Footprint* DVD.

OBJECTIVES

Subjects & Disciplines

Geography

- [Human Geography](#)
- Mathematics

Learning Objectives

Students will:

- describe the “Great Pacific Garbage Patch” and how it was created
- collect their recyclable trash for one week
- measure and weigh their accumulated trash
- calculate how much trash they generate over time

Teaching Approach

- Learning-for-use

Teaching Methods

- Discussions
- Hands-on learning

Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
 - Analyzing
 - Applying
 - Understanding

National Standards, Principles, and Practices

NCTM PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS

- **Number & Operations (6-8) Standard 1:**

Understand numbers, ways of representing numbers, relationships among numbers, and number systems

- **Number & Operations (9-12) Standard 1:**

Understand numbers, ways of representing numbers, relationships among numbers, and number systems

NATIONAL GEOGRAPHY STANDARDS

- **Standard 14:**

How human actions modify the physical environment

Preparation

What You'll Need

MATERIALS YOU PROVIDE

- Labels
- Large container for collecting trash
- Scale

PHYSICAL SPACE

- Classroom

GROUPING

- Large-group instruction

OTHER NOTES

Ideally, students will collect their recyclable trash over one week.

BACKGROUND & VOCABULARY

Background Information

The “Great Pacific Garbage Patch” is a collection of trash covering an estimated five million square miles of the Pacific Ocean. The trash is carried and trapped by a system of surface currents called the North Pacific Subtropical Gyre.

Prior Knowledge

Recommended Prior Activities

- None

Vocabulary

Term	Part of Speech	Definition
food chain	<i>noun</i>	group of organisms linked in order of the food they eat, from producers to consumers, and from prey, predators, scavengers, and decomposers.
Great Pacific Garbage Patch	<i>noun</i>	area of the North Pacific Ocean where currents have trapped huge amounts of debris, mostly plastics.

For Further Exploration

Websites

- [National Geographic Channel: Human Footprint](#)
- [National Geographic: Earthpulse](#)
- [The Plastiki Expedition](#)

PARTNER



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