

TOSS THE BLUE PLANET

Topic

Ocean Size and Importance

Duration

One session

Vocabulary

globe
hypothesis
ocean
probability
ratio
surface

STANDARDS

Practices

Using Mathematics and Computational Thinking

Core Ideas

The Roles of Water in Earth's Surface Processes

Crosscutting Concepts

Scale
Proportion
Quantity

OCEAN LITERACY PRINCIPLES

OLP 1, OLP 2

FOCUS QUESTION

How much of the Earth's crust is covered by the ocean?

OVERVIEW

Students estimate how much ocean covers the Earth's surface. Students collect data while tossing an inflatable globe back and forth to each other. Students analyze their data and interpret the results.

OBJECTIVES

Students will be able to:

- ★ Identify how much ocean water covers the Earth's surface
- ★ Recognize how probability impacted the results of the activity
- ★ Infer why learning about the ocean is important

MATERIALS NEEDED

- ★ One inflatable globe
- ★ Chart (page 24)
- ★ Clipboards or hard surface

TEACHER PREPARATION

1. Obtain an inflatable globe that has land and water easily distinguishable from one another, and is easy to catch.
2. Reserve a large, open space for this activity.
3. Each student will need a copy of the chart on page 24.
4. Each student will need a transportable, hard surface to write on while participating in the activity.
5. Teachers will need easy access to a whiteboard or interactive whiteboard to write students' inferences.

BACKGROUND

The ocean covers around 71% of the Earth's surface. About 97% of the Earth's water is found in the ocean. Earth's one ocean has been divided by borders into five separate oceans: the Pacific, the Atlantic, the Indian, the Arctic, and most





Teacher Tips

- ★ This activity may work better standing up or sitting down—teacher discretion is advised.
- ★ Have students call out their classmate's name before tossing the globe.
- ★ If time is limited, change the number of maximum tosses.
- ★ Consider marking students' index fingers with washable ink.



Extension Suggestions

- ★ Have students divide the classroom floor into 30% (land) and 70% (ocean) to have another visual of the amount of water that covers the Earth's surface.
- ★ Debate Prompt: Which is more important to humans—lakes and rivers or the ocean?
- ★ Writing Activity: Give students the option of writing to local government officials advocating for more protection for the ocean.

BACKGROUND (CONTINUED)

recently, the Southern Ocean. The ocean is the biggest feature on our planet; therefore it is extremely important to life on Earth because of what it provides: oxygen, food, water, climate regulation, transportation, recreation, and more.

PROCEDURE

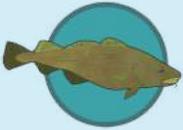
1. Display the inflatable globe in front of the classroom. Ask students what it is, and what features they see on the globe.
2. Ask students to predict how much of the Earth's crust is covered by the ocean. Record their answers somewhere visible to the entire class.
3. Provide students with a step-by-step overview of the activity:
 - a. We are going to get into a large circle.
 - b. We are going to pass the globe back and forth to each other.
 - c. Each time someone catches the globe, they will tell the class whether their pointer finger is on land or the ocean.
 - d. Everyone will record each student's response with a tally mark on the chart (page 24) provided.
 - e. Once we have completed 100 tosses we are going to figure out, as a class, the percentages of time we touched the land and touched the ocean. This will give us an estimate of how much ocean covers the Earth's surface.
4. Ask for a couple of volunteers to demonstrate in front of the class how to carefully toss and catch the globe and determine whether they have touched land or ocean.
5. Assist students in creating a circle and begin and complete the activity.
6. After the designated amount of tosses is complete, have the class determine together the percentages of water and land that were touched.
7. Inform students that the actual percentage of ocean that covers the Earth's surface is 71 percent. Ask students why they think the class result was not exactly 71 percent (if this is the case). If their answer was exact, ask students the reason for their result.
8. Explain to students the basics of probability—the more tosses the class did, the more accurate their results would be to represent the ratio of ocean to land.





Books

- ★ *National Geographic Kids First Big Book of the Ocean* by Catherine D. Hughes
- ★ *Make a Splash! A Kid's Guide to Protecting Our Oceans, Lakes, Rivers, & Wetlands* by Cathryn Berger Kaye M.A. and Philippe Cousteau



Websites

- ★ The Ocean Literacy Website and their 7 Ocean Literacy Principles
- ★ National Geographic's Video "Why the Ocean Matters"
- ★ One World One Ocean Campaign's video "Why the Ocean?"



Scientist Notebook

- ★ Students can record their classmates' thoughts on why learning about the ocean is important.

WRAP-UP

- ★ Ask students how much of the Earth's crust is covered by the ocean.
- ★ Ask students to think about how much water there is on the Earth, and ask them how much of the water they think is ocean water. Inform them that it is 97% of our Earth's water supply.
- ★ Inform students that they are going to be learning about the ocean, and more specifically the rocky shore, for the next several weeks. Have students brainstorm why learning about the ocean is important. Record their input to review (and add to) at various times throughout the unit.



TOSS THE BLUE PLANET

Name: _____

Date: _____

DIRECTIONS

Make a circle with your class and toss your globe back and forth to each other. Each time someone catches the globe, find out whether their pointer finger is on land or ocean. Place one tally mark in the correct spot on the chart. Toss the globe 100 times! Do your best to make gentle and accurate tosses.

HINT

Designate one classmate or your teacher to keep track of how many tosses you have made.



LAND	
OCEAN	

NOW WHAT?

In the spaces below, fill in the blanks with your results. If your class did not make 100 tosses, complete the math equation below to discover the percentage of land and the percentage of ocean you touched.

Percentage of Land: _____ / Percentage of Ocean: _____

If your class made more or less than 100 tosses:

$$\frac{\text{_____}}{\text{\# of land tallies}} \div \frac{\text{_____}}{\text{\# of total tosses}} = \frac{\text{_____}}{\text{\% of land touched}}$$

$$\frac{\text{_____}}{\text{\# of ocean tallies}} \div \frac{\text{_____}}{\text{\# of total tosses}} = \frac{\text{_____}}{\text{\% of ocean touched}}$$

