



# ***WATER, WATER, EVERYWHERE***



## **BENCHMARK and TASK**

**SC.D.1.2.2** The student knows that 75 percent of the surface of the Earth is covered by water.

- The student discovers, through probability, that approximately 75 percent of the surface of the earth is covered by water.

## **KEY QUESTION**

Approximately how much of the earth's surface is covered by water?

## **BACKGROUND INFORMATION**

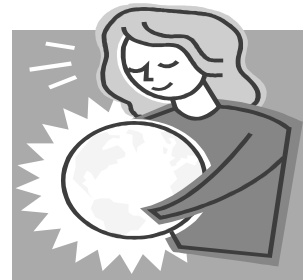
The earth has been called the water planet. Approximately 75 percent of the earth is covered by water. Oceans actually make up 97.2 percent of the water found on the earth's surface. Although all the oceans are connected, different parts have different names: Atlantic Ocean, Pacific Ocean, Indian Ocean, and Arctic Ocean. The Pacific Ocean is the largest.

All the water that has ever been available to our planet is on or in the earth right now.

## **MATERIALS**

### **Teacher**

1 inflatable globe  
chart paper with large circle  
blue and green markers  
*Oceans*, Adele D. Richardson, Bridgestone



### **Per student**

green crayon  
blue crayon  
*Water, Water Everywhere* activity sheet

## **TEACHING TIPS**

1. For hygiene reasons, only the teacher should inflate the globe.  
(Clean the mouth tube with alcohol if it has been used before or stored for a long time.)
2. More than one trial may be necessary. If the data collected does not appear to reflect that approximately 75 percent of the earth is covered by water, conduct several trials and find the average.

## ENGAGE

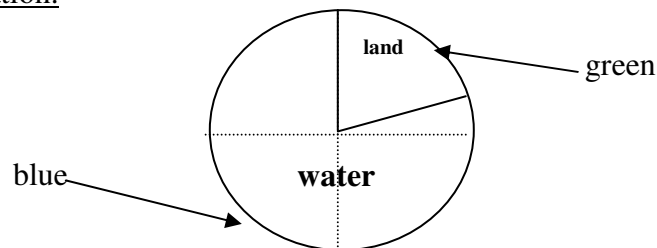
1. Sit in a circle with the students. Toss the inflated globe back and forth a few times and encourage students to examine it closely, concentrating on the amount of water and the amount of land on the globe.
2. Ask students to make predictions about how much of the earth is covered with water. Establish parameters upon which they can base their predictions. (e.g., *Does water cover more than half or less than half of the earth?*)

## EXPLORE

1. Explain the rules for tossing the inflatable globe:
  - The globe must be tossed and caught with two hands.
  - The catcher must call out *land/land*, *water/water*, or *land/water* according to where his/her thumbs land on the globe.
  - Students should try to toss the globe to any students who have not had a turn.
2. Draw two columns on the board. Label one land and the other water. Appoint a student to tally the land and water calls as the ball is tossed and caught. (Note: Review with students how to record tally marks.)
3. Keep track of the tosses until the globe has been tossed 25 times. The tally marks should total 50 (25 tosses, 2 thumbs touching the globe each time). Record the number of land tallies and the number of water tallies for the first trial on a chart.

	LAND	WATER
Trial 1		
Trial 2		
Total		

4. Repeat the steps above for Trial 2, choosing another student to record the tallies this time.
5. Determine the total number of tallies for land and water after completing the two trials.
6. Display a large circle that you have drawn. Think aloud as you model how to divide the circle into four equal parts. (You can fold the circle or draw intersecting lines through the center to divide the circle.) If you think of the circle as representing one hundred parts (or percent) of the number of tallies collected, each section would represent 25. Tell students that will be your guide for dividing the circle graph into the two sections representing land and water. For example, if the tallies collected were 22 for land and 78 for water, you would have a guide for marking the section representing land by drawing the radius at a point on the circle slightly less than 25. The rest of the circle would represent water. Stress that this is an approximation.



7. Label each section and color for emphasis (use markers).
8. Distribute the *Water, Water Everywhere* activity sheet. Have students divide the circle into fourths. Then ask them to think about how they could determine where to mark the lines to show the approximate land and water areas, based on the tallies collected. Have students share their strategies.
9. Students should use blue and green crayons to color the land and water sections.

### **EXPLAIN**

1. Have students make statements about what the circle graph shows regarding the amount of water and the amount of land on the earth. Remind students that the globe is a fairly accurate model of the earth's surface.  
*What did you learn about the earth by doing this activity?* (The earth has much more water than it does land.)  
*Approximately how much of the earth is covered by water?* (About 75 percent or  $\frac{3}{4}$  of the earth is covered by water.)  
*What factors might have affected the outcome?* (Students called out the wrong information; the class needed to collect more data; thumbs landed on a water/land boundary.)  
*What do you think would happen if we repeated the experiment?* (The data should be very close to that from the first investigation.)  
*If you got only one toss, where would you predict your thumbs would land – on land or on water? Why?* (Water – because the earth has more water than land)
2. Repeating this activity several times (or enlisting other classes to do the investigation and share their data with you) would help students build confidence in the data.

### **EXTEND/APPLY**

1. Ask students to think of all of the places where water can be found on earth. Accept all answers (e.g., lakes, rivers, drinking fountains, puddles, swimming pools) and record them. Next, ask students to name any *natural* bodies of water that may be in the neighborhood or with which they are familiar (e.g., oceans, streams, lakes, icebergs). Ask them to think of descriptive words for each body of water (e.g., oceans are salty, large, wavy). Stress that while most of the earth's water is in the oceans (about 97 percent), only three percent of the water is fresh. Fresh water may be found in lakes, rivers, streams, and ponds, but most of it is locked in the icecaps at the poles.
2. Explain to students that while we speak of four different oceans, they are actually one body of water. Have students use one finger to trace a path from one ocean to the next on a globe or map.
3. Share the book, *Oceans*, by Adele D. Richardson.

### **EXTENSION**

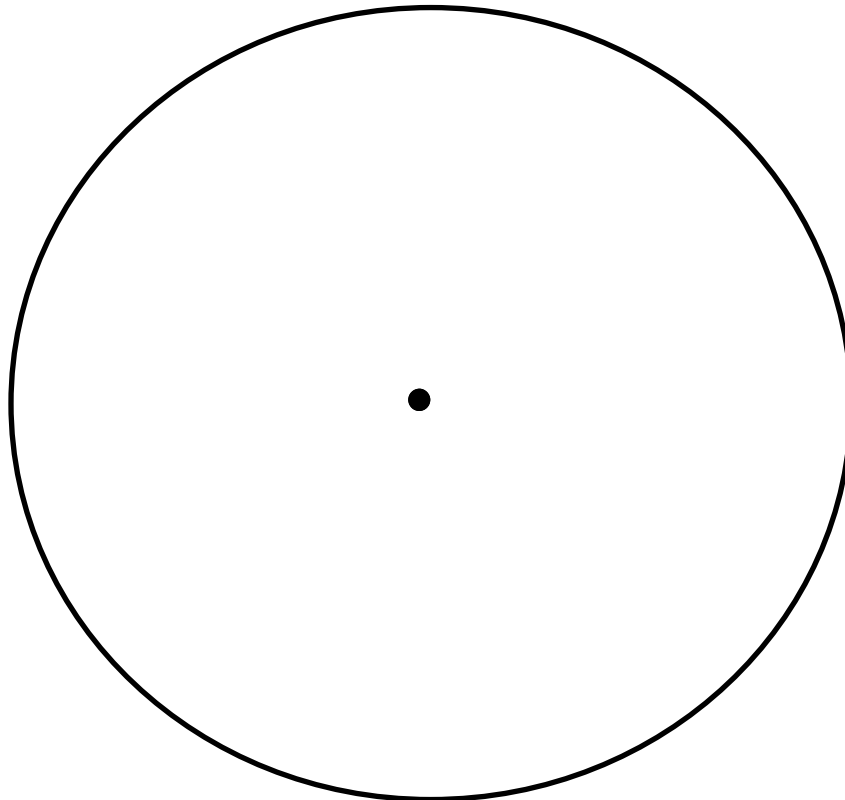
Repeat the globe toss activity and have students name the specific ocean or continent on which their thumbs land.

### **ASSESSMENT**

Have students answer the Key Question and explain their reasoning: *Approximately how much of the earth's surface is covered by water?*

## WATER, WATER, EVERYWHERE

Use your teacher's circle graph as a guide to complete your own graph. First divide the whole circle into four equal parts to help you determine which part should represent water (blue) and which part should represent land (green).



Approximately what part of the earth's surface is covered with water? Refer to the circle graph to support your reasoning. \_\_\_\_\_

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