LESSON MAKER PRO

Earth's Water Share

Use models and graphs to compare salt water and fresh water.

GRADE 5 · 5-ESS2-2

5-ESS2-2 "Describe and graph the amounts and percentages of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. (SEP: 5; DCI: ESS2.C; CCC: Scale/Prop.)"

NAME _____ DATE _____

PARTS OF A WHOLE

A percentage tells how many parts there are out of 100. To find a percentage, divide the number of parts by the total, then write an equal fraction with 100 as the denominator. On a 100-square graph, each square represents 1%.

WORKED EXAMPLE

A model of a made-up planet has 24 water beads. Six beads stand for fresh water. What percent of the model is fresh water?

1. Write the fraction: 6/24.
2. Simplify: 6/24 = 1/4.
3. Write it out of 100: 1/4 = 25/100.

Answer: 25% of the model is fresh water.

PRACTICE 6 problems

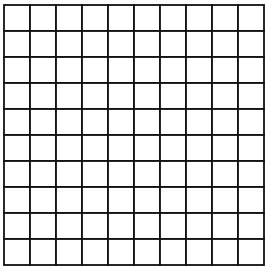
1 Use the table. What percent of this Earth water model is fresh water?

100-PART EARTH WATER MODEL

Water type	Parts
Salt water	97
Fresh water	3

ANSWER _____

2 Each square represents 1% of an Earth water model. Shade 3 squares for fresh water. What percent of the model is left for salt water?



ANSWER _____

3 Use the graph. How many percentage points greater is the salt-water share than the fresh-water share?

EARTH WATER MODEL



ANSWER _____

4 Use the table. How many model drops are fresh water altogether? What percent of all the model drops is that?

1,000-DROP EARTH WATER MODEL

Water category	Drops
Salt water	970
Frozen fresh water	20
Groundwater	9
Other fresh water	1

ANSWER _____

5 Use the table. What percent of all the model drops represents frozen fresh water?

1,000-DROP EARTH WATER MODEL

Water category	Drops
Salt water	970
Frozen fresh water	20
Groundwater	9
Other fresh water	1

ANSWER _____

6 Use the table. What percent of all the model drops represents groundwater? What percent represents other fresh water?

1,000-DROP EARTH WATER MODEL

Water category	Drops
Salt water	970
Frozen fresh water	20
Groundwater	9
Other fresh water	1

ANSWER _____

APPLY IT Show your work

1 For an Earth Day display, a club uses 2,000 beads to model Earth's water. It sets aside 1,940 beads for salt water and the rest for fresh water. How many beads represent fresh water? What percent of the display is fresh water?

WORK SPACE

ANSWER _____

2 A school garden class uses the 1,000-drop model in the table. How many drops represent groundwater and other fresh water together? What percent of the whole model do those drops represent?

1,000-DROP EARTH WATER MODEL

Water category	Drops
Salt water	970
Frozen fresh water	20
Groundwater	9
Other fresh water	1

ANSWER _____

CHALLENGE One step up

Use the table. What fraction of the fresh-water drops are frozen, and what percent of all the model drops are frozen? Explain in two sentences why the answers use different totals.

1,000-DROP EARTH WATER MODEL

Water category	Drops
Salt water	970
Frozen fresh water	20
Groundwater	9
Other fresh water	1

WORK SPACE AND ANSWER

ANSWER KEY

Earth's Water Share

GRADE 5 · 5-ESS2-2

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the table. What percent of this Earth water model is fresh water?	**3%**
2	Each square represents 1% of an Earth water model. Shade 3 squares for fresh water. What percent of the model is left for salt water?	**Shade 3 squares for fresh water. The remaining 97 squares represent 97% salt water.**
3	Use the graph. How many percentage points greater is the salt-water share than the fresh-water share?	**94 percentage points**
4	Use the table. How many model drops are fresh water altogether? What percent of all the model drops is that?	**30 drops; 3%**
5	Use the table. What percent of all the model drops represents frozen fresh water?	**2%**
6	Use the table. What percent of all the model drops represents groundwater? What percent represents other fresh water?	**Groundwater: 0.9%; other fresh water: 0.1%**

PART 2 · APPLY IT

1. **60 beads; 3%** Subtract 1,940 from 2,000 to get 60 fresh-water beads. Then 60/2,000 = 3/100 = 3%.
2. **10 drops; 1%** Add 9 groundwater drops and 1 other freshwater drop to get 10 drops. Since 10/1,000 = 1/100, they represent 1% of the model.

CHALLENGE

Of the 30 fresh-water drops, 20 are frozen, so the fraction is 20/30 = 2/3. Of all 1,000 model drops, 20 are frozen, so the percent is 2%.

Accept 20/30 for the challenge fraction if the student identifies 30 as the fresh-water total. The 1,000-drop counts are a simplified model, not exact measurements of Earth's reservoirs.