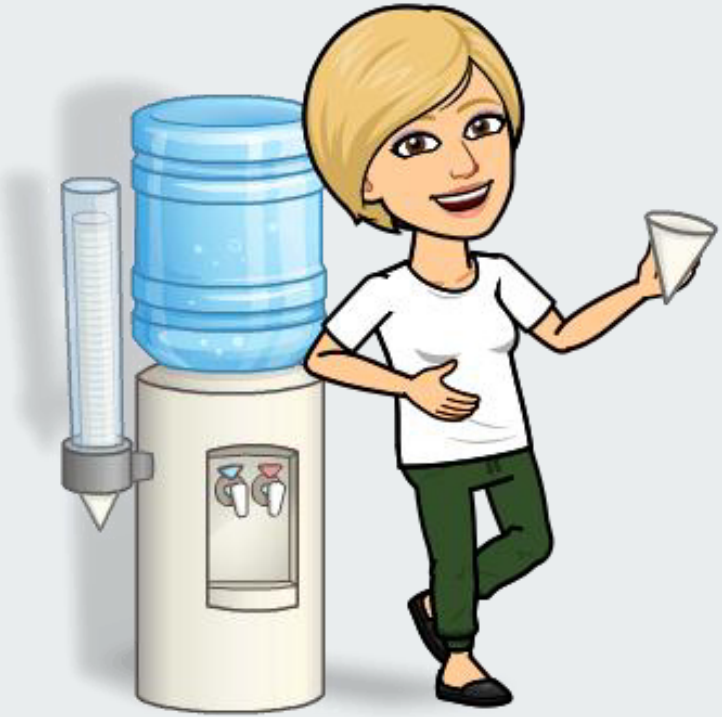
Today's Materials



- device
- pencil
- notebook

Using Water Efficiently

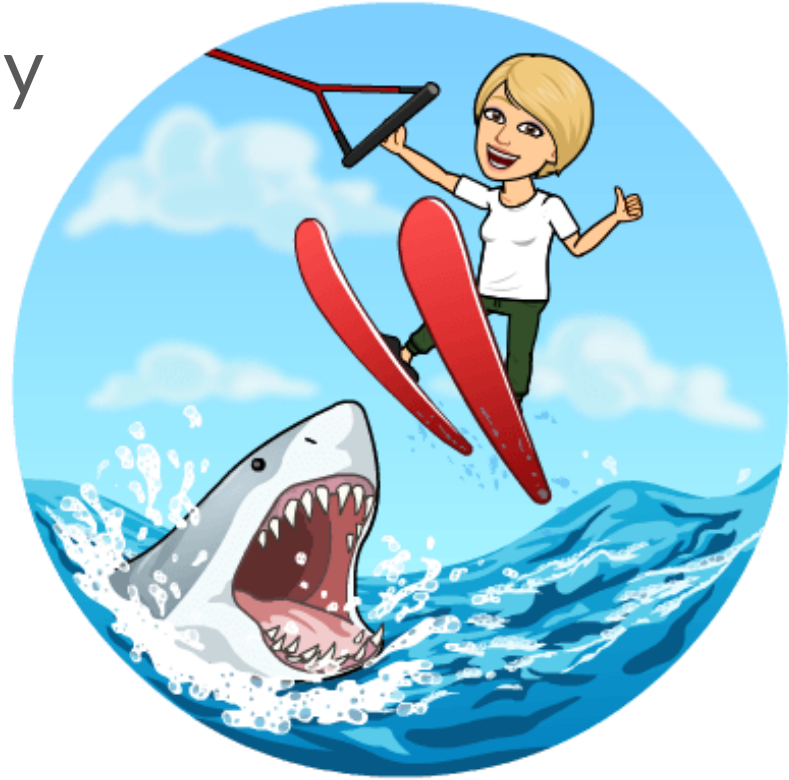
Lesson 15

CCSS Standards: Addressing	• 7.RP.A.2

Let's investigate saving water!

Today's Goals

- ❏ I can answer a question by representing a situation using proportional relationships.



Comparing Baths and Showers

Warm Up

Some people take showers.
Some people take baths.

There is a disagreement over which one takes more water.

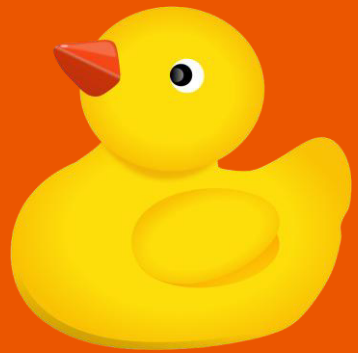
What do you think?

Some people say that it uses more water to take a bath than a shower. Others disagree.

1. What information would you collect in order to answer the question?
2. Estimate some reasonable values for the things you suggest.

Information we may need to know...

- Average time spent in the shower
- Volume of a bathtub
  (how much water one holds)
- How fast water comes
  out of a shower



Saving Water: Bath or Shower?

Activity 15.2

- Gallery Walk
- Group Presentations

Today, you'll be researching information to determine which uses more water.

1. Describe a method for comparing the water usage for a bath and a shower.
2. Find out values for the measurements needed to use the method you described.
    - If you get stuck, ask Mrs. Stipe for more information.
3. Under what conditions does a bath use more water?
   Under what conditions does a shower use more water?
4. Make a display (Google Slides) to share your research and results.

Useful Information:

- Typical modern showers have a flow rate of 1.9-2.5 gallons per minute.
- Older showers (before 1992) could have flow rates up to 5.5 gallons per minute.
- The interior of a typical bath tub has an approximate width of 30-32 inches, length of 55-60 inches, and depth of 18-24 inches.
- There are approximately 230 cubic inches in 1 gallon of water.
- 1 liter of water is 1,000 cm^3.
- 1 liter is approximately 0.26 gallons.
- 1 inch is 2.54 centimeters.
- Typical showers last approximately 11 minutes, although during a drought, it is recommended to reduce the time to about 5 minutes. During normal circumstances, some people appreciate much longer showers.

Representing Water Usage

Activity 15.3

1. Continue considering the problem from class today. Name 2 quantities that are in a proportional relationship. Explain how you know they are in a proportional relationship.
2. What are two constants of proportionality for the proportional relationship? What do they tell us about the situation?
3. On graph paper, create a graph that shows how the two quantities are related. Make sure the label the x-axis and y-axis.
4. Write two equations that relate the quantities in your graph. Make sure to record what each variable represents.

Let’s share!

Today's Goals

- ❏ I can answer a question by representing a situation using proportional relationships.