

# Lesson 9: Problem Solving with Volume: Water (Optional)

## Standards Alignments

Addressing 5.MD.C.5

### Teacher-facing Learning Goals

- Solve real world and mathematical problems involving volume.

### Student-facing Learning Goals

- Let's solve problems about volume of water.

## Lesson Purpose

The purpose of this lesson is for students to solve real world problems about volume.

In this optional lesson, students apply their understanding of volume to relate the amount of water that falls on a house roof to the amount of water a family might use for everyday activities. This lesson is optional because it requires conversions between different measurement systems. The calculations, especially those for family water use, require detailed estimates. Students can make their own estimates to increase the modeling aspect of the activity or they can use provided estimates. Students may consider a variety of uses of water beyond those highlighted in the materials such as the water they drink or the water used for plants.

When they compare the volume of water that falls on a house roof to the amount of water they use each month, students will use an important feature of the metric system, namely that length and volume units are naturally related to one another and the context gives students a chance to practice multiple conversions.

This lesson has a Student Section Summary.

### Access for:

#### Students with Disabilities

- Representation (Activity 1)

#### English Learners

- MLR5 (Activity 1)

## Instructional Routines

Notice and Wonder (Warm-up)

## Lesson Timeline

Warm-up	10 min
Activity 1	15 min
Activity 2	20 min
Lesson Synthesis	10 min
Cool-down	5 min

## Teacher Reflection Question

What do your students think it means to be good at math? How are you helping them change negative impressions they might have about their ability to reason mathematically?

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## Cool-down (to be completed at the end of the lesson)

 5 min

Reflection: Volume

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### Student-facing Task Statement

What questions do you still have about measuring volume?

### Student Responses

Sample responses:

- How can we find the volume of something that isn't a rectangular prism?
- Is it possible to use the same strategy to find the volume for liquid?
- I know 2 numerical ways of finding the volume of a rectangular prism. Is there another way?