Your World

Investigating Measurement

Volume and Mass



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Mealtime Measuring

How do you measure things when you help cook dinner? Do you use cups? Do you use spoons? Do you add a pinch of something to a mixing bowl? You probably do not measure everything the same way. The way you measure things depends on the units that are needed. And before you start cooking, you need to make sure you have what you need.

When people shop for ingredients, they must make sure they buy the right amounts. Otherwise, they will not be able to follow their recipes. Luckily, most foods have labels. Those labels list key measurements. For instance, the label on a bag of rice will tell you how much rice is in the bag. The label on a bottle of water will tell you how much water is in the bottle. It is important to know what these numbers mean. Numbers are important inside and outside of the kitchen.



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LET'S EXPLORE MATH

There are two boxes of the same cereal in the pantry. The two boxes are exactly the same size. One box is unopened and full. The other box has been opened and some of the cereal has been eaten.

1. Which box of cereal is heavier? How do you know?
2. How can you find how much heavier one box of cereal is than the other? List your steps.

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The Same Language

Can you speak more than one language? Or, do you know someone who can speak a language that you don't know? Whatever the case may be, there is one language that is known all over the world—math! Math is a **universal** language. We can use numbers to talk about the world around us.

How do numbers help us describe our world? Well, numbers are often used to describe measurements. The weight of a solid object depends on how much **matter** is in that object. That amount is called **mass**. The more mass things have, the heavier they will be. Liquids are measured differently, though. They are measured by the amount of space they take up. That amount is called **volume**.

While numbers are all the same, units vary. The **metric system** has units that can be used to talk about temperature, length, mass, and volume. It is based on the number 10. Metric units such as **kilograms** (kg) and **grams** (g) measure mass. **Liters** (L) and **milliliters** (mL) are common units used to measure volume.





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LET'S EXPLORE MATH

Which unit of measurement would be best to measure each item's mass or volume?

kilogram gram liter milliliter

1. water in a fish tank
2. weight of a dollar bill
3. liquid in a tear drop
4. weight of a dictionary



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Take a Good Guess

What if you don't have time to find an exact measurement? Take breakfast, for example. Do you measure the milk before pouring it into your cereal bowl? Or, do you just pour until it looks right? Chances are that you do the latter. But this is more than a guess. It's based on what you know.

The bowl holds a certain amount of liquid. The dry cereal is already taking up some room in that bowl. That information can be used to pour the right amount of milk. This is called **estimating**. If your estimate is wrong, your breakfast might not be what you hoped for.

Estimation is used every day. People estimate how long it will take to get to school or work. Shoppers estimate how much groceries will cost. These are not random guesses. They are based on information that is known.

