

LESSON 1

Properties of Matter

► Play Video: Introduction



What is matter?

New Vocabulary

mass the measure of the amount of matter in an object

matter anything that takes up space and has mass

property something you can observe with your senses

texture how the surface of an object feels to the touch

volume the measure of how much space matter takes up

Soon You'll Know

Main Ideas

1. What matter is
2. How to describe matter
3. How some properties of matter are measured

► Play Video A: Matter

Remember The video you just watched was about matter. Of course, you already know something about the subject. Why? Because you are made of matter too!

Think about it Have you ever accidentally bumped into a door? If so, you know that a door is made of **matter**. This means it takes up space and has mass. **Mass** is the amount of matter in an object. A balloon doesn't have a lot of mass. A door has a lot of mass.



These coins are made of matter.



The balloon is made of matter. So is the air inside it.



Weight can change, but mass stays the same.

Mass and **weight** are not the same. Weight depends on the pull of **gravity**. So an object's weight can change depending on where that object is. But the mass of an object always stays the same. Your weight on Earth would be different from your weight on the moon. Your mass would be the same in both places.

Now You Know

Main Idea 1: Matter

Matter is anything that takes up space and has mass.

► Play Video B: Properties of Matter

Remember In the video you learned about the properties of matter. From gooey to gruesome, the properties of matter make the world an interesting place!

Think about it Pretend you just lined up your shoes and your friends' shoes along the wall. How would you describe them? Big? Small? Colorful? Smelly? You can probably think of lots of different ways to talk about them. That's because all matter, including shoes, can be described by **properties**.



Sweet, fresh, round, and red are all properties.



The ice cube is cold.



The snail is slimy.

We observe the properties of matter with our senses. We might say something is hot or cold. We might say the **fruit** tastes sweet. We might even describe the **texture**, or feel, of an object. Different matter has different properties so it's described in different ways. Shape, size, color, and texture are all properties. And there are many more.

Now You Know

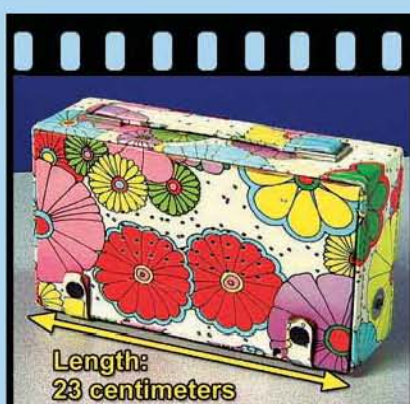
Main Idea 2: Properties of Matter

Matter can be described using properties.

► Play Video C: Mass and Volume

Remember In the video you learned that mass and volume can be measured. Good thing too. You wouldn't want to scuba dive without knowing how much air you have in your scuba tank!

Think about it All matter can be measured. That's because matter has mass and takes up space. So, for example, if you want to find the mass of a book, you can place it on a metric balance. The balance will measure the book's mass in grams.



You can measure length in centimeters.



Volume is a measure of the amount of space something takes up.



But you can also measure matter by its **volume**, or the amount of space it takes up. It's easier to measure **liquid** this way. If you pour water into a measuring cup, the mark at the top of the water level will show you its volume.

Now You Know

Main Idea 3: Mass and Volume

Mass and volume are properties of matter that can be measured.

Build Your Vocabulary

Vocabulary Review

Use the word bank to complete each sentence.

1. A _____ is a characteristic of matter and can be observed with your senses.
2. A word used to describe how the surface of an object feels to the touch is _____.
3. The measure of the amount of matter in an object is its _____.
4. The measure of how much space matter takes up is its _____.
5. _____ includes anything that takes up space and has mass.

mass

matter

property

texture

volume



Word Play: Rhyming

Poems and songs often use words that rhyme, or have the same sounds at the end. For example:

Rusty, smooth, rough, and impossible to **shatter**.

These words describe the properties of **matter**!

Now you do it. Write your own poem using one or more of the new vocabulary words. Make the last two words rhyme.

Check Your Understanding

Show What You Know

Main Ideas: Write the answer to each question.

1. What is a good way to define matter?
2. What are some of the properties of matter?
3. What are two properties of matter that can be measured?

Critical Thinking

1. **Apply** How could you use properties of matter to help you organize your toys?
2. **Analyze** Explain how we know air is matter even though we can't see it.



Writing in Science

Write a description Describe your favorite meal. Think about the different properties of the food. Try to use all of your senses as you write.

- ◆ How does the food smell?
- ◆ What does it look like?
- ◆ How does it taste?
- ◆ You can even write about how your favorite food makes you feel!

Process Skill

Quick Activity

Classify When you classify, you group things together by their properties. List ten things in your classroom. Decide how you would classify these objects into two big groups.

Now share your list with a partner. Ask your partner to divide the list into two groups. Did you and your partner use the same properties to classify these objects?