

Properties of Matter

Student Edition,
pp. 156-161



1 FOCUS

Lesson Prep

Key Objectives

- Define and describe matter.
- Identify some properties of matter.
- Explain how some properties of matter are measured.

Video Time

Total Running Time  **8:36**

VIDEO A  **1:59**

VIDEO B  **1:21**

VIDEO C  **1:42**

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VIDEO PREVIEW

VIDEO A **Matter Main Idea** Matter is anything that takes up space and has mass.

VIDEO B **Properties of Matter Main Idea** Matter can be described using properties.

VIDEO C **Mass and Volume Main Idea** Mass and volume are properties of matter that can be measured.

VOCABULARY PREVIEW

Science Vocabulary Observe: to see, hear, touch, smell, or taste things around you. The science word *observe* is used in the definition of *property*. Ask students to list what they can observe from their seats. Summarize their responses on the board. Ask them to classify each item in the list according to the sense they used. This task helps students focus on using more than just sight to make observations.

VIDEO Language Focus

Have students brainstorm sentences using the word *matter*, such as *What's the matter* and *It doesn't matter*. Tell students that *matter* has a different meaning in science.

2 TEACH

Student Edition, p. 157

VIDEO A Matter ▶ 1:59

- **Define** matter. All objects and living organisms are matter. Solid earth, water, and air are also matter. Make the point that invisible things, such as the gases in air, also fit the definition. Feelings, emotions, and ideas are things that are not matter.
- **Explain** that mass is a measure of the amount of matter in an object. An object's mass is the amount of matter it contains. Grams and kilograms are two of the units used to measure mass.
- **Distinguish** mass from size and weight. Mass measures the amount of matter in an object; weight measures the force of gravity acting on an object. Large objects do not necessarily have more mass than small objects. Have students find examples of things that demonstrate this.

Lesson 1 Video A: Matter
Understanding Key Concepts

Name _____ Date _____

Skill Focus: Classifying

Classifying means putting things in groups based on what they have in common. When you classify, you group information so it is easy to understand.

After Watching the Video

Fill in the T-chart below. List things that are matter on one side. List things that are not matter on the other side.

| Matter | No Matter |
|--------|-----------|
| | |

120 Chapter 8 Lesson 1 Matter © Houghton Mifflin Harcourt Publishing Company

Teacher's Resource Book, p. 129

Student Edition, p. 158

VIDEO B Properties of Matter ▶ 1:21

- **Summarize** how the senses can be used to describe matter. For example, the approximate temperature of an object is determined by touch. The color of an object is determined using sight. Measuring the volume of a liquid also uses the sense of sight. Measurements are made using the senses. Make sure to review examples that use all of the senses.
- **Identify and describe** some properties of matter. A property is something that can be observed using the senses. Color, temperature, texture, smell, and size are all examples of properties of matter.
- **Challenge** students to come up with many different ways to describe the items they see in the video.

Lesson 1 Video B: Properties of Matter
Understanding Key Concepts

Name _____ Date _____

Skill Focus: Organizing Information

Organization is helpful to write information in a graphic organizer. It shows how the ideas go together.

After Watching the Video

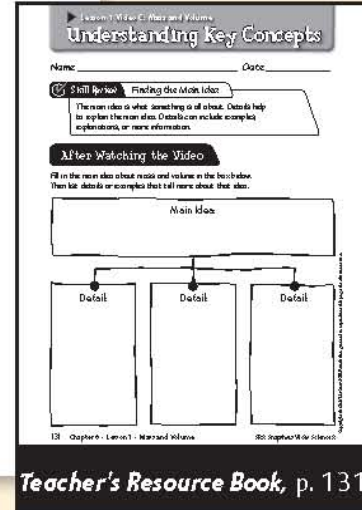
Fill in the diagram with examples of different types of properties.

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Teacher's Resource Book, p. 130

VIDEO Mass and Volume 1:42

- **Reinforce** that all matter takes up space and has mass. Space and mass can be quantified using measurements.
- **Define** volume. The volumes of solids, liquids, and gases are measured using different techniques. One unit of measurement for the volume of liquids and gases is the liter.
- **Explain** that mass can be measured. Mass is measured using a balance. Reiterate that mass and weight are not the same. Weight is measured using a scale with a spring, not a balance. The scale shows the force of gravity pulling down on the object. Weight is expressed as newtons instead of grams.



Lesson 1 Mass and Volume
Understanding Key Concepts

Name _____ Date _____

Skill Focus Finding the Main Idea

The main idea is what something is all about. Details help to explain the main idea. Details can include examples, explanations, or more information.

After Watching the Video

Fill in the main idea about mass and volume in the box below. Then list details or examples that tell more about that idea.

Main Idea

Detail Detail Detail

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Teacher's Resource Book, p. 131

Differentiated Instruction Options

ELL

Language Focus

Help students with adjectives to prepare them for the worksheet on properties of matter. **Low Level** List simple adjectives, such as *new*, *big*, *fast*, and *clean*, on the board. Help students to make the adjectives negative and to create sentences. **Intermediate Level** Help students brainstorm other adjectives such as *bent*, *rusty*, and *dull*, as well as their antonyms. **Advanced Level** Have students add prefixes to adjectives to change their meanings. Examples include *clean* and *unclean*. Have students complete *Teacher's Resource Book*, pp. 127–128.

Remediation

Word Scramble

Provide students with cards that each have one of the letters of the word *properties*. The letters should be given to students out of order so they do not know what word the letters spell. First, have students make two-letter words with their letter cards, and list the words they make on the board. Continue the same process for three-, four-, and five-letter words. Challenge students to use all of the letter cards to make the mystery word.

Materials:

- 10 letter cards per student

Activities for All

Finding Volume

Have students measure items around the classroom to determine volume. Use metric rulers to calculate the volume of boxes. Use measuring cups to determine the volume of liquids. Pour liquids into different containers to reinforce the concept that volumes of liquids will stay the same even though the containers change shape.

Materials:

- metric rulers
- boxes
- plastic measuring cups or beakers
- liquids, such as colored water

3 ASSESS

Wrap Up

Informal Assessment



What does the measurement tell you when a student uses a balance to determine that a paper clip has a mass of 1 gram?

Answer: This measurement tells the amount of matter in the paper clip.



Play *MindJogger Interactive Lesson Review Game*

Vocabulary Review

Lesson 1 Properties of Matter
Building Your Science Vocabulary

Name _____ Date _____

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 describe with your senses

texture how the surface of an object feels to the touch

volume the measure of how much space matter takes up



Academic Vocabulary
describe, to see, hear, touch, smell, or taste the things around you

Making Choices

Circle the best choice.

1. When you say that an apple feels smooth, you are describing its (a) texture or (b) mass.
2. The mass of a rocket (a) is always the same or (b) changes when the object is on the moon.
3. A balloon and the air inside it are examples of (a) properties or (b) matter.
4. You can observe the properties of milk with (a) all of your senses or (b) just your eyes.
5. When you pour water into a measuring cup, you are measuring (a) its texture or (b) its volume.

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Teacher's Resource Book, p. 132

Answers

Answers to Student Edition questions on pages 160-161.

Vocabulary Review

1. property
2. texture
3. mass
4. volume
5. matter

Word Play: Rhyming

Encourage students to use interesting properties of matter when they create their own poems.

Show What You Know

1. Matter is anything that has mass and takes up space.
2. Accept any reasonable answers. Properties of matter can include shape, size, color, and texture.
3. Mass and volume are both properties that can be measured. Accept other measurable properties as well such as hardness or weight.

Critical Thinking

1. Accept any organizational method that uses some property such as color or size.
2. We know air takes up space and mass because it fills a balloon.

Writing

In Science

Student descriptions about their favorite foods should include properties that can be observed with all the senses.

Process Skill

Quick Activity

Encourage students to classify the ten things on their lists in many different ways. Students should be able to explain their classification method to others.