

Chapter 2 Properties of Matter

Section 2.2 Physical Properties**(pages 45–51)**

This section discusses physical properties and physical changes. It also explains how physical properties can be used to identify materials, select materials, and separate mixtures.

Reading Strategy (page 45)

Building Vocabulary As you read, write a definition for each term in the table below. For more information on this Reading Strategy, see the **Reading and Study Skills** in the **Skills and Reference Handbook** at the end of your textbook.

Defining Physical Properties	
Physical Property	Definition
Viscosity	
Malleability	
Melting Point	

Examples of Physical Properties (pages 45–47)

1. A physical property is any characteristic of a material that can be observed or measured without changing the _____ of the substances in the material.
2. Explain why a wooden spoon is a better choice than a metal spoon for stirring a boiling pot of soup. _____

3. Is the following sentence true or false? A liquid with a high viscosity flows more slowly than a liquid with a low viscosity at the same temperature. _____
4. Is the following sentence true or false? Discovering which of two materials can scratch the other is a way to compare the hardness of the materials. _____

Match each term to its definition.

Term	Definition
_____ 5. viscosity	a. The ability of a solid to be hammered without shattering
_____ 6. conductivity	b. The temperature at which a substance changes from a liquid to a gas
_____ 7. malleability	c. The resistance of a liquid to flowing
_____ 8. melting point	d. The ability to allow heat to flow
_____ 9. boiling point	e. The ratio of the mass of a substance to its volume
_____ 10. density	f. The temperature at which a substance changes from a solid to a liquid

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11. Which of the substances in the table below are gases at room temperature?

a. _____ b. _____ c. _____

Melting and Boiling Points of Some Substances		
Substance	Melting Point	Boiling Point
Hydrogen	-259.3°C	-252.9°C
Nitrogen	-210.0°C	-195.8°C
Ammonia	-77.7°C	-33.3°C
Octane (found in gasoline)	-56.8°C	125.6°C
Water	0.0°C	100.0°C
Acetic acid (found in vinegar)	16.6°C	117.9°C

Using Physical Properties (page 48)

12. Describe three steps that can be used to identify a material. _____

13. Is the following sentence true or false? Usually, people consider only one property when choosing a material. _____

Using Properties to Separate Mixtures (page 50)

14. Two processes that are commonly used to separate mixtures are _____ and _____.

15. Explain how filtration separates materials based on the size of their particles.

16. Explain why distillation works for converting seawater into fresh water.

Recognizing Physical Changes (page 51)

17. Is the following sentence true or false? In a physical change, some of the substances in a material change, but the properties of the material stay the same. _____

18. Explain why the boiling of water is a physical change. _____

19. Circle the letter for each process that is a reversible physical change.

- a. wrinkling a shirt
- b. freezing water
- c. cutting hair
- d. peeling an orange