FLPS

Name _____

Physical Science

Study Guide

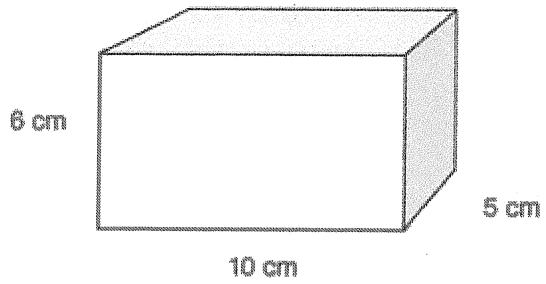
MP-2

Name _____ Date _____

Matter

Choose the letter of the best answer.

1. The illustration below shows a rectangular solid.



What is the volume of this solid?

A. 21 cm^3

B. 30 cm^2

C. 60 cm^2

D. 300 cm^3

2. All matter has physical and chemical properties. These properties can be used to identify the type of matter. Which of these statements describes a chemical property?

A. A particular substance evaporates at 30 °C.

B. A 2-ft.-long metal bar has a mass of only 176 g.

C. A certain heavy metal turns to a liquid at room temperature.

D. A metal is added to a beaker of water, and the beaker explodes.

3. David found that water can be created in a lab by burning hydrogen gas in air. He concluded that water is not a compound because only hydrogen was used to form water. What is wrong with David's conclusion?

A. A compound does contain only one type of element.

B. Hydrogen is made up of two different types of atoms.

C. Water was not the product formed when he burned hydrogen.

D. The hydrogen combined with oxygen from the air to form water.

4. Which process represents a chemical change?

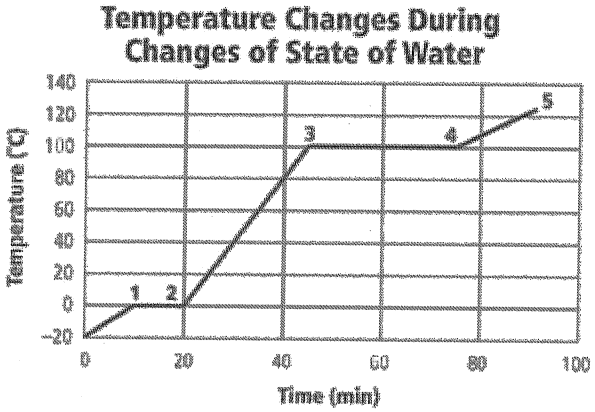
A. A lake freezes over into ice.

B. A metal bar is rolled into a flat sheet.

C. Vinegar bubbles when baking soda is added.

D. Sand, water, and salt combine to form a mixture.

5. The diagram below shows how the temperature of water changes as the water changes states.



Between which points does water boil?

A. 1 to 2

B. 2 to 3

C. 3 to 4

D. 4 to 5

6. Trini adds 10 g of baking soda to 100 g of vinegar. The mixture begins to bubble. When the bubbling stops, Trini finds the mass of the resulting mixture. She determines its mass is 105 g. Why has the mass changed?

A. A gas has formed and left the mixture.

B. Vinegar evaporated during the experiment.

C. Mixtures always are less massive than their parts.

D. Mass was destroyed when vinegar reacted with baking soda.

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7. Marissa blows up balloons for a party. She decides how big or small to make each balloon. Why does the air she blows into each balloon take up all the space inside the balloon?

   A. The air particles are easily able to slide past one another.

   B. Air is a gas and so fills its container, the balloon, completely.

   C. The air particles increase in size when they have more space.

   D. There is a strong attraction between the air particles and the balloon.

8. Some properties are the same in a substance no matter the amount of the substance. Which of the following properties does not change based on the amount of the substance?

   A. density

   B. mass

   C. volume

   D. weight

9. At which temperature does ice melt into liquid water?

   A. 0°C

   B. 32°C

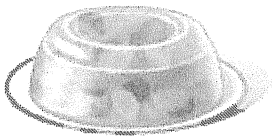
   C. 100°C

   D. 212°C

10. The four items below were part of a dinner. Each item is a mixture.

Salad dressing

A



Gelatin

B

Whipped cream

C

Apple juice

D

Which of these mixtures is a suspension?

A. A

B. B

C. C

D. D

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Introduction to Matter

Choose the letter of the best answer.

1. Which statement is true of all matter?

   A. It has mass.

   B. It can be seen.

   C. It exists only as a solid.

   D. It maintains its shape and size.

2. A metal coin has certain properties that can be measured. Which property of a coin is different on the moon than it is on Earth?

   A. mass

   B. weight

   C. volume

   D. density

3. What is the volume of a rectangular solid that is 40 centimeters long, 10 centimeters wide, and 5 centimeters high?

   A. 400 cm^3

   B. 500 cm^3

   C. 1,000 cm^3

   D. 2,000 cm^3

4. Which phrase describes the mass of an ice cube?

   A. the total amount of water in the ice cube

   B. an estimation of the weight of the ice cube

   C. the amount of space that the ice cube occupies

   D. the product found by multiplying its length, width, and height

5. The table lists the densities of some common materials at 20°C.

Material	Density (g/cm^3)
gasoline	0.70
mercury	13.6
milk	1.03
water	0.998

   If a scientist has 10 grams of each material, which material has the greatest volume?

   A. milk

   B. water

   C. mercury

   D. gasoline

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Properties of Matter

Choose the letter of the best answer.

1. Hydrogen gas (H_2) can be found in trace amounts in Earth's atmosphere. Which of these statements describes a physical property of hydrogen?

   A. Hydrogen is found in acids.

   B. Hydrogen gas is highly flammable.

   C. Hydrogen reacts with oxygen to form water.

   D. Hydrogen gas is less dense than oxygen gas.

2. Which of these is a chemical property of a sheet of paper?

   A. The paper can be burned.

   B. The paper can be crumpled.

   C. The paper does not attract a magnet.

   D. The paper does not conduct electricity.

3. Which of these choices is a physical property that does not change when the size of the sample changes?

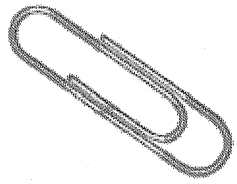
   A. mass

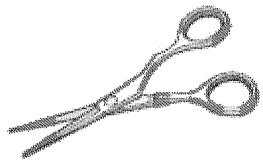
   B. volume

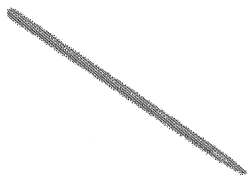
   C. density

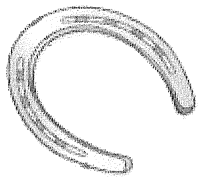
   D. flammability

4. The pictures below show four objects—a paper clip, a pair of scissors, a needle, and a horseshoe. Assume that each object is made of the same metal.









   Which of these physical properties is not similar in all four of these objects?

   A. mass

   B. magnetism

   C. specific heat

   D. electrical conductivity

5. Which of these statements describes a chemical property of an object?

   A. The object is white in color.

   B. The object has a powdery texture.

   C. The object's density is 2.11 g/cm^3.

   D. The object reacts with acid to form water.

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Unit 1 Lesson 3

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Physical and Chemical Changes

Choose the letter of the best answer.

1. Which process is an example of a physical change?

   A. Carrots are cut into small pieces and mixed into a salad.

   B. A peanut butter sandwich is eaten and broken down by enzymes in the stomach.

   C. Sodium metal and chlorine gas are combined to form sodium chloride, or table salt.

   D. Sodium metal and water are combined to form a basic compound and a flammable gas.

2. Which process is an example of a chemical change?

   A. an iron nail rusting

   B. bath water cooling while you take a bath

   C. a piece of metal being heated until it expands

   D. a glass window breaking when hit with a baseball

3. When paper is burned, the mass of the remaining ash is less than the mass of the original paper. Which statement best explains this result?

   A. The ash has less volume than the paper.

   B. Some of the matter is destroyed during the reaction.

   C. The mass of the ash cannot be accurately determined.

   D. Some of the products of the reaction were given off as a gas.

4. There are several differences between chemical and physical changes. Which process is an example of a chemical change?

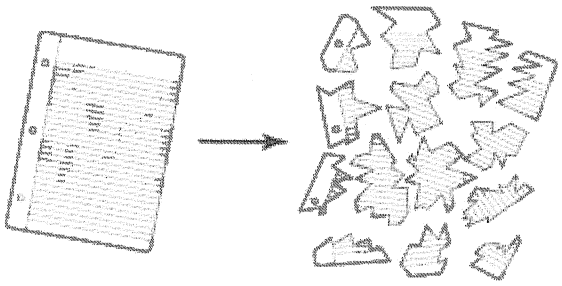
   A. steam rising from a boiling pot of soup

   B. a metal railing rusting in damp weather

   C. alcohol evaporating from a cotton swab

   D. a piece of wood shrinking as it dries out

5. Marco tears a piece of notebook paper into smaller pieces, as shown below.



Tearing paper into pieces is an example of what kind of change?

A. a change in mass

B. a physical change

C. a chemical change

D. a change in energy

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Pure Substances and Mixtures

Choose the letter of the best answer.

1. What type of substance is always made up of a single type of atom?

   A. mixture

   B. element

   C. molecule

   D. compound

2. Which of these common substances is a homogeneous mixture?

   A. table salt

   B. pure water

   C. whole milk

   D. maple syrup

3. Which of these substances is an example of a solution?

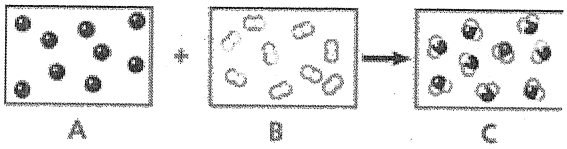
   A. milk

   B. brass

   C. mercury

   D. concrete

4. Reactant A and reactant B undergo a chemical reaction to form product C.



   What type of substance is product C?

   A. an atom

   B. a mixture

   C. an element

   D. a compound

5. Which of these substances is a compound?

   A. carbon

   B. chlorine

   C. uranium

   D. ammonia

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Unit 1 Lesson 5

States of Matter

Choose the letter of the best answer.

1. Ana is creating a model to show atoms of solid bromine, liquid bromine, and gaseous bromine. How should her three models differ?

   A. The size of the atoms should vary depending on the state.

   B. The mass of the atoms should vary depending on the state.

   C. The motion of the atoms should vary depending on the state.

   D. The identity of the atoms should vary depending on the state.

2. Which state of matter will take both the volume and shape of the container that holds it?

   A. gas

   B. ice

   C. liquid

   D. solid

3. Frost forms when water vapor changes directly to ice in a process called deposition. If you were to model the water particles before and after deposition, how would they compare?

   A. Before deposition, the particles vibrate in place; after deposition, they slide by each other.

   B. Before deposition, the particles slide by each other; after deposition, they vibrate in place.

   C. Before deposition, the particles vibrate in place; after deposition, they move quickly in all directions.

   D. Before deposition, the particles move quickly in all directions; after deposition, they vibrate in place.

4. Why does water that is frozen in an ice cube tray stay in the shape of a cube when it is taken out of the tray?

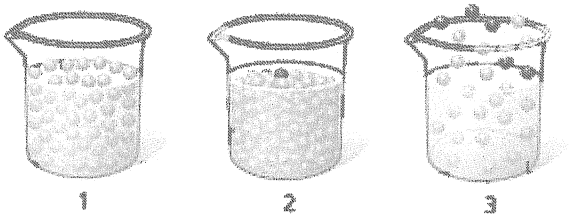
   A. The water particles become locked in place.

   B. The water particles stop moving completely.

   C. The water particles grow bigger to fill the space.

   D. The water particles can only slip past one another.

5. The diagram illustrates particles in three states of matter.



What do each of the states of matter have in common?

   A. The particles are locked into position.

   B. The particles in each are in constant motion.

   C. The particles take the shape of their containers.

   D. The particles have the same volume in each container.