Name _____ Date _____ Class _____

Lesson Quiz

STUDY GUIDE PACKET
* Turn in on Test day to earn Extra Credit towards your test score! Yay!

Measuring Matter

Write the letter of the correct answer on the line at the left.

1. ___ A balloon filled with air does not rise as high as a balloon filled with helium. What does this tell you about the density of helium?
   A Helium is more dense than air.
   B Helium is less dense than air.
   C The two gases have the same density.
   D When heated, helium becomes more dense.

2. ___ The amount of matter in an object is a measure of its
   A volume
   B density
   C weight
   D mass

3. ___ The formula for calculating density is
   A Mass × Volume
   B Mass × Weight
   C $\frac{\text{Mass}}{\text{Volume}}$
   D $\frac{\text{Volume}}{\text{Mass}}$

4. ___ Which of the following statements about the mass of an object is correct?
   A Mass changes with location.
   B Mass remains constant.
   C Mass changes with altitude.
   D Mass changes with gravity.

If the statement is true, write *true.* If the statement is false, change the underlined word or words to make the statement true.

5. _____ The SI unit of mass is the cubic meter.

6. _____ One liter is equal to 100 milliliters.

7. _____ An object's weight is less on the moon than on Earth. On the moon, the object's mass decreases.

8. _____ An object that floats in water has a density less than 1 g/mL.

9. _____ Four measurable properties of matter are mass, weight, volume, and pressure.

10. _____ The SI unit of volume is the kilogram.

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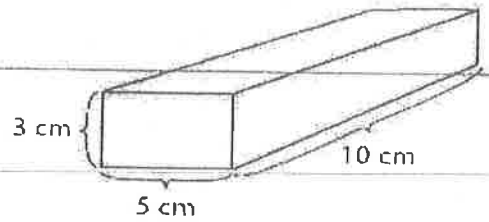
Review and Reinforce

Measuring Matter

Understanding Main Ideas

Use the figure to answer the following questions on a separate sheet of paper.



1. What is the volume of the solid in the figure? Show your work. Be sure to use correct units of measurement.
2. The solid has a mass of 180 g. What is the density of the solid? Show your work. Be sure to use correct units of measurement.
3. Would the solid have a mass of 180 g on the moon? Would it have the same weight on Earth as on the moon? Explain your answers.
4. The solid sinks to the bottom when placed in a container of water. What does this tell you about its density?
5. Will every solid with the same dimensions have the same density? Explain your answer.

Building Vocabulary

Write a definition for each of these terms on a separate piece of paper.

6. International System of Units
7. mass
8. volume
9. density
10. weight

Name _____ Date _____ Class _____

Lesson Quiz

Classifying Matter

Write the letter of the correct answer on the line at the left.

1. ___ A molecule is the smallest part of
   A an element
   B a compound
   C a substance
   D an atom

2. ___ A mixture of iron and sulfur can be separated by
   A magnetic attraction
   B distillation
   C evaporation
   D filtration

3. ___ Compounds are formed as a result of
   A physical combination
   B chemical combination
   C distillation
   D filtration

4. ___ The ratio of hydrogen atoms to sulfur atoms in sulfuric acid, H_2SO_4 is
   A 2 to 4
   B 1 to 2
   C 2 to 1
   D 1 to 4

If the statement is true, write *true*. If the statement is false, change the underlined word or words to make the statement true.

5. _____ Salad dressing is an example of a homogeneous mixture.

6. _____ The simplest type of substance is a(n) compound.

7. _____ When elements combine to form compounds, their properties do not change.

8. _____ The chemical symbol for water is H_2O.

9. _____ Substances in a mixture keep their own properties.

10. _____ The substances in a heterogeneous mixture can usually be seen and are easily separated.

Name _____ Date _____ Class _____

Review and Reinforce

Classifying Matter

Understanding Main Ideas

Answer the following questions on a separate piece of paper.

1. Describe the basic particle from which all elements are made.
2. How are elements and compounds related?
3. What is the difference between a chemical symbol and a chemical formula?
4. What are two ways in which mixtures differ from compounds?
5. List four methods that can be used to separate mixtures.

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

6. ____ atom
7. ____ chemical bond
8. ____ molecule
9. ____ element
10. ____ chemical formula
11. ____ compound
12. ____ mixture

a. shows the elements and ratio of atoms in a compound

b. a group of two or more atoms held together by chemical bonds

c. a substance made of two or more elements chemically combined in a set ratio

d. a substance that cannot be broken down into any other substance

e. two or more substances together in the same place but not chemically combined

f. the basic particle of any element

g. the force of attraction between two atoms

Name _____ Date _____ Class _____

Lesson Quiz

Describing Matter

Write the letter of the correct answer on the line at the left.

1. ___ The physical property that makes metal pots good for cooking is
- A flexibility
- B electrical conductivity
- C flammability
- D heat conductivity

2. ___ Which of the following is true about matter?
- A It is a solid that takes up space.
- B It has mass and takes up space.
- C It has mass and is usually a liquid.
- D It is always a substance.

3. ___ Which of the following is **not** true about a pool of water and a piece of ice?
- A They have the same composition.
- B They are in different states of matter.
- C They have different chemical properties.
- D They have different physical properties.

4. ___ Characteristics used to describe matter are called
- A physical properties
- B chemical properties
- C both A and B
- D neither A nor B

Fill in the blank to complete each statement.

5. Solid, liquid, and gas are the three _____ of matter.

6. The metal tungsten is used in incandescent light bulbs because of its property of _____.

7. _____ is the study of matter and the changes in matter.

8. The ability of iron to rust is a(n) _____ property.

9. A(n) _____ is a single kind of matter that has a specific composition.

10. Another term for the ability to burn is _____.

Name _____ Date _____ Class _____

Review and Reinforce

Describing Matter

Understanding Main Ideas

Classify each of the following properties by writing physical or chemical on the line at the left.

1. _____ Texture
2. _____ Ability to react with other substances
3. _____ Ability to conduct heat
4. _____ Hardness
5. _____ Lack of ability to rust
6. _____ State

Building Vocabulary

If the statement is true, write *true*. If the statement is false, change the underlined word or words to make the statement true.

7. _____ Table salt is an example of a(n) substance.
8. _____ The study of matter and how it changes is called physics.
9. _____ Matter is anything that has color and takes up space.
10. _____ A(n) physical property of a substance can only be observed if the substance changes into a different substance.
11. _____ The boiling point of a substance is a(n) chemical property.

Name Date Class

Lesson Quiz

Changes in Matter

Write the letter of the correct answer on the line at the left.

1. ____ Which of the following is **not** a physical change?
   A glass breaking
   B iron rusting
   C ice melting
   D sugar dissolving

2. ____ Which of the following is **not** a chemical change?
   A leaves turning color
   B fruit ripening
   C silver tarnishing
   D food coloring dissolving in water

3. ____ Butter is melted in a pan. Which of the following is true about the change?
   A It is a physical change that releases energy.
   B It is a chemical change that absorbs energy.
   C It is a physical change that absorbs energy.
   D It is a chemical change for which there is no change in energy.

4. ____ The energy stored in the bonds between atoms is
   A chemical energy
   B thermal energy
   C electrical energy
   D endothermic energy

Fill in the blank to complete each statement.

5. A(n) _____ change releases energy.

6. New substances are produced by a(n) _____ change.

7. _____ is related to the energy of motion of the particles of matter.

8. The law of _____ of mass states that in any physical or chemical change, matter is neither created nor destroyed.

9. _____ energy naturally flows from warmer matter to cooler matter.

10. The form or appearance of matter is altered during a(n) _____ change.

Name Date Class

Review and Reinforce

Changes in Matter

Understanding Main Ideas

Identify the type of change or changes that apply to each description by writing *P* for physical change, *C* for chemical change, and *PC* for both on the appropriate line.

1. _____ Occurs when energy is added or removed.
2. _____ A new substance is produced.
3. _____ A substance changes form, but it remains the same substance.
4. _____ Freezing water is an example.
5. _____ Rusting metal is an example.

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

6. _____ temperature
7. _____ exothermic change
8. _____ chemical energy
9. _____ endothermic change
10. _____ thermal energy
11. _____ law of conservation of mass
12. _____ physical change
13. _____ chemical change

a. the energy stored in the chemical bonds between atoms

b. a change in which energy is absorbed

c. a measure of the energy of motion of the particles of matter

d. the total energy of all of the particles in an object

e. the fact that matter is neither created nor destroyed in any physical or chemical change

f. a change in which energy is released

g. a change in matter that produces one or more new substances

h. alters the form or appearance of matter but does not turn any substance in the matter into another substance

Density Worksheet

Name _____

Date _____ Period _____

Please answer all questions as completely as possible showing all calculations and work needed. Don't forget to include your units!

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

1. Rearrange the density equation to solve for the following:

   a. Mass =

   b. Volume =

2. Calculate the density of a material that has a mass of 52.457 g and a volume of 13.5 cm^3.

3. A student finds a rock on the way to school. In the laboratory he determines that the volume of the rock is 22.7 mL and the mass of the rock is 39.943 g. What is the density of the rock?

4. The density of silver is 10.49 g/cm^3. If a sample of pure silver has a volume of 12.993 cm^3, what would the mass of the sample be?

5. What is the mass of a 350 cm^3 sample of pure silicon with a density of 2.336 g/cm^3?

6. Pure gold has a density of 19.32 g/cm^3. How large would a bar of gold be if it had a mass of 318.97 g?

7. A block of lead has dimensions of 4.50 cm by 5.20 cm by 6.00 cm. The block has a mass of 1587 g. From this information, calculate the density of lead.

8. The mass of a toy spoon is 7.5 grams and its volume is 3.2 mL. What is the density of the toy spoon?

9. A mechanical pencil has the density of 3 grams per cubic centimeter. The volume of the pencil is 15.8 cubic centimeters. What is the mass of the pencil?

10. A screwdriver has a density of 5.5 grams per cubic centimeter. It also has a mass of 2.3 grams. What is the screwdriver's volume?

11. Mercury metal is poured into a graduated cylinder that holds exactly 22.5 mL. The mercury used to fill the cylinder has a mass of 306.0 g. From this information, calculate the density of mercury.

12. A student adds 28.5 g of iron shot to a graduated cylinder containing 45.50 mL of water. The water level rises to the 49.10 mL mark, from this information, calculate the density of iron.