**2.1: Properties of Matter**

**Worksheet**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

*Answer each of the questions below to show your achievement of the lesson objectives*

**Lesson Objective: Describe a substance according to its physical properties.**

1. One of the following is not a physical property of a substance.
   1. conductivity
   2. reactivity with acids
   3. degree of magnetism
   4. melting point
2. Which of the following is a pure substance?
   1. ocean water
   2. vanilla ice cream
   3. a diamond
   4. quartz crystals
3. True or False: The identity of a pure substance will change when it is melted or frozen.
4. True or False: A physical change does not alter the identity of the substance.
5. The ability of copper to be made into sheets is called \_\_\_\_\_\_\_\_ .
6. Not all metals are \_\_\_\_\_\_\_\_ .
7. Sodium metal melts at 97°Celsius. The melting point is a \_\_\_\_\_\_\_\_\_\_\_ property.

**Lesson Objective: Distinguish between extensive and intensive properties.**

1. An example of an intensive property would be
   1. mass of the material
   2. volume of the material
   3. color of the material
   4. length of the material
2. How copper conducts electricity is an
   1. intensive property
   2. intangible property
   3. extensive property
   4. expansive property
3. True or False: The length of a copper cable is an extensive property.
4. True or False: Intensive properties depend on the color of the material.

**Lesson Objective: Describe the three states of matter.**

1. The state of matter that has a definite shape and volume is
   1. a crystal of sodium chloride
   2. neon gas in a tube
   3. a quart of milk
   4. carbon dioxide in air
2. Only one of the following items can be compressed.
   1. sand
   2. ice
   3. steam
   4. water
3. Which of the following is true about gases?
   1. gas molecules are arranged in an orderly fashion
   2. gas molecules are in constant motion
   3. hydrogen and nitrogen are liquids at room temperature
   4. a vapor is a solid at room temperature
4. Which of the following is not true of liquids?
   1. liquids have a definite volume
   2. liquids can form vapors at higher temperatures
   3. the molecules of a liquid are not rigidly ordered
   4. liquids are very compressible.
5. True or False: Solids are very compressible.
6. True or False: The particles in a solid are arranged in an orderly fashion.
7. True or False: There are large spaces between the molecules of a gas.

*Match the following answers to the definitions in Questions 19-22:*

1. solid
2. gas
3. vapor
4. liquid
5. \_\_\_\_\_\_\_ easily compressible
6. \_\_\_\_\_ gaseous state of a substance that is a solid or liquid at room temperature.
7. \_\_\_\_\_ a form of matter with a definite volume, but an indefinite shape.
8. \_\_\_\_\_ the form of matter illustrated by a gold nugget.

**Lesson Objective: Identify physical changes to matter.**

1. Read the following passage and answer the questions.
2. As an ice cube melts and it acquires the ability to flow, its shape changes. However, its composition does not change. Melting is an example of a physical change. A physical change is a change to a sample of matter in which some properties of the material change, but the identity of the matter does not. Physical changes can further be classified as reversible or irreversible. The melted ice cube may be refrozen, so melting is a reversible physical change. Physical changes that involve a change of state are all reversible. Other changes of state include vaporization (liquid to gas), freezing (liquid to solid), and condensation (gas to liquid). Dissolving is also a reversible physical change. When salt is dissolved in water, the salt is said to have entered the aqueous state. Boiling off the water will cause the salt to reform in its solid state. An example of an irreversible physical change would be grinding a piece of wood into sawdust. Such a change is irreversible because the sawdust cannot be reconstituted into the same piece of wood that it was before. Cutting the grass or pulverizing a rock would be other irreversible physical changes.
   1. Would boiling water be reversible if the water vapor goes off into the atmosphere?
   2. Is burning gasoline in a car engine a physical change?
3. One of the following is not a physical change
   1. burning wood
   2. chopping wood up
   3. making furniture from wood
   4. stacking wood
4. All of the following except one are reversible physical changes
   1. boiling water
   2. making ice cubes
   3. bagging corn kernels
   4. making popcorn
5. True or False: A physical change involves a change in the identity of the sample.
6. True or False: Making earrings from a gold nugget is an irreversible physical change.
7. True or False: Bending aluminum sheets is an irreversible physical change.
8. You cook an egg on the stove and heat your coffee in the microwave. Which process is a physical change? Explain your answer.