

Name: \_\_\_\_\_

Block: \_\_\_\_\_

Date: \_\_\_\_\_

Chemistry 11

## Matter Worksheet

Complete the following sentences by filling in the appropriate word from the list below.

gas  
liquid  
solid

plasma  
matter  
energy

physical  
chemical  
evaporation

- 1) \_\_\_\_\_ is anything that has mass and volume.
- 2) The two states of matter that occupy a definite volume are \_\_\_\_\_ and \_\_\_\_\_.
- 3) The other two states of matter are \_\_\_\_\_ and \_\_\_\_\_.
- 4) \_\_\_\_\_ changes alter the identity of a substance, whereas \_\_\_\_\_ changes do not.

Identify whether each of the following changes is a physical change or a chemical change. Write a "P" on the line for a physical change and a "C" for a chemical change.

\_\_\_\_\_ 5) soap removing grease

\_\_\_\_\_ 9) leaves changing colour

\_\_\_\_\_ 6) firecracker exploding

\_\_\_\_\_ 10) glass breaking

\_\_\_\_\_ 7) butter melting

\_\_\_\_\_ 11) mowing the lawn

\_\_\_\_\_ 8) wood rotting

\_\_\_\_\_ 12) baking a cake

### OBSERVATIONS AND THEIR INTERPRETATIONS

Determine whether the observations given below are either "QUALITATIVE" or "QUANTITATIVE":

**CASE 1:** A strip of magnesium ribbon.

- a) 11.5 cm long
- b) shiny, metallic appearance
- c) malleable, easy to bend or curl
- d) 1.06 g mass
- e) high ability to conduct electricity and heat
- f) melts at 649°C

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**CASE 2:** Burning a strip of magnesium ribbon

- a) heat & light generated through the reaction process
- b) changed from shiny metallic looking to dull white solid
- c) product has a crumbly texture
- d) mass of sample increases by 0.76 grams

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Determine whether the statements given below either represent an “**OBSERVATION**” or an “**INFERENCE**”:

**CASE 1:** A piece of iron is left out in your yard and begins to rust.

- a) The original appearance of the iron sheet is gray and solid
- b) A coating of crusty red material forms on the surface
- c) The iron sheet combines with oxygen in the air
- d) Iron oxide is formed
- e) The crusty red material forms quickly when the iron is damp

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**CASE 2:** A batter is placed in the oven and is baked into bread

- a) The surface of the mixture changes from a pale cream colour to a deep golden brown.
- b) When heat is added to the batter mixture, the batter rises
- c) Baking soda is broken down to release carbon dioxide gas pockets in the batter allowing the batter to rise.
- d) The original materials in the batter become denatured and acquire new chemical structure.

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*Answer each of the following questions in the space provided.*

1. Helium is an inert gas that does not react with other substances to form compounds. Would it be correct to say that helium has no chemical properties? Explain your answer.

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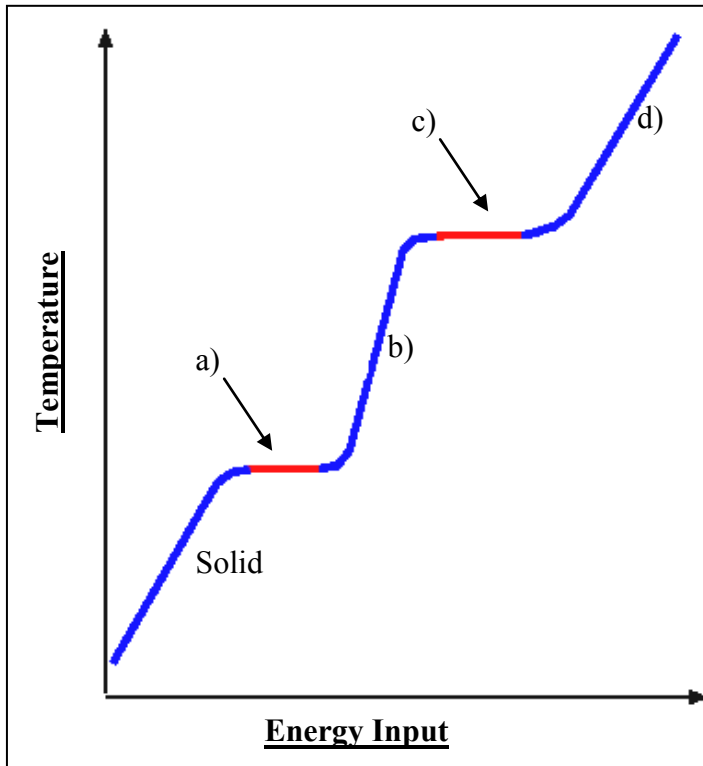
2) When cement is hardening it is changing state. This process also produces heat. Using what you know about cement and concrete, explain if this process is a physical or chemical change.

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3) In the space provided, name the phases and the phase changes that solid nitrogen would go through if it were heated as in the graph.



- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) \_\_\_\_\_
- d) \_\_\_\_\_

4) What variable other than temperature can cause a substance to change state?

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