

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) Matter is anything that has mass and volume.
- 2) The two states of matter that occupy a definite volume are solid and liquid.
- 3) The other two states of matter are gas and plasma.
- 4) Chemical changes alter the identity of a substance, whereas physical 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.

C 5) soap removing grease

C 9) leaves changing colour

C 6) firecracker exploding

P 10) glass breaking

P 7) butter melting

P 11) mowing the lawn

C 8) wood rotting

C 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 | Quantitative |
| b) shiny, metallic appearance | Qualitative |
| c) malleable, easy to bend or curl | Qualitative |
| d) 1.06 g mass | Quantitative |
| e) high ability to conduct electricity and heat | Qualitative |
| f) melts at 649°C | Qualitative |

CASE 2: Burning a strip of magnesium ribbon

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

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 | Observation |
| b) A coating of crusty red material forms on the surface | Observation |
| c) The iron sheet combines with oxygen in the air | Inference |
| d) Iron oxide is formed | Inference |
| e) The crusty red material forms quickly when the iron is damp | Observation |

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. | Observation |
| b) When heat is added to the batter mixture, the batter rises | Observation |
| c) Baking soda is broken down to release carbon dioxide gas pockets in the batter allowing the batter to rise. | Inference |
| d) The original materials in the batter become denatured and acquire new chemical structure. | Inference |

Answer each of the following questions in the space provided.

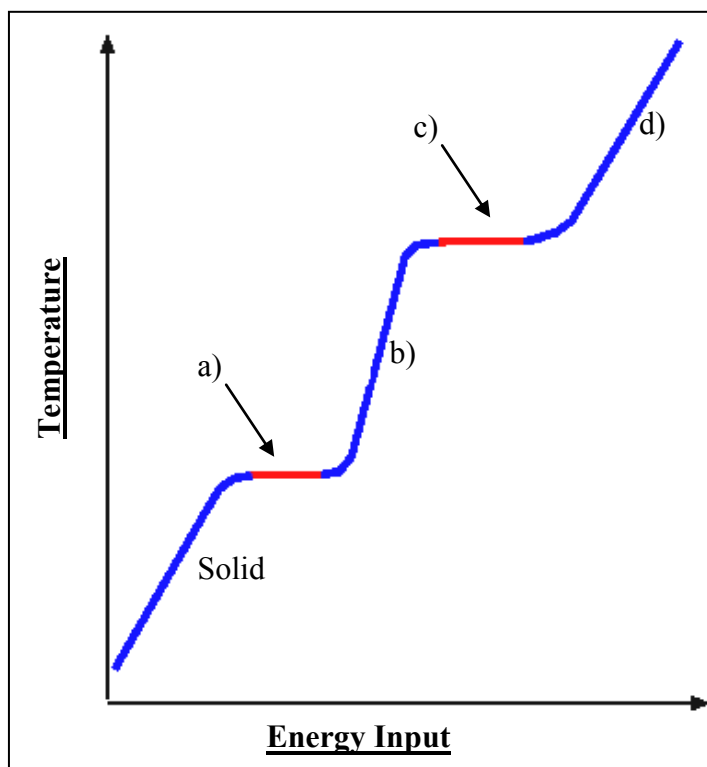
1. Helium is an inert gas that does not react with other substances to form compounds. Would it be correct to say that helium has no chemical properties? Explain your answer.

No. The fact that helium is inert/unreactive is a property of helium.

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.

Chemical – changes chemical identity (cement → concrete)/produces heat/ changes phase/difficult to change back

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) melting

b) liquid

c) evaporation

d) gas

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

pressure