

Name: _____
Blk: _____ Date: _____

Chemistry 11 Matter Worksheet

You may use your _____ textbook or the Chemistry 11 texts as reference while working on this worksheet.

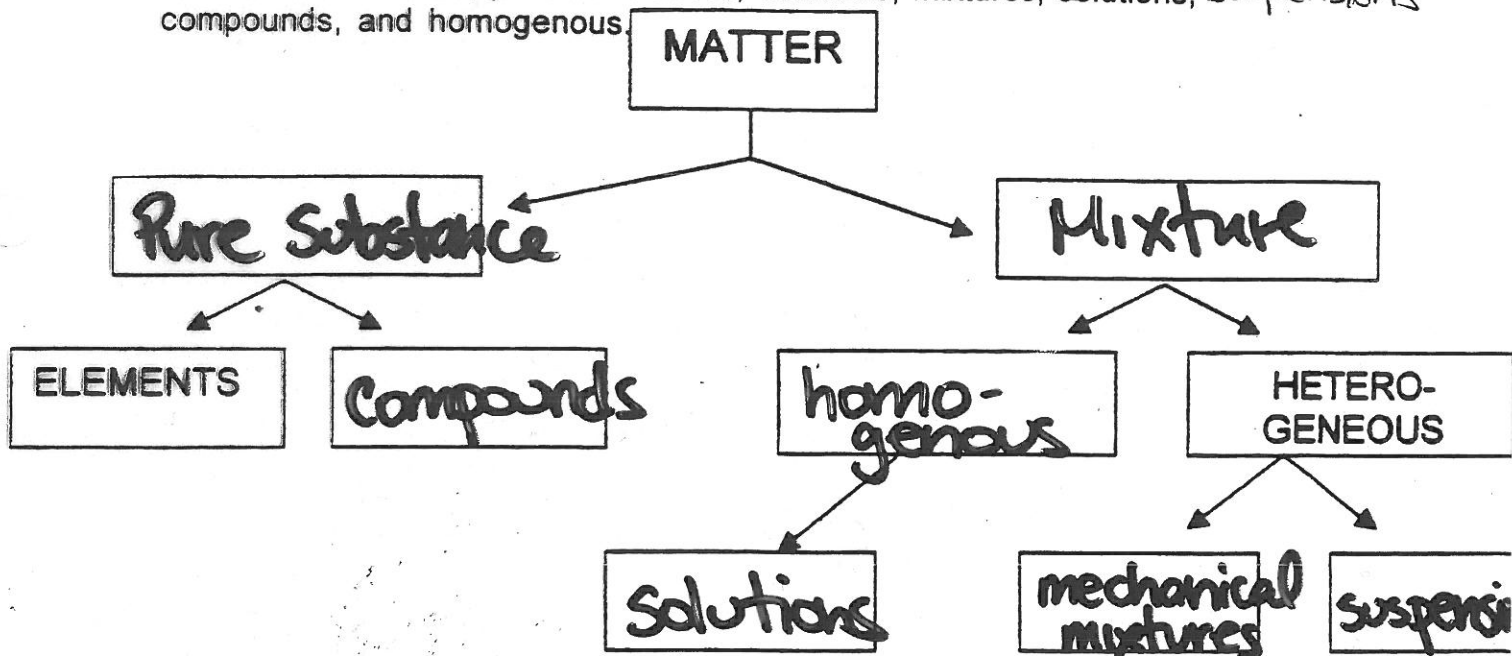
1. Define MATTER:

anything that has a mass and occupies space (volume)

2. What are the three main "states" or "phases" of matter?

Solid, liquid + gas

3. Beginning in Science 8 you have learned how to classify matter using the "Matter Tree". Place the following terms into the matter tree drawn below: mechanical mixtures, pure substances, solutions, mixtures, ~~solutions~~, suspensions, compounds, and homogenous



4. Define and give an example of the following types of matter:

a. element - a substance that can not be broken down into simpler substances (ex: gold)

b. compound - a pure substance that is made up of two or more different atoms (ex: NaCl)

- c. heterogeneous mixture - each component present has distinct physical properties
(ex: trail mix)
- d. homogeneous mixture - each component present has uniform physical properties
(ex: Koolaid)
- e. solution - a homogeneous mixture which is made up of two or more substances yet appear uniform (ex: salt water)
- f. mechanical mixture - a heterogeneous mixture made up of two or more parts
ex: granola
- g. suspension - a cloudy mixture that consists of clumps of solid or droplets of liquid scattered throughout. (ex: oil + vinegar)

5. There are a variety of different types of solutions. Solutions are defined as a homogeneous mixture that contains two or more substances that appear as one throughout. Fill in the table with the appropriate terms:

Type of solution	Example
gas in gas	air
gas in liquid	Pop
liquid in liquid	water and alcohol
solid in liquid	iced tea
solid in solid	gold jewelry

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Chemistry 11

Physical vs. Chemical Changes

In a **physical change** the original substance still exists. In a **chemical change** a new substance is produced. Energy changes always accompany chemical changes.

CLASSIFY the following scenarios as being either a PHYSICAL or CHEMICAL CHANGE.

SCENARIO	Physical or Chemical Change
1. Sodium hydroxide dissolves in water	Physical
2. Hydrochloric acid reacts with potassium to produce a salt, water and heat.	Chemical
3. A pellet of sodium is sliced in two	Physical
4. Water is heated and changed to steam	Physical
5. Potassium chlorate decomposes to potassium chloride and oxygen gas.	Chemical
6. Iron rusts	Chemical
7. When placing a sodium pellet in water the pellet catches on fire and produces hydrogen gas and sodium hydroxide	Chemical
8. Evaporation	Physical
9. Ice melting	Physical
10. Milk sours	Chemical
11. Sugar dissolves in water	Physical
12. Wood rotting	Chemical
13. Pancakes cooking on a griddle	Chemical
14. Grass growing in a lawn	Chemical
15. A tire is inflated with air	Physical
16. Food is digested in the stomach	Chemical

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Chemistry 11

Physical and Chemical Properties of Matter

A **physical property** is observed with the senses and can be determined without destroying the object. For example: colour, mass, length and odor are all examples of physical properties.

A **chemical property** indicates how a substance reacts with something else. The original substance is fundamentally changed in observing a chemical property. For example, the ability of iron to rust is a chemical property. The iron has reacted with oxygen, and the original iron metal is changed. It now exists as iron oxide, a different substance.

CLASSIFY the following properties as either chemical or physical by putting a check in the appropriate column.

PROPERTY	Physical	Chemical
1. blue colour	✓	
2. density	✓	
3. flammability		✓
4. solubility	✓	✓
5. reacts with acid to form H ₂		✓
6. supports combustion		✓
7. sour taste	✓	✓
8. melting point	✓	✓
9. reacts with water to form a gas		✓
10. reacts with a base to form water		✓
11. hardness	✓	
12. boiling point	✓	
13. can neutralize a base		✓
14. luster → shine	✓	