Name:_____
Blk:_____Date:_____

Science 9
Chemical vs Physical Change

Matter is anything that has **mass and volume**.

> **Mass** is the amount of matter in a substance or object. Mass is often measured in grams or **kilograms**.
>
> **Volume** is the amount of space a substance or an object occupies. Volume is often measured in **litres.**

Chemical Change

A chemical change is a change in matter that occurs when substances combine to form **new substances.**

Indicators of a chemical change:

1. **heat is given off**
2. **bubbles of gas are given off**
3. **a new colour is produced**
4. **a solid is formed**
5. **process is difficult to reverse**

Find Out Activity 1-2A "Bag of Change"

Physical Change and Changes of State

When a physical change occurs, there may be a change in appearance, but **no new substances are formed**.

> For example, when ice or snow melts to water, this physical change is a change of state. No new substances are formed.

Worksheets on Chemical vs physical change

The Kinetic Molecular Theory and Changes of State

Solid: Particles are close together, fixed in position and vibrating.
Melting: As temperature increases, particles' kinetic energy increases.
Liquid: Particles are still close, but slide past one another.
Boiling:As temperature increases, particles' kinetic energy continues to increase, creating more space.
Gas:Particles are highly energetic and moving freely.

Temperature and Changes of State

Describing Matter

Physical Properties

Qualitative – **descriptive properties ie:state, colour**

Quantitative –**numerical properties ie:boiling point,density**

Pure Substances

Element - a pure substance that cannot be broken down or separated into simpler substances (e.g., gold)

Compound - a pure substance composed of at least two elements (e.g., water)