Advanced Chemistry
Matter

Matter- Anything that has mass and takes up space.

Extensive Properties: Depends of the amount of matter.
Mass- The amount of matter the object contains.
Volume-The space matter occupies

Intensive properties: Depends on type of matter not amount.

Substance- matter that has a uniform and definite composition.
Substances that contain only one kind of matter are called pure substances.

physical property- a quality or condition of a substance that can be observed or measured without changing the substance's composition.

Important Properties of the States of Matter			
Property	**Solid**	**Liquid**	**Gas or Vapor**
Shape	Definite	Indefinite	Indefinite
Volume	Definite	Definite	Indefinite
Expansion or heating	Very slight	Moderate	Great
Compressibility	Hardly compressible	Hardly compressible	Readily compressible

States of Matter
Solid - matter that has a definite shape and volume
Liquid - a form of matter that flows, has a fixed volume, and takes the shape of its container
Gas - a form of matter that takes both the shape and volume of its container and is easily compressed.

Physical change: A change that alters a given material without changing its composition

Classifying Mixtures:
A **mixture** is a physical blend of two or more substances. A mixture's composition may vary from one to another. Different types of mixtures include:
Heterogeneous mixture a mixture that is not uniform in composition

Homogeneous mixture a mixture that has a completely uniform composition.

Homogeneous mixtures are also known as **solutions**. Any part of a system with uniform composition and properties is called a **phase.**

Separating Mixtures:

When separating mixtures, one can use a process called **distillation,** which is when a liquid is boiled to produce a vapor that is then condensed again to a liquid.
DEMO:

Distinguishing Elements and Compounds
Element is the simplest form of matter that can exist under normal laboratory conditions.
Compound is a substance that can be separated into simpler substances only by chemical means.

In a **chemical reaction (chemical change)** one or more substances change into new substances. The starting substances are called **reactants,** and substances that are formed are called **products.**

Recognizing chemical change:

The **law of conservation of mass** states that in any physical change or chemical reaction, mass is neither created nor destroyed; it is conserved. In every case, the mass of the products equals the mass of the reactants.