

SOL 5.7 - Matter is anything that has mass and takes up space; and occurs as a solid, liquid, or gas. Key concepts:

- matter is composed of atoms;
- substances can be mixed together without changes in their physical properties; and
- energy has an effect on the phases of matter.

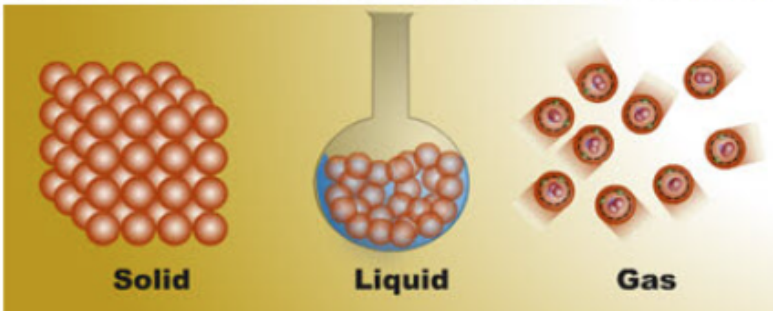
Central Idea: Matter is defined as anything that has mass and takes up space. Properties of various types of matter determine their uses.

### WHAT IS MATTER?

Matter consists of **atoms** that have different **properties**. These properties determine interactions that can occur among different atoms. Different substances with different properties are suited to different uses.

- Matter** is anything that has **mass** and takes up **space** (has **volume**)
- Mass** is the amount of **matter** in an object
- Matter** of any type can be subdivided into particles called **atoms** that are **too small to see** but can be detected by other means.
  - Examples include blowing up a balloon, compressing air in a syringe, and dissolving sugar in water

**MATTER**  
has **mass** and takes up space (volume).



Matter is made up of **atoms** that are too small to see.

### MIXTURES & SOLUTIONS

- Sometimes when two or more **substances** are **combined**, they do not lose their identifying characteristics.
  - These substances are called **mixtures**.
  - Examples of **mixtures** include **soil**, **concrete**, and a mud **puddle**.
- Solutions** are a special type of **mixture** in which one substance is **uniformly dissolved** in a liquid.
- Examples include **sugar water**, **salt water**, and **soda**.



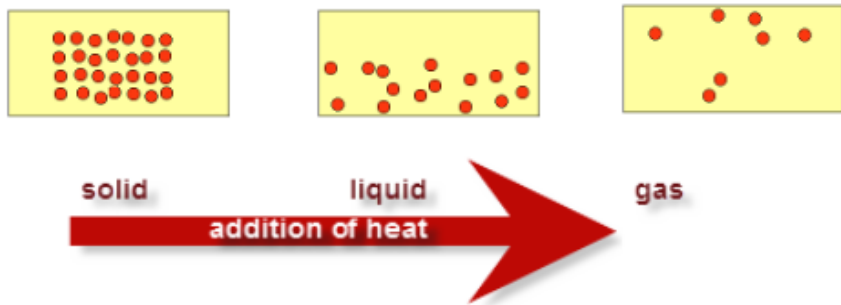
**mixture**  
of water,  
dirt and  
more

**solution**  
salt  
dissolves  
in water

**solutions are special types of mixture**

## PHASES OF MATTER : SOLID, LIQUID, GAS

- Many kinds of matter change from a **solid** to a **liquid** to a **gas** when undergoing a **temperature increase**.



- As temperature **decreases**, that matter changes from a **gas** to a **liquid** to a **solid**
- Matter does not **gain** or **lose mass** during **phase changes**.