

Do Now: **take out your homework**

Matter is anything that has mass and volume.

Can you name something that has just mass or volume? Explain why or why not.

**Task:**

Air is considered matter because it has mass and volume.

How would you prove this?

**ENDURING UNDERSTANDINGS**

Chemistry is the study of the properties of matter and how matter change:

- All matter is composed of atoms.




**WHAT IS MATTER?**

- Matter is anything that takes up space and has mass.
- Matter is described by its properties.

Physical properties are characteristics of pure substances that change form without changing chemical composition.

Chemical properties are observed when substances become new substances with new chemical compositions.

**PHYSICAL PROPERTIES**



- Name several physical properties of matter...
  - freezing and boiling temperatures, texture, dissolves in water, luster, color, conductivity, state of matter, hardness
  - ↑ ability to transfer energy
  - solubility

malleability: ability to be pounded flat or shaped without breaking

ductility: ability to be pulled into wires

Name several chemical properties of matter...

*flammability, ability to combine with other elements to form new substances*

*Oxidation  
rusting*

### Physical change

-caused by a change in force or energy to an object

-the substance is still the same chemically; nothing new was made

-a change in the state of matter of a substance is a physical change

### Chemical Change

-happens when a substance's molecules are rearranged

-can not be easily reversed

-a new substance is formed after a chemical change

### clues to a chemical change

- change in color
- change in smell
- change in temperature
- release of gas
- release of energy in the form of light or sound

### extrinsic vs intrinsic properties

extrinsic properties: these are properties that will change based on how much of a substance you have

intrinsic/characteristic properties: these are properties that will remain no matter how much there is

extrinsic	intrinsic
volume mass strength smell shape size	density conductivity flammability reactivity solubility malleability ductility
	boiling pt freezing pt state of matter

### Do Now

You have four cubes of different metals. Using anything in this class, how can you identify each metal?