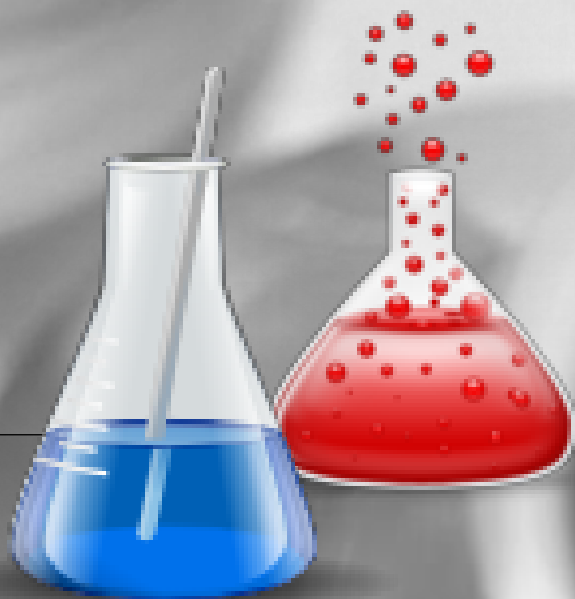


# CHEMISTRY & MATTER





# INTRO TO CHEMISTRY

- Chemistry investigates:
  - characteristics of simple substances
  - Changes when they combine (explosion!!)
  - laws of their behavior under different conditions

# THE BASICS

- What are “substances?”
- *Everything* in the universe is made up of matter.
- Matter has specific qualities:
  - Occupies space (has volume)
  - Has mass
  - Has density
  - Can exist in up to five states  
(a.k.a phases)

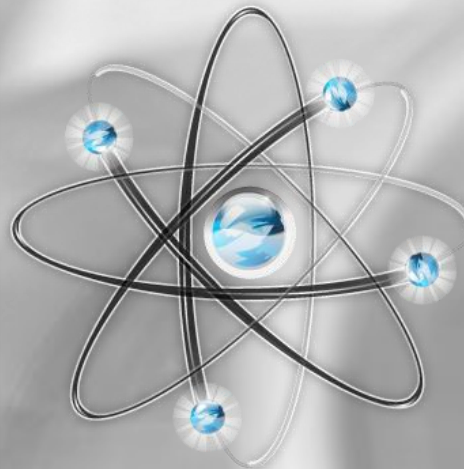




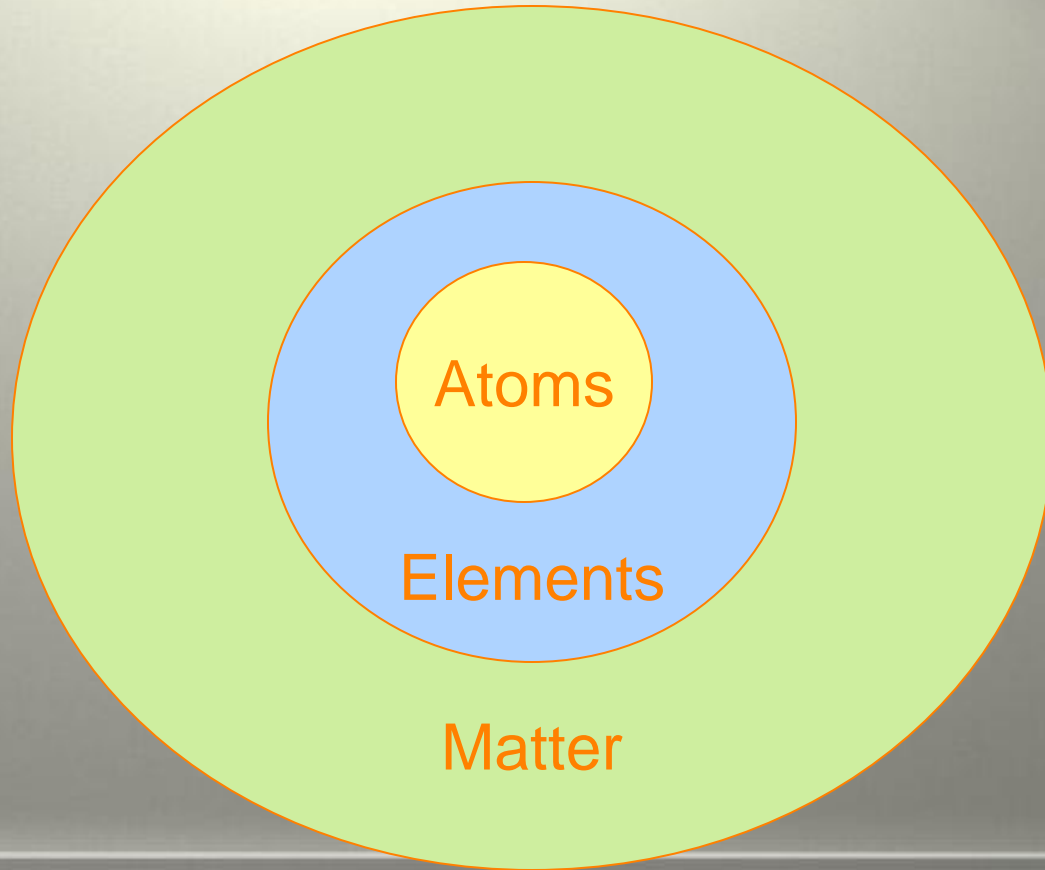
# WHAT ARE ELEMENTS MADE OF?

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- Elements are made of **Atoms**.
- Atoms are **the smallest part of a chemical element** that can take part in a chemical reaction without being permanently changed.



# Matter Diagram



# MATTER & VOLUME

- All matter takes up space
- The amount of space is the volume
- Two objects can't occupy the same space at the same time



# MATTER & MASS

- **Mass = the amount of matter in an object**
  - Ex: you have a greater amount of matter in you than a peanut...so you have more mass
- **The mass of an object is the same no matter where it's located in the universe**





# MASS VS. WEIGHT



- **Weight = measure of the gravitational force on an object**
- **The force of gravity on Earth is different than the force of gravity on other planets**
- **Weight changes depending on where you are in space. Mass does not.**

# LAW OF CONSERVATION OF MATTER

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- **Law of Conservation of Matter:**

*“Matter cannot be created nor destroyed.”*

- So what happens when you blow something up? Does it get destroyed?

NO!

- Matter may **change** (turn into rubble or gas or dust in the air), but it cannot be created from nothing or destroyed.

