

## Some basic definitions:

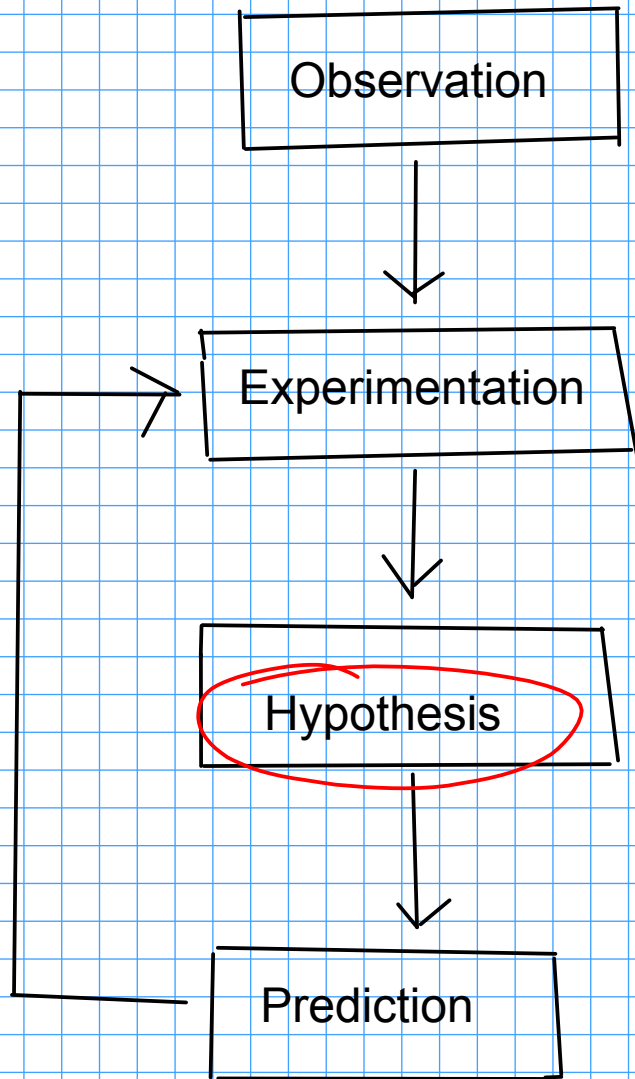
Chemistry:

Systematic study of matter

Matter:

anything that takes up space  
and can be perceived (detected)

# Systematic study? The scientific method



## Scientific laws

- a summary of observations.
- explains nothing

## Scientific theories

initial explanation of how something works

- explanation supported by much data
- agreed upon by most Scientists

You flip the light switch in your den, but nothing happens. What is wrong?

→ observation/experiment: flip switch, nothing happens!

hypothesis: ~~fuse blown~~, bad bulb?

prediction: replacing <sup>bulb</sup> ~~fuse~~ will make switch work.

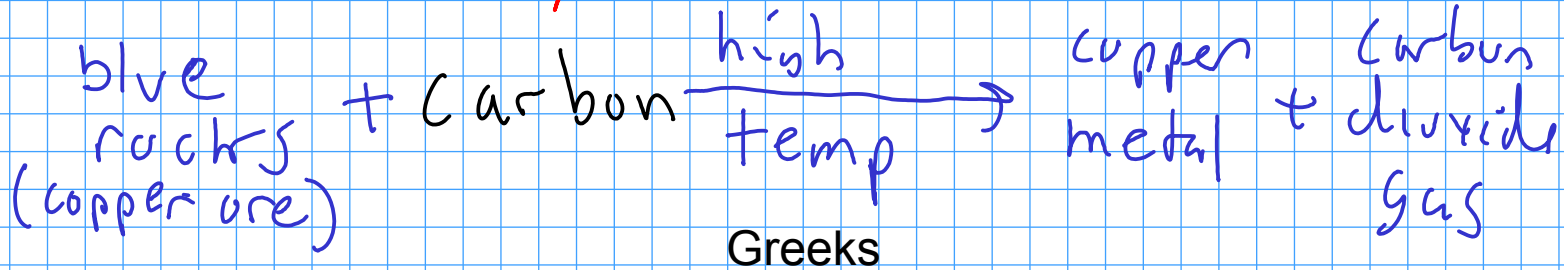
experiment: flip switch again, and  
LIGHT.

Some history:

Prehistory

FIRE

Discovery of useful metals



Aristotle

- elements:

- ① Earth
- ② Fire
- ③ Water
- ④ Air

All matter was made of combinations of these elements

Democritus/Leucippus

- atom: matter is made of small, indivisible particles  
- different kinds of matter contain different kinds of atoms.