

## Chem 5.1

### Goals:

- Make observations without directly seeing the subject
- Describe the development of atomic theory
- Differentiate between the different sub-atomic particles

Bellwork: Using any method but opening the box, test to determine the contents of the 6 mystery boxes

### Plan:

Class discussion: use of indirect methods to make informed observations. Can we ever “see” an atom?

Timeline of the discovery of the atom (Democritus, Dalton, Thompson, Rutherford)

Student sketches of the atom at each phase of atomic theory

Compare and contrast protons, neutrons and electrons

HW: Crash Course video on atoms <https://www.youtube.com/watch?v=FSyAehMdpYI>

## Chem 5.2

### Goals:

- Compare different elements by the number of protons, neutrons and electrons
- Calculate the number of neutrons of different isotopes

Bellwork: Compare and contrast protons, neutrons and electrons. How are they similar and different to each other?

### Plan:

Guided practice: calculating the number of neutrons from different isotopes (periodic table tells protons, mass is protons + neutrons)

Discussion: why not include electrons in the mass calculation?

Individual practice: using periodic table to find protons, subtracting mass from protons to get neutrons

HW: Isotope worksheet

## Chem 5.3

Goals:

- Distinguish between different isotopes
- Calculate the atomic masses of different elements given data on abundance
- Connect abundance with stability, what the most common isotopes are

Bellwork: Determine the number of protons and neutrons in the following isotopes: Carbon-14, Nitrogen-14, Potassium- 40, Argon-40

Plan:

Compare and contrast carbon and nitrogen isotopes, what makes each stable

Determine the pattern in masses as we go down the periodic table.

Guided practice, calculating atomic mass based on relative amounts of each isotope

Discussion: how can you tell the most stable isotope of an element?

Individual practice: atomic mass calculations

HW: Atomic mass calculations