Course Name	Ap chemistry	Video # and Name	1.1: mass spectroscopy & 1.2 Moles and molar mass

Questions/Keywords	Notes
-Isotopes -Modern atomic model -protons -neutrons -electrons -Mass spectroscopy -Relative isotopic abundance -Average atomic mass 1.2: -Moles -Avogadro's number -Molar mass n=m/M	1.1: -Understanding of chemistry changes over time, Chemistry has been studded by humans for thousands of years -Atoms are tiny, The diameter of a single atom is around 10^-10 m -Nucleus is made out of protons and electrons, Electron cloud is outside of the nucleus -Mass of an atom is the mass of its protons and neutrons each weighs one amu -Isotopes are different versions of elements with different numbers of neutrons, have same atomic number and nearly identical chemical properties, but different atomic mass and physical properties -The number of protons defines the element -neutrons keep the nucleus stable -Mass Spectrometer is used to detect Isotopes, Ions' path depends on its mass to charge ratio when run through a mass spectrometer. -Each Spike on a spectrometer shows a different isotope -Atomic mass is the weighted average of the different isotopes of the element. 1.2: -grams is used to measure mass in a lab singular atoms are far too small to measure a connection between atoms and grams is needed -Avogadro's number is the number of particles in one mole of that compound/element/particle

	-Calculation: How many atoms of carbon-12 are in exactly 12 grams: 12gC * 1 amu/(1.66*10^-24g) *1 adam/12 amu ≃ 6.022 * 10^23 -Atomic mass of an element is also it's molar mass -A mole is defined as the number of carbon atoms in exactly 12 grams of carbon-12. -A mole is a large quantity, used to count atoms which are very small -Molar mass is expressed in units of g/mols

Summary

1.1:

Atoms are tiny and are made up of a positively charged nucleus which is made of Protons and neutrons and an electron cloud which is made of negatively charged electrons. Electrons mass is negligible when compared to nucleus. The mass of an Atom is the mass of its protons and neutrons each having a mass of 1 amu. The number of protons defines an element. Different versions if elements can exist with different numbers of neutrons that can change the mass number of the atom, different isotopes have nearly identical chemical properties but different physical properties. The mass number of an element is the weighted average of all the Isotopes of an element and their abundance.

1.2:

Grams are used to measure mass in labs, singular atoms are way too small to measure with. Moles provide a connection between mass in grams and atoms. A mole is defined as the number of carbon atoms in 12 grams of carbon 12. This also applies to any other element and their molar mass. Avogadro's number is the number of formula units in one mole it is expressed as 6.022* 10^23.