class	reading	before class	in class	beSocratic
5	Ch 2 pp.53-55	• What is a constant? what is a function? • What happens to the energy of a photon of light as the frequency increases? What about as the wavelength increases? • Why were the phenomena of diffraction and interference used as evidence that light is a wave? • The wavelengths of X-rays are about 10^{-10} m while the wavelengths of radiowaves are about 10 m. What other factors can you calculate about these two types of radiation? What factors are the same, what are different.	• Why is it difficult to detect "cold blooded" animals using infrared detectors? • Why do we not need to worry about radiowaves but need to minimize our exposure to X-rays? (should you worry about your cell phone?)	**wavelength, frequency, energy** **uncertainty**
6	Ch 2 pp.56-61	• If the intensity of a beam of light is related to the number of photons passing per second, how would you explain intensity using the model of light as a wave? What would change, what would stay the same? • How does the wavelength of a particle change as the mass increases? • Planck's constant is h = 6.626 x 10^{-34} J.s. What are the implications for particles of macroscopic size? (1 J = the kinetic energy of a two-kilogram mass moving at the speed of one meter per second)	• Draw a picture of what you imagine is happening during the photoelectric effect. • Is the energy required to eject an electron the same for every metal? why or why not. • What would be the wavelength of the world record holder for the 100m sprint?hat assumptions do you have to make to answer this question?	**Photoelectric effect** **atomic electron structure**

class	**reading**	before class	in class	beSocratic
7	Ch 2 pp.61-65	• Provide a short answer for why no new elements with atomic numbers below 92 are possible. • Isotopes of the same element are very similar chemical, what does that imply about what determines chemical behavior? • Why were atomic masses compared to hydrogen? • How might you determine the atomic weight of an element experimentally? • Why aren't the atomic weights in Mendeleev's Periodic Table whole numbers? • Why would you expect that different isotopes of the same element differ in stability?	• Why do you think there were no noble gases in Mendeleev's Periodic Table? • You discover a new element - how would you know where would it go in the periodic table?	**periodic table**
8	Ch 2 pp.65-73	• What factors govern the size of an atom? list all that you can. Which factors are the most important? • If each electron is identified by a unique (that is, different) set of quantum numbers, is it possible to recognize different electrons as different (once they are ejected from the atom)? • How do you think the presence of the 1s orbital influences the shape of the 2s orbital, etc.	• Why are Helium atoms smaller than Hydrogen atoms? •	**atomic size**