Match the description in Column B with the correct term in Column A. Write the letter in the blank provided. Each term matches with only one description, so be sure to choose the best description for each term.

Column A	Column B
____ 1. proton	A. sum of the number of protons and the number of neutrons in the nucleus of an atom
____ 2. ion	B. positively charged subatomic particle
____ 3. isotopes	C. dense, positively charged center of atom
____ 4. mass number	D. subatomic particle with zero charge
____ 5. atomic number	E. atoms with same number of protons but different numbers of neutrons
____ 6. nucleus	F. negatively charged ion
____ 7. neutron	G. number of protons in the nucleus of an atom
____ 8. electron	H. atom with a charge
	I. positively charged ion
	J. negatively charged subatomic particle

Complete the following table:

Element (atom/ion)	Symbol	Atomic Number	No. of protons	No. of Neutrons	Mass Number	No. of electrons	Charge
		17		18		18	
		1		0			+1
sodium atom	$^{23}_{11}Na$						

Atomic History:

1. Explain Rutherford's experiment and what conclusions he drew from his results.

2. What was incorrect about Dalton's Atomic theory?

3. What was incorrect about Thompson's Theory of the Atom?

Ave Mass Calculations:

1. Titanium has five common isotopes: ^{46}Ti (8.00%), ^{47}Ti (7.81%), ^{48}Ti (70.39%), ^{49}Ti (5.48%), ^{50}Ti (8.32%). What is the average atomic mass of titanium? (Their respective masses are 45.9623, 46.9052, 47.8651, 48.8021, 49.7802)

2. Bromine has two isotopes with the first having a mass of 78.918336 amu and occupying 50.69% and the second isotope having a mass of 80.916289 amu and occupying 49.31%. What is the average atomic mass of bromine?

Rubidium has two common isotopes, $^{85}_{37}Rb$ and $^{87}_{37}Rb$. If the abundance of $^{85}_{37}Rb$ (84.9620amu) is 72.2% and the abundance of $^{87}_{37}Rb$ (86.9980amu) is 27.8%, what is the average atomic mass of rubidium?

Atomic Symbol (complete)	Atomic Number	Protons	Neutrons	Electrons	Mass Number	Average Atomic Mass of element
$^{11}B^{+3}$			6	2		10.811
	11			10	24	
		31	34			
				39	89	
	29		35	27		
		43			100	
Pb					207	
			102	70		
		89			225	
Mo			53			
	81			78	206	
	100		159			
No					261	
Yb				71	172	
		106	159			

Electromagnetic Radiation, what we are observing in this lab, can be defined as:

- invisible rays that can damage cells
- energy being transmitted from one place to another by light
- photons

2. One issue with Rutherford's atom was that:

- It didn't answer all questions about electrons (why they weren't attracted to the protons, why there's light, ect.)
- It didn't include any electrons
- he didn't believe atoms existed, and scientists weren't able to explain light.

3. The color of light we see is based on:

- the temperature of the light source only.
- the wavelength and frequency of the light wave.
- the person who is looking at the light, and how close they are to the light source.

4. If a lab partner catches on fire, the first thing I should do is inform the teacher. Then, grab the fire blanket and smother the fire.

- True
- False

5. The alcohol we are using to start the fire, methanol, is flammable. We should be very careful when igniting this substance.

- True
- False