STE Pretest 1.1

1. Fill in the blanks.

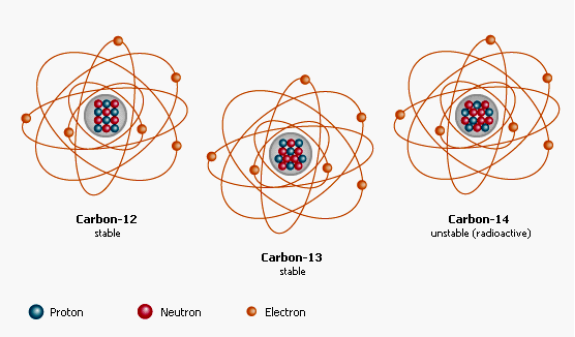
Name	Isotope Notation	Atomic Number	Mass Number	Number of Protons	Number of Neutrons	Number of Electrons
oxygen	$^{17}_{8}O$	8	17	8	9	8
sulfur	$^{33}_{16}S$	16	33	16	17	16

2. Describe an experiment that you could do to help you prove that a hydrogen isotope has the same chemical properties as a different hydrogen isotope.

Burn each one. In both cases you will get the same popping sound and the same product---water.

3. What are isotopes? Give an example not involving carbon.

Isotopes are two or more different versions of the same element with different mass numbers. Examples ^{3}H and ^{1}H.

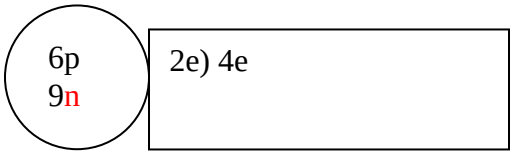


5. Give examples of how the nuclear properties of normal ^{1}H differ from those of radioactive ^{3}H and what's responsible for the difference.

It's the extra neutrons that make ^{3}H radioactive. ^{1}H is not radioactive.

6. Draw the Bohr-Rutherford model for the following:

^{15}C



Why 9 neutrons? Neutrons = mass – protons = 15-9

7. How many **upquarks** are in a lithium nucleus with a mass of 7?

A lithium nucleus has 3 protons and every proton consists of 2 up quarks and a down quark, thus, so far, there 3(2) = 6 up quarks in each Li. But ^{7}Li also has 7-3 = 4 neutrons, each of which has 1 up quark. So Li's neutrons contribute 4 more up quarks. Total = 10 up quarks.