

Name: \_\_\_\_\_

## Chapter 4 Practice Sheet

### Section 4.1:

1. What is an atom?
2. Who was the first person to suggest the existence of atoms?
3. What are the 4 ideas of Dalton's atomic theory?
4. Through what instrument can we observe atoms?
5. Can atoms of one element ever turn in to atoms of another element through physical or chemical processes?

### Section 4.2:

6. Who discovered the following:
  - a. protons
  - b. neutrons
  - c. electrons
  - d. nucleus
7. Draw the plum pudding model of the atom.
8. What did Rutherford shoot at the gold foil?

9. What did Rutherford expect to happen?

10. What 2 conclusions did Rutherford make after his experiment?

11. Draw the Rutherford model of the atom.

12. Fill in the following chart.

Subatomic Particle	Symbol	Charge	Relative Mass	Location

### Section 4.3:

13. What is atomic number?

14. How many neutrons are in  $^{19}_9\text{F}$ ?

15. Fill in the following chart.

Element	# of Protons	# of Electrons	# of Neutrons	Atomic Number	Mass Number
	25		30		
		11	12		
	35		45		
				39	89
		33			75
<b>Actinium (Ac)</b>					227

16. What is an isotope?

17. The two most abundant isotopes of carbon are carbon-12 (mass = 12.00 amu) and carbon-13 (mass = 13.00amu). Their relative abundances are 98.9% and 1.10% respectively. Calculate the atomic mass of carbon.

18. Given the relative abundance of the following naturally occurring isotopes of oxygen, calculate the average atomic mass of oxygen.

<u>Isotope</u>	<u>Mass</u>	<u>Abundance</u>
oxygen-16	16 amu	99.76%
oxygen-17	17 amu	0.037%
oxygen-18	18 amu	0.204%

19. What is a vertical column on the periodic table called?

20. What is a horizontal row on the periodic table called?