Name _____ Hour _____

Topic 1 - Lesson 1: "Atomic Theory"

Guiding Questions: Use pgs. 4-12

- ☞ What are the parts that make up an atom?
- ☞ What is atomic theory?
- ☞ What evidence supports the modern model of the atom?

1. In Figure 1, the structure of a sea squirt is shown, which is made up of nanowhiskers. What does it have to do with atoms?

2. *Atomos* is Greek for the word atom, which means _____.

3. John Dalton conducted many experiments that centered on atoms. All of the following are examples of his atomic theory except:
    a. All atoms of the same element are exactly alike and have the same mass.
    b. An atom of an element can be changed into an atom of a different element by a chemical reaction.
    c. Elements consist of atoms that cannot be divided.
    d. Compounds are formed when atoms of more than one element combine in a specific ratio.

4. How did J. J. Thomson discover that there were smaller particles that are positively charged in the atom?

5. After looking at Thomson's Model (*Figure 2*), how can you tell that the atom has no overall charge?

6. In Rutherford's Gold Foil experiment, why did a few particles deflect at sharp angles by the gold foil and what did this prove?

7. True or False. Niels Bohr suggested that protons move in specific orbits around the nucleus of the atom.

8. Why is Bohr's model still useful even though it is not an accurate representation of the atom?

9. What atomic model came about in the 1920s? Describe how it was different than the previous model.

10. True or False. Protons and neutrons are subatomic particles which are found in the nucleus.

11. Most of the atom is made up of _____.

12. In Figure 8, the book compares the egret to the mass of a/n _____.

13. What is the mass of an electron in amu's?

14. When referring to the oxygen isotopes (oxygen-16, oxygen-17, oxygen-18):
(*circle all that apply)*
   a. all 3 have the same mass number.
   b. all 3 react the same way chemically.
   c. all 3 have the same number of electrons.
   d. the most common one is oxygen-16.

15. How do electrons move in the Cloud Model?

16. True or False. Like charges attract and unlike charges repel.

17. Compare scientific theory to scientific law.

18. Complete the table below. Use the Periodic Table on pgs. 20-21.

Element	**Symbol**	**Mass Number**	**p^+**	**n**	**e^-**
Nitrogen			7		7
	Kr	84		48	
Barium			56	81	
	Al	27			13