**Periodic Table Study Guide**

Use your notebook to answer the following questions.

1) How did Mendeleev originally organize his periodic table? *By increasing atomic mass*

2) What made Mendeleev's periodic table better than prior attempts to organize the elements? *Mendeleev's table was able to predict the existence and properties of known elements*

3) What is the main difference between the modern periodic table and the one Mendeleev came up with? *The modern periodic table is organized by increasing atomic number instead of atomic mass*

4) Why do we call it the "periodic" table? *"Periodic" means a regular and repeating pattern; such as the characteristics of the elements across each row in the table.*

5) Identify the information included in the boxes on the periodic table:

26	→ *Atomic Number*
Fe	→ *Element Symbol*
Iron	→ *Element Name*
55.847	→ *Atomic Mass*
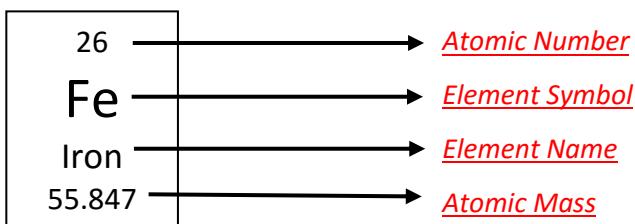
6) Why do some of the element symbols not seem to make sense based on the name of the element? *Some element symbols are based on the name of the element in a different language (Latin, Greek, etc…)*

7) What determines the atomic number? Why is this important? *The number of protons; this is what makes each element unique*

8) What determines the atomic mass? Why is this not often a whole number? *The atomic mass is the average number of protons and neutrons in the nuclei of all of the isotopes of that element. It's an AVERAGE.*

9) What are the vertical columns on the periodic table called? (give both names) *groups & families*

10) What is special about elements in the same group? *They share similar characteristics, like a family*

11) What are the horizontal rows called? *periods*

12) What is the pattern of protons in the periodic table? *The number of protons increases left to right*

13) What is the pattern of atomic mass in the periodic table? *The atomic mass increases left to right*

14) What is the pattern of characteristics in the periodic table? *Elements in each group share similar characteristics*

15) What are valence electrons? Why are they important? *Valence electrons are on the outer shell of the atom and are used in chemical bonding*

16) What is the pattern of valence electrons in the periodic table? What groups is this true for? *Elements in the same group have the same number of valence electrons in groups 1-2 and 13-18*

Use a periodic table to answer the following questions:

17) Where are the metals located on the periodic table? *The left side*

18) Where are the nonmetals located on the periodic table? *The right side*

19) What classification of elements are between the metals and nonmetals on the periodic table? *metalloids*

20) What is the standard state for the majority of elements on the periodic table? *solid*

21) How many protons does copper (Cu) have? *29*

22) What is the atomic mass of krypton (Kr)? *83.8 a.m.u.*

23) What element is the heaviest gas? *Oganesson (Og)*

24) What element is the lightest metal? *Lithium (Li)*

25) Which element has 101 protons? *Mendelevium (Md)*

26) How many metalloids are in the nitrogen (N) family? *2 (As & Sb)*

27) How many metals are in period 4? *13*

28) Which two elements are liquid in their standard state? *Bromine (Br) and Mercury (Hg)*

29) Which element has an atomic mass of 1.0079 a.m.u.? *Hydrogen (H)…this means most H atoms have zero neutrons!*

30) What is the element symbol for sodium? *Na*

31) What is the heaviest known element? What is its atomic mass? *Oganesson (Og) 294 a.m.u.*

32) What element is the lightest gas? *Hydrogen (H)*

33) What element is the lightest solid? *Lithium (Li)*

34) What element is the lightest liquid? *Bromine (Br)*

35) What element is the lightest metal in the copper family? *Copper (Cu)*

36) What element is the lightest metal in the carbon family? *Tin (Sn)*

37) What is the lightest element that is named after a country? *Germanium (Ge) [or Gallium (Ga)…France]*

38) What is the lightest synthetic element? *Technetium (Tc)*

39) What is the heaviest naturally occurring element? *Uranium (U)*

40) What is the heaviest gas in the fluorine family? *Chlorine (Cl)*