

Atoms & Electrons

Worksheet #1

Complete all work on a separate sheet of paper.

- Use the periodic table on pages 590 & 591 of your textbook to fill in the blanks of the following chart. Assume that all atoms have a **neutral** charge. All atomic weights have been rounded off to the nearest whole number. You should do the same in your answers.

ELEMENT	SYMBOL	ATOMIC WEIGHT (amu)	ATOMIC NUMBER	PROTONS	NEUTRONS	ELECTRONS
Oxygen	-	-	-	-	-	-
-	Al	-	-	-	-	-
-	-	45	-	-	-	-
-	-	-	53	-	-	-
-	-	-	-	20	-	-
-	-	-	-	-	28	23
-	-	79	-	-	-	-
Mercury	-	-	-	-	-	-

- Consider the three subatomic particles: electrons, protons, and neutrons.
 - Which one has the smallest mass?
 - Which one is uncharged?
 - Which one is found outside the nucleus?
 - Which two have nearly the same mass?
- A certain element contains 75% of an isotope of mass number X and 25% of an isotope of mass number Y. Is the atomic weight of the element closer to X or Y?
- Zinc (Zn) has an average atomic mass of 65.38 amu. The average atomic mass of chlorine (Cl) is 35.45 amu. A Zn atom is how many times as heavy as a Cl atom?
- A certain element consists of two isotopes which have atomic masses of 10.0 amu and 11.0 amu. Their abundances are 18.8% and 81.2% in that order. What is the atomic weight of the element?
- Write the nuclear symbol for the isotope of oxygen (atomic number = 8) which has 10 neutrons in the nucleus.
- How many protons, electrons, and neutrons are there in the following **neutral** atoms?
 - Cl
 - He
 - C

8. Consider a neutral atom of sulfur-35.
 - a. How many protons, electrons, and neutrons does this atom have?
 - b. What kind of ion (cation or anion) will this atom form?
 - c. How many electrons will an ion of this atom have?

9. Consider a neutral atom of scandium-46.
 - a. How many protons, electrons, and neutrons does this atom have?
 - b. What kind of ion (cation or anion) will this atom form?
 - c. How many electrons will an ion of this atom have?