4:3 Keeping Track of Particles

Each element is made of just one kind of atom. The number of protons in the atoms of an element is unique to that element. The number of protons in an atom is called the atomic number.

The mass of an atom depends on the number of its protons and neutrons. The mass number is the sum of the protons and neutrons in the nucleus. The mass of an electron is so small that it is usually omitted in mass determinations.

Part A

Use the definitions of atomic number and mass number to help you fill in the blanks on the table below.

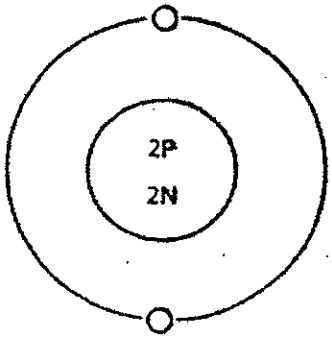
Table 4-1
Atomic Data for Selected Elements

Element	Symbol	Number of protons	Number of neutrons	Number of electrons	Atomic number	Mass number
Oxygen		8		8		16
Silicon		14	14			28
Aluminum			14	13	13	
Iron					26	56
Calcium		20		20		
Sodium					11	23
Potassium		19	20	19		
Magnesium					12	24
Gold		79				197
Silver			61	47		

Part B

Study the diagram of a model of a helium atom below. Use your knowledge of atomic number, mass number, and the model atom to identify and complete the models below.

FIGURE 4-1



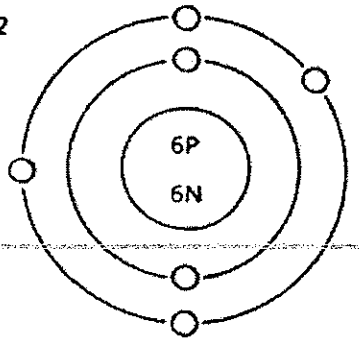
Helium atom

Atomic number 2

Mass number 4

Name _____ Date_____ Class_____

FIGURE 4-2

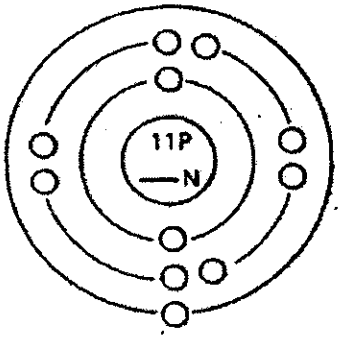


_____

Atomic number _____

Mass number _____

FIGURE 4-3



_____

Atomic number _____

Mass number 23

Part C

In the space below, diagram the nucleus of each of the elements listed. Be sure to list the number of protons and neutrons in each nucleus. Oxygen, Lithium, Boron, Fluorine