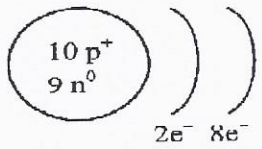
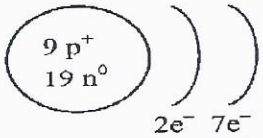
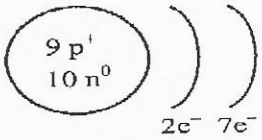
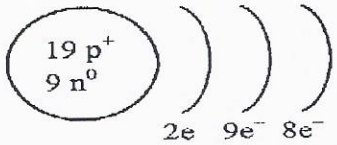
Enriched Atomic Model Worksheet

1. The atomic number of fluorine (F) is 9 and its mass number is 19. Which of the following diagrams correctly represents the simplified model of a fluorine atom?

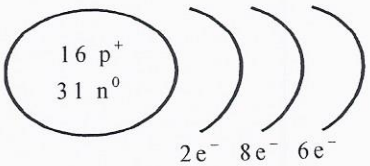
A) 

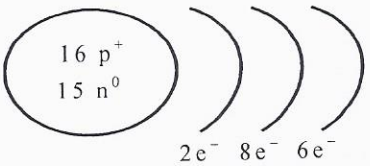
C) 

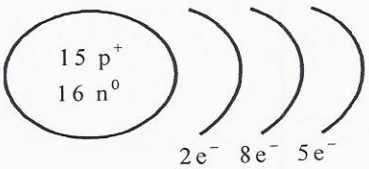
B) 

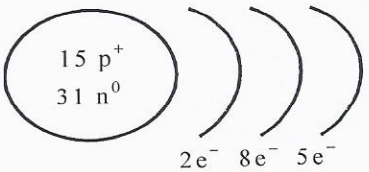
D) 

2. Which of the following diagrams represents the simplified atomic model of the phosphorus atom, $^{31}_{15}P$?

A) 

C) 

B) 

D) 

3. Which of the following characteristics describe an atom in terms of the simplified model?

1. The number of electrons is equal to the number of protons.
2. The number of protons is equal to the number of neutrons.
3. The nucleus is made up of neutrons, protons and electrons.
4. The nucleus is made up of neutrons and electrons.
5. The nucleus is made up of protons and neutrons.
6. Protons revolve around the nucleus.
7. Electrons revolve around the nucleus.

A) 1, 2 and 3 B) 1, 4 and 6 C) 1, 5 and 7 D) 2, 5 and 7

4. What is the mass number of an element?

A) It is the number of neutrons only.
B) It is the number of electrons only.
C) It is the sum of the protons and neutrons.
D) It is the sum of the protons and electrons.

5. The atomic number of the element potassium (K) is 19 and its mass number is 40. Which combination of particles corresponds to the simplified Rutherford-Bohr model of the potassium atom?

A) 19 protons, 21 neutrons, 19 electrons
B) 19 protons, 40 neutrons, 19 electrons electrons
C) 40 protons, 19 neutrons, 40 electrons
D) 40 protons, 21 neutrons, 21 electrons

6. Answer each question.
   a- Which element has 6 protons? Carbon C
   b- Which element has 22 neutrons? Argon Ar
   c- Which element has a mass number of 24? Magnesium Mg
   d- Which element has 20 electrons? Calcium Ca
   e- Which element has 14 for its atomic number? Si Silicon
   f- Which element has 7 neutrons? N Nitrogen
   g- Which **elements** have 14 neutrons? Aluminum + Silicon

7. True or false
   a- An element will always have the same number pf protons and electrons. T
   b- An element will always have the same number of protons and neutrons. F
   c- An element will always have the same number of electrons and neutrons. F
   d- Two different elements can have the same number of protons. F
   e- Two different elements can have the same number of neutrons. T
   f- Hydrogen has no neutrons when doing the simplified atomic model. T
   g- Every element has its own specific number of protons. T

8. Find two different sets of elements from the first 20 elements which have the same number of neutrons.

Boron + Carbon = 6 Sodium + Magnesium = 12 P+S=16

Fluorine + Neon = 10 Aluminum + Silicon = 14 K+Ca=20

9. Make a simplified atomic model for:

Sodium (Na) Boron (B) Argon (Ar) Hydrogen (H)