

Read pages 410 - 414. Periodic table on Page 418.

1. What is an element?
2. According to Aristotle, what were the basic elements?
3. What was the main job of an alchemist?
4. According to Robert Boyle, what is an element?
5. What contributions did Antoine Lavoisier make to chemistry?
6. Who decided to use letters instead of symbols for elements?
7. List three elements that are monoatomic.
8. List seven elements that are diatomic.
9. Look in an encyclopedia or on the internet to answer this question. Who was Buckminster Fuller and what did he do that made him famous?
10. Complete the table.

	Symbol	Atomic Number	Atomic Mass
Calcium			
Carbon			
Chlorine			
Copper			
Gold			
Hydrogen			
Iron			
Lead			
Magnesium			
Nitrogen			
Oxygen			
Phosphorous			
Potassium			
Silver			
Sodium			

Read pages 422 – 429.

1. List three properties of metals.
2. What characteristic of the structure of metallic atoms gives them similar properties?
3. List three properties of nonmetals.
4. What characteristic of the structure of nonmetallic atoms makes them different from metals?
5. Are there more metallic or nonmetallic elements?
6. How many elements have properties in between a metal and a nonmetal? What do you call this group of elements?
7. Each column on the periodic table is called a _____ or _____.
8. Identify the family name and the number or range of valence electrons for neutral atoms of each of the following elements. Use the periodic table on page 418-419.
 - a. Radon
 - b. Tin
 - c. Potassium
 - d. Oxygen
 - e. Iodine
 - f. Tungsten
 - g. Arsenic
 - h. Thallium
9. Name one use for each of the nine families of elements mentioned in Section 17.14.
10. Each horizontal row of the periodic table is called a _____ or _____.
11. What is a fuel cell?

Read pages 431 – 432.

1. What are two important factors that affect valence electrons and contribute to the chemical and physical properties of elements?
2. Which element holds on to its valence electrons tighter: an element with 2 energy levels or an element with 5 energy levels?
3. Out of these three elements (Ba, Be, Mg), which is the MOST electrically conductive?
4. Arrange the elements in the following groups in order of INCREASING atomic diameter (smallest to largest).
 - a. H, K, Li
 - b. C, Li, Ne
 - c. C, Pb, Si
5. Write the electron dot notation for each element:
 - a. Chlorine (Cl)
 - b. Magnesium (Mg)
 - c. Helium (He)
 - d. Oxygen (O)
 - e. Aluminum (Al)
 - f. Carbon (C)
 - g. Nitrogen (N)
 - h. Argon (Ar)
 - i. Sodium (Na)