

Bonding Basics

Name _____

Section A: Complete the chart using a periodic table to help you.

Element	Atomic Symbol	Total # of Electrons	# of Valence Electrons	# of Electrons Needed to Gain or Lose (to Fill Outer Shell)	Charge
Chlorine					
Potassium					
Magnesium					
Fluorine					
Aluminum					
Sodium					
Nitrogen					
Oxygen					
Hydrogen					
Carbon					
Iodine					

Answer these questions:

- An atom that gains one or more electrons will have a _____ charge.
- An atom that loses one or more electrons will have a _____ charge.
- An atom that gains or loses one or more electrons is called an _____.
- A positive ion is called a _____ and a negative ion is called an _____.

Section B: Ionic Bonds

What is an ionic bond?

- Atoms will transfer one or more _____ to another to form the bond.
- Each atom is left with a _____ outer shell.
- An ionic bond forms between a __metal / non-metal_ ion with a positive charge and a __metal / non-metal_ ion with a negative charge. (circle the correct response)

Example B1: Sodium + Chlorine

Example B2: Magnesium + Iodine

Example B3: Potassium + Iodine

Example B4: Sodium + Oxygen

Example B5: Magnesium + Chlorine

Example B6: Aluminum + Chlorine

Challenge: What are some other ionic bonds that can be formed by the elements you see? Remember that you need a metal and a nonmetal to make an ionic bond. Write the chemical formula for the compound and its name.

Section C: Covalent Bonds

What is a covalent bond?

- Atoms _____ one or more electrons with each other to form the bond.
- Each atom is left with a _____ outer shell.
- A covalent bond forms between two metals / non-metals. (circle the correct response)

Example C1: Hydrogen + Hydrogen

Example C2: 2 Hydrogen + Oxygen

Example C3: Chlorine + Chlorine

Example C4: Oxygen + Oxygen

Example C5: Carbon + 2 Oxygen

Example C6: Carbon + 4 Hydrogen

Challenge: What are some other covalent bonds that can be formed by the elements you see? Remember that you need two or more nonmetals to make a covalent bond. Write the chemical formula for the compound and its name if you know it.