

Name: _____ Date: _____ Class Period: _____

Chemical Bonds

Why do atoms stick together?



Objectives:

- Describe why chemical bonds are formed.
- Describe and model an ionic bond.
- Describe and model a covalent bond.
- Describe the difference between an ion and an atom.
- Describe the difference between a molecule and a compound.

Why do atoms bond together?

Stability –

Atom	Protons	Neutrons	Electrons	1 st Energy Level	2 nd Energy Level	3 rd Energy Level	Stable?
Hydrogen							
Sodium							
Neon							
Chlorine							
Oxygen							

Chemical Bond -

Valence Electrons -

Dot Diagrams – a diagram that shows the chemical symbol and dots representing only valence electrons.

LITHIUM
ATOM

LITHIUM
DOT DIAGRAM

To become stable, atoms can _____, _____, or _____ electrons.

Types of Chemical Bonds

Covalent Bonds	Ionic Bonds

Ionic Bonds

Ion -

Draw a Dot Diagram for the following atoms...

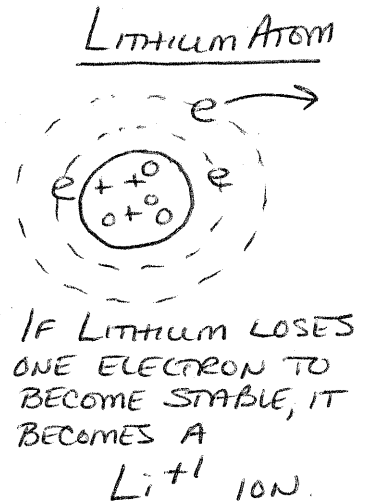
Helium (He)

Sodium (Na)

Chlorine (Cl)

Hydrogen (H)

Oxygen (O)



Draw dot diagrams below the atoms then show how electrons are gained and lost.

Sodium

Chlorine

Magnesium

Oxygen

What happens to an atom when it gains an electron? _____

What happens to an atom when it loses an electron? _____

Covalent Bonds

Molecule –

Draw a dot diagram of the atoms below and show a sharing of electrons.

Hydrogen

Fluorine

Oxygen

Oxygen

HYDROGEN

OXYGEN

HYDROGEN

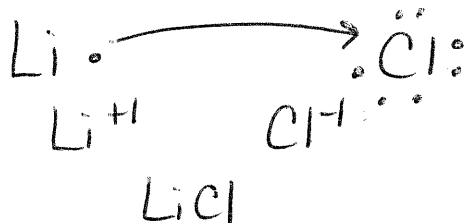
CHEMICAL BONDING

Element	Symbol	Dot Diagram showing valence electrons only (outer most energy level of electrons)	Stable or Unstable? (Is the outer most energy level completely filled with electrons?)	How many electrons does it need to gain or lose to become stable?
Hydrogen	H	H \cdot	UNSTABLE	GAIN OR LOSE 1
Helium	He	He $\cdot\cdot$	STABLE	—
Lithium				
Carbon				
Aluminum				
Sulfur				
Chlorine				
Argon				

TYPES OF BONDING: IONIC OR COVALENT

- A. Identify which type of bonding is happening in each situation below. (Ionic or Covalent)
 B. Explain your answer.

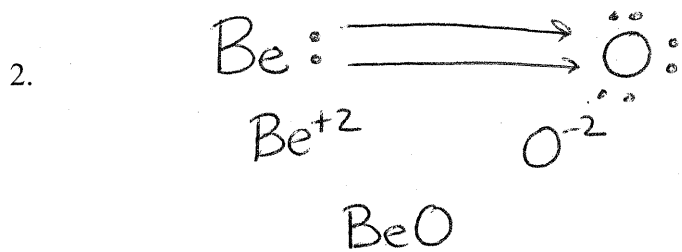
1.



* TYPE OF BONDING:

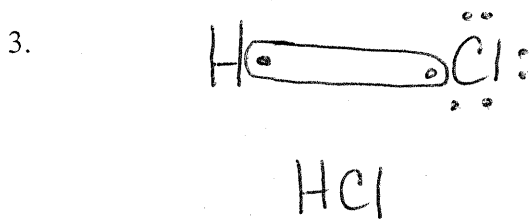
* EXPLANATION:

Go to back for more!



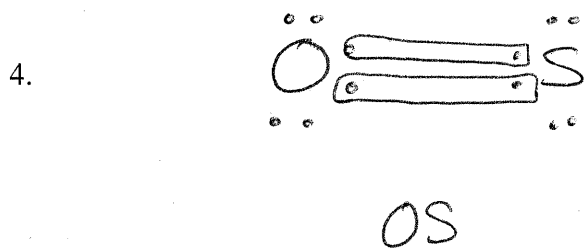
* TYPE OF BONDING:

* EXPLANATION:



* TYPE OF BONDING:

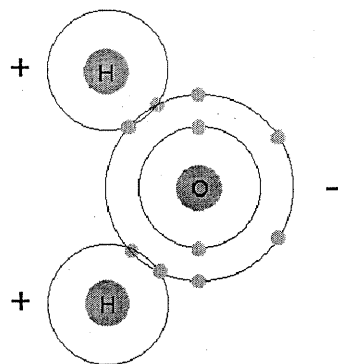
* EXPLANATION:



* TYPE OF BONDING:

* EXPLANATION:

Ions and Bonding Practice Quiz



1. In the box provided, write how many protons and electrons each **ion** contains.

Ion	# of protons	#of electrons
P^{-3}		
Fe^{+2}		
Rb^{+}		
S^{-2}		

2. In the box provided, write the ion that each element will form. *If the element is stable and will not form an ion, then in the ion box write "stable"*

Element	Dot Diagram	Number of electrons lost or gained	Ion formed
Lithium			
Argon			
Aluminum			
Hydrogen			
Oxygen			
Neon			
Iodine			