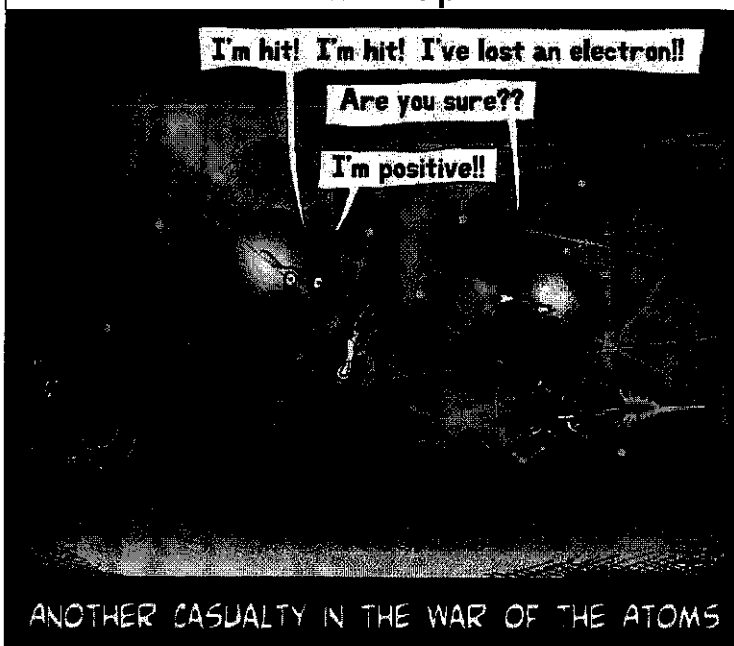


### Warm-up



What is the illustrator trying to show with the cartoon? How/why is this a joke?

### Reminders:

Pass Back/Missing Papers

Study Hall

Test Make-up

Today in class we are going to watch the Bill Nye - Chemical Reactions video. Then we will be looking at chemical bonding and the types of bonds formed.

Turn in your class work from last class period. This is a complete/incomplete grade. I will check it while the video is playing.

Average test time = 20:52 that left you with about 1hr to complete the work.

If I call your name while the video is playing come back to me with your computer.

# **Bill Nye**

## **Chemical Reactions**

### **Chemical Bonding...**

To start out with we have a few questions we need to review to understand what is happening when elements come together to form compounds. After we see how/why elements form compounds then we will look at the chemical equations for the reaction that takes place to form them.

Let's take a look at the periodic table...

What electrons are the most important electrons an atom has?

What does the column tell you about the atoms in each column?

What does the row tell you about the atoms in that period?

What column do find the most reactive elements?

What column are the least reactive elements?

What makes an atom stable?

How could an atom become stable?

Chemical bonding is the joining of two or more **atoms** to form new substances. In a bond electrons are **shared, gained, or lost**.

The only electrons to bond are the **valance** electrons.

Metallic Bond \*

Ionic Bonding - In an ionic bond electrons are **transferred** from one atom to another. One atom **loses** valence electrons to leave a filled inner shell and the other atom **gains** electrons to fill its outer shell. Ionic bonds form between a **metal** and a **nonmetal**.

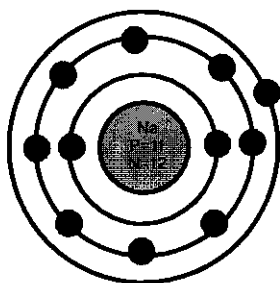
Ionic Bond \*

Ionic Bond\*

Nonmetals (groups 14-18) have outer shells that are almost filled. Therefore, nonmetals **gain** electrons to fill the outer shell. When electrons are gained they become **negatively** charged.

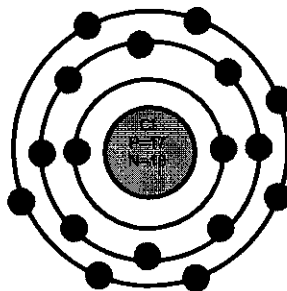
Metals (groups 1-12) have few valence electrons. Therefore, metals will **give away** valence electrons to leave a filled inner shell. When electrons are lost the atoms become **positively** charged.

## Ionic Example:



Metal

- loses electron(s)
- becomes positive



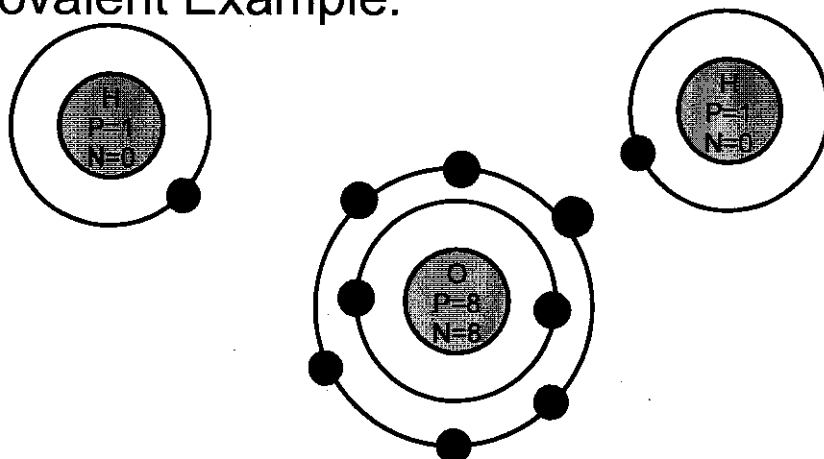
Nonmetal

- gains electron(s)
- becomes negative

**Covalent Bonds** - Covalent bonds form when valence electrons are **shared** between two atoms. Covalent bonds form between two or more **nonmetals**.

Covalent Bond \*

### Covalent Example:

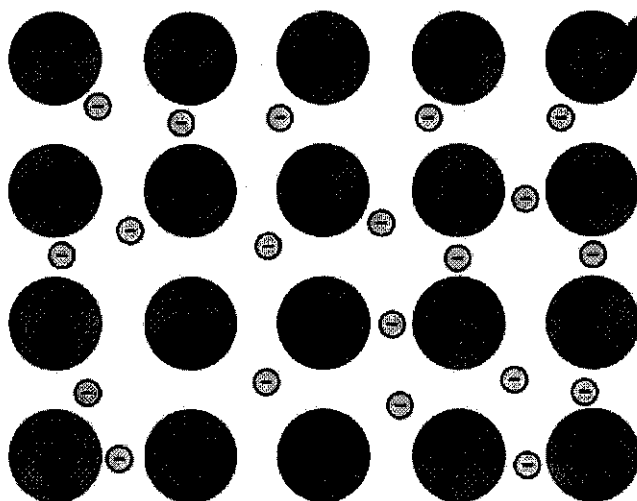


**Metallic Bonds** - Metallic bonds form between metal atoms. In a metallic bond electrons are shared between **many** atoms at the same time.

Metallic bonds give metals their properties of **ductility, malleability, and electrically conductive.**

Metallic

- Electrons are shared  
by many atoms



Type of Bond	Types of atoms	What happens to the Electrons?
Covalent		
Ionic		
Metallic		



What type of bond will each compound form?

LiF  
O<sub>3</sub>  
H<sub>2</sub>O  
CuZn  
NaCl  
CH<sub>3</sub>CH<sub>2</sub>OH  
Au  
MgO  
HCl  
Al  
PbS  
PCl<sub>3</sub>

Covalent	Ionic	Metallic

If Time:

PBS Chemical Bond Activity

Dogs Teaching Chemistry

Ions

Brainpop.com

