

Unit 5

NAME

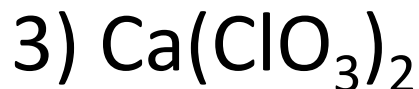
Class Work

12/17/13

5.5 Covalent Bonding

SPARK (Take out your 5.4 WS)

Name the following compounds:



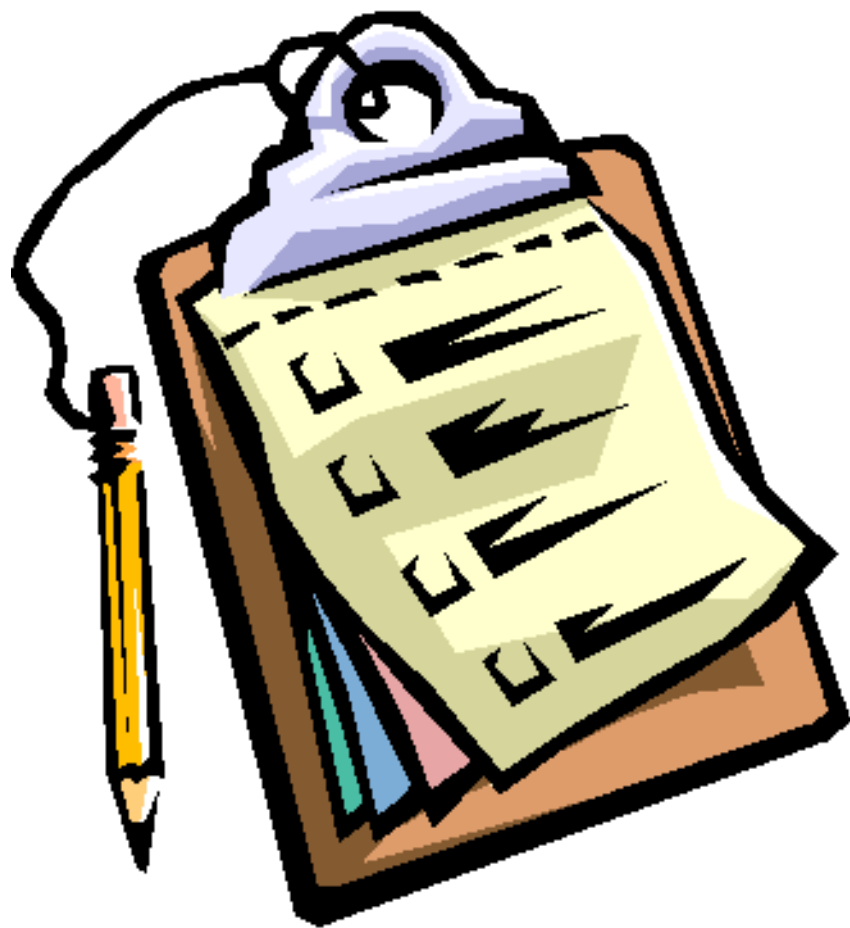
Be ready to quickly go over the homework!

Objective

SWBAT draw Lewis Dot Structure for
covalent bonding

Agenda:

- SPARK/Objective
- Lesson
- Practice
- Exit Ticket
- Homework



Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Naming Quiz

- When you are finished, pick up your two Winter Break Packets
- You will complete:
 - 200 Things to know for the chemistry Regents which will count for 3 homework grades
 - The 93 regents questions (on the answer sheet) which will count as a “take home” quiz!

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Why do covalent bonds form?

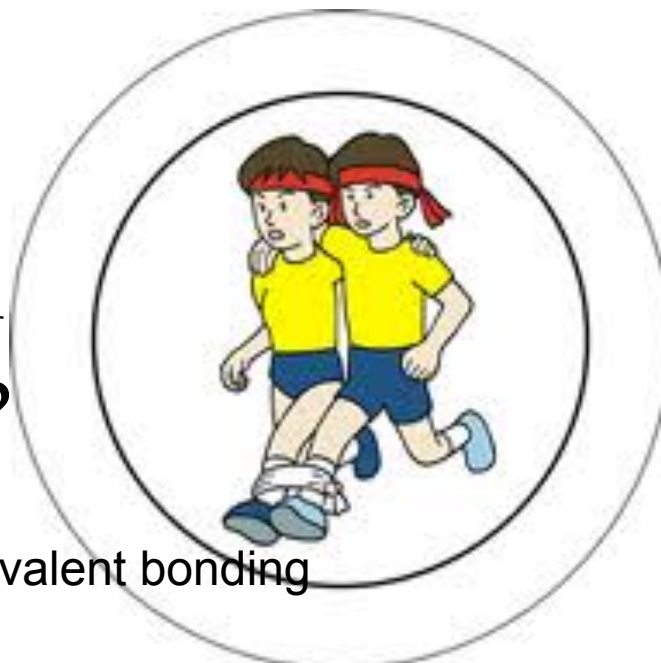
Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Covalent Bonds

- Nonmetallic atoms share valence electrons to form stable electron configurations.
- A **covalent bond** results from two atoms sharing one electron.
- A molecule can form when two or more atoms bond covalently.

Question:

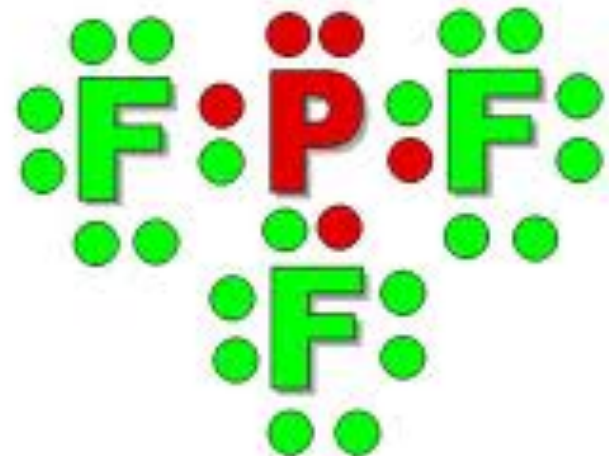
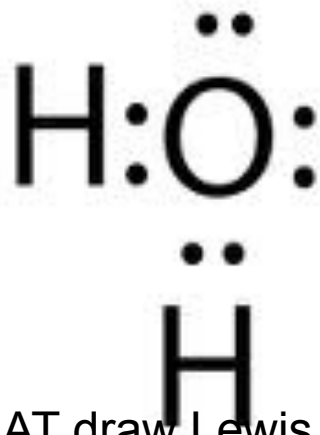
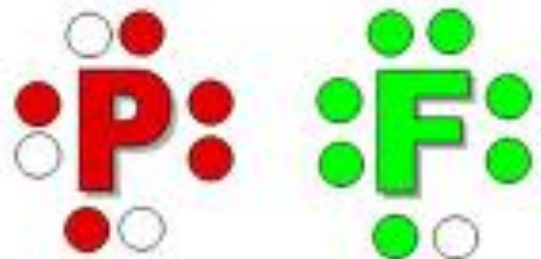
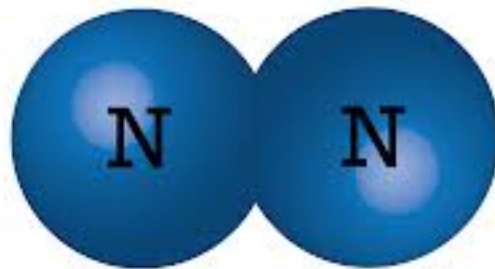
- Is energy released or required for a covalent bond to form?



Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Lewis Dot Structures

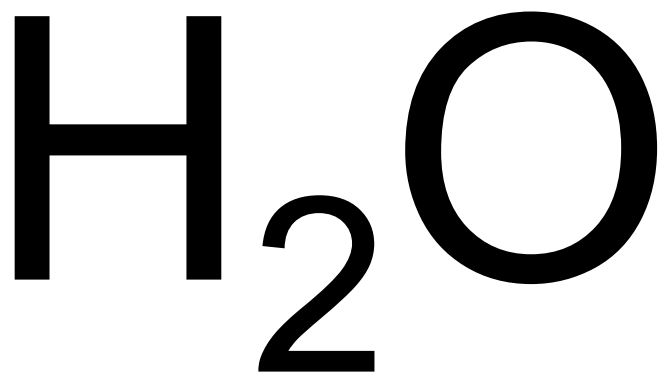
- Lewis dot structures can be used to show the sharing of electrons
- Can share more than one pair of electrons



Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Steps to Drawing Covalent Bonds

Step 1: Determine the type and number of atoms in the molecule.



2 Hydrogen
atoms

1 Oxygen atom

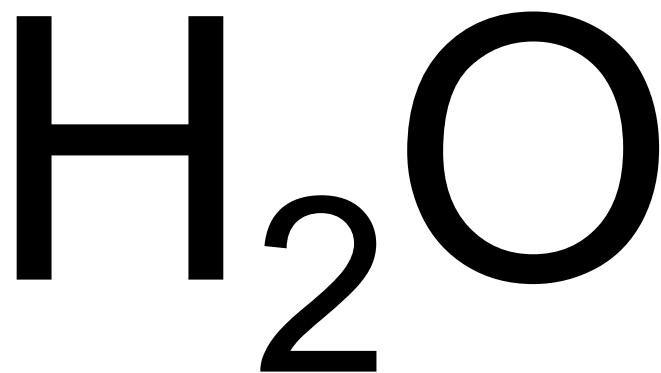
REMEMBER: Our subscripts tell us how many atoms of each element exist in the molecule. No subscript???

Means 1 atom

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Steps to Drawing Covalent Bonds

Step 2: Determine the total number of valence electrons in the atoms to be combined.



$$\text{H} = (1 \times 2) = 2$$

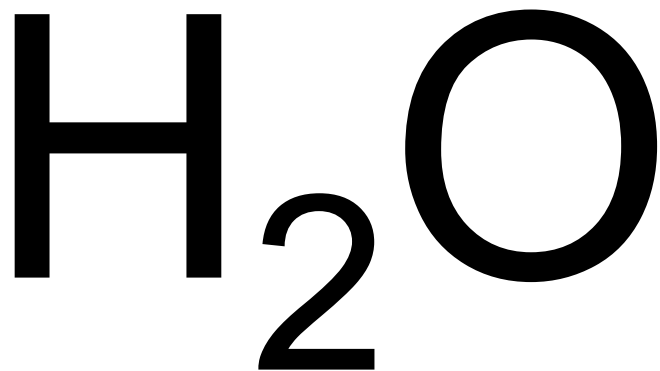
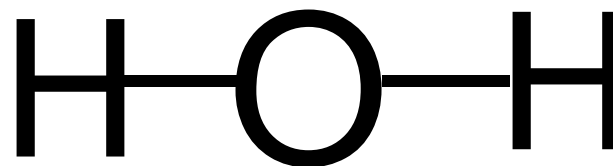
$$\text{O} = 6$$

$$\text{Total} = 8$$

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Steps to Drawing Covalent Bonds

Step 3: Arrange the atoms to form a skeleton structure for the molecule



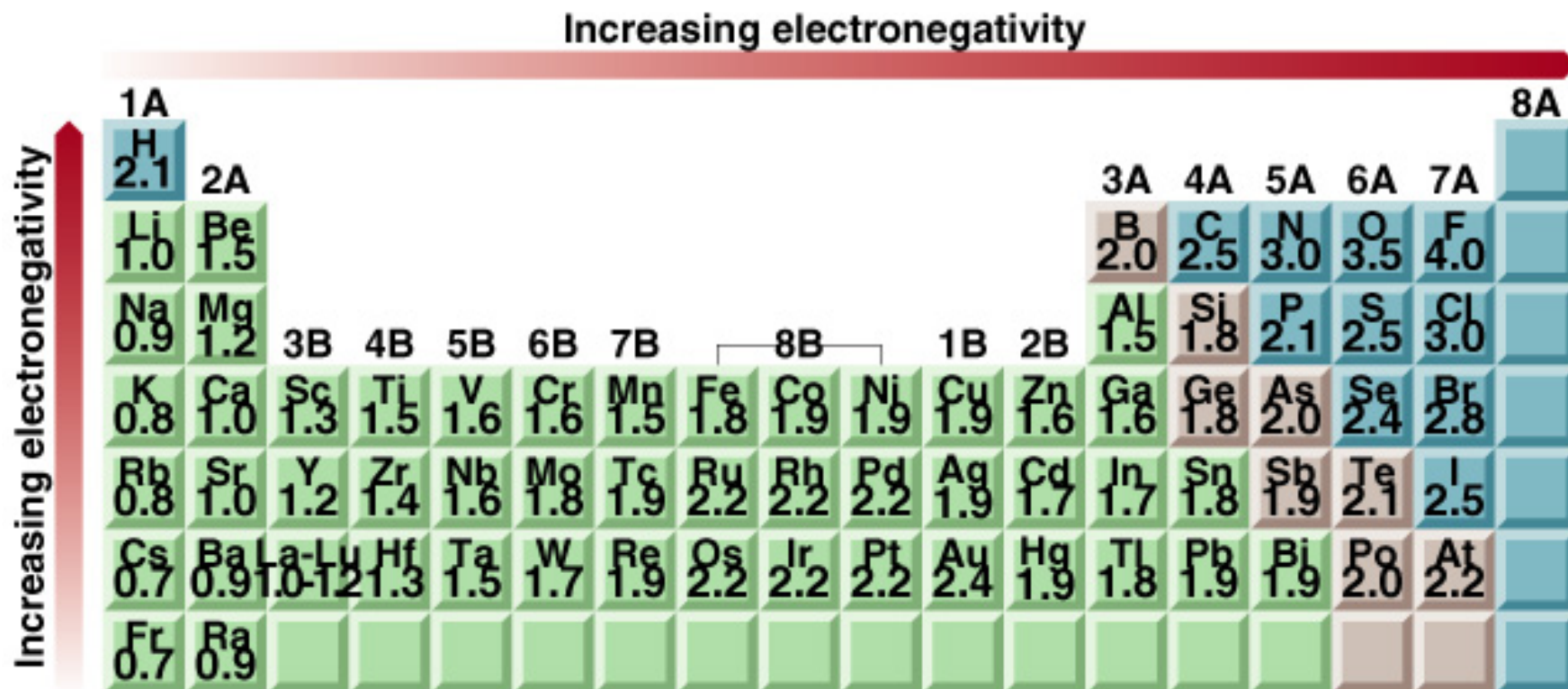
Each bond represents
2 electrons:
These electrons are
shared by both atoms

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Hints for creating a skeleton structure:

1. The least-electronegative atom is central
2. If Carbon is present, it is the central atom
3. Hydrogen is NEVER central

What is the trend in electronegativity on the periodic table??

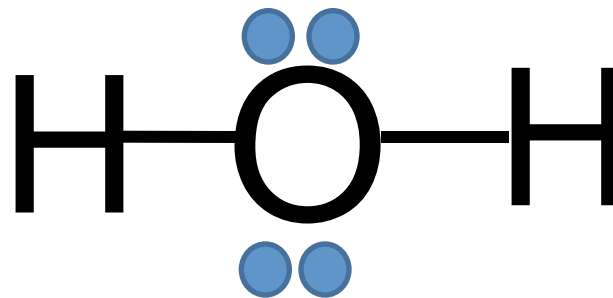
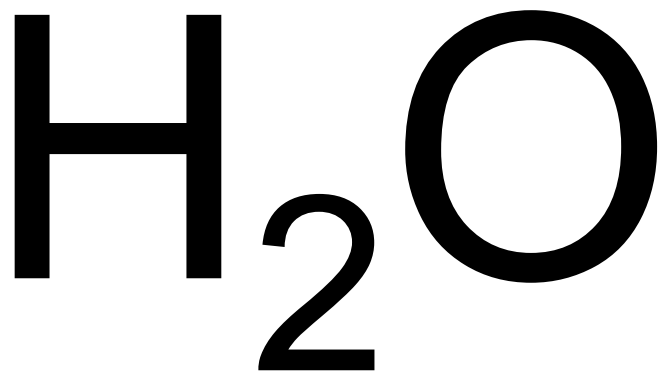


Electronegativity: the tendency of an atom to attract shared electrons toward itself

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Steps to Drawing Covalent Bonds

- Step 4: Add unshared pairs of electrons so each atom has an octet (except H)
- A single line is used to represent a single bond



Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Steps to Drawing Covalent Bonds

- Step 5: Check # of valence electrons used equals the number available.
- Check that all atoms have 8 valence electrons!!!! (Except hydrogen which should have 2 valence electrons)

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

Independent Work

- Complete 5.5 Worksheet
- Finish for homework!

Objective: SWBAT draw Lewis Dot Structure for covalent bonding

HOMEWORK

Finish 5.5 independent practice sheet!

Read pages 164-167 and 170-174. Try two questions on page 174

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