

COVALENT BONDS & LEWIS STRUCTURES

EVIDENCE NOTEBOOK

KEY IDEAS

1. Types of Bonds
 - a. Ionic bonds are formed by the attraction between:

 - b. Covalent bonds are formed when electrons are _____ between atoms.

 - c. *(Circle the appropriate word from the possible choices)* Ionic bonds are formed between a metal | nonmetal and a metal | nonmetal.

 - d. *(Circle the appropriate word from the possible choices)* Covalent bonds are formed between a metal | nonmetal and a metal | nonmetal.

2. Lewis Structure
 - a. A Lewis Structure (or Lewis Dot Structure) is a model that shows how the _____ are arranged among the atoms in the molecule.

 - b. Except for 1s elements (hydrogen and helium), elements are most stable with _____ valence electrons around them. This is called the _____ rule.

 - c. Write the three rules for writing a Lewis Structure:
 - i.

 - ii.

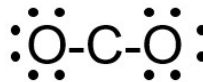
 - iii.

NAME: _____ DATE: _____ PERIOD: _____

3. Hydrogen (H_2) is a stable molecule when it shares _____ electrons.
4. Lewis Structure of fluorine
 - a. How many valence electrons does fluorine have?
 - b. How many valence electrons would *two* fluorine atoms have?
 - c. Draw the Lewis Structure of F_2 :
5. Lewis Structure of water
 - a. How many valence electrons are in the following:
 - i. H =
 - ii. H =
 - iii. O =
 - iv. H_2O =
 - b. Draw the Lewis Structure for water (H_2O):
 - c. **Challenge question:** Why would you never find hydrogen with more than one bond on it in a molecule? (*Answer is a clear, coherent sentence*)
6. Lewis Structure of Carbon Dioxide
 - a. How many valence electrons are in the following:
 - i. C =
 - ii. O =
 - iii. O =
 - iv. CO_2 =
 - b. What are the two rules (questions) you can ask to make sure the Lewis Structure is correct?
 - i.
 - ii.

NAME: _____ DATE: _____ PERIOD: _____

- c. Use the rules from 6b to explain why the following Lewis Structure for carbon dioxide is incorrect. (*Answer is a clear, coherent sentence*)



- d. Draw the *correct* Lewis Structure for CO₂:

7. Connect the Dots Method Rules

- a. Step 1: Write the Lewis Dot Configuration (valence electrons) for _____ of the _____ in your compound.
- b. Step 2: Pair all _____ with a line while singing the _____ song. Make sure all atoms are connected. The _____ atom listed in a compound is normally the _____ atom.
- c. Step 3: Re-draw a _____ version.
- d. Illustrate how the Lewis Structure for CO₂ can be drawn using the Connect the Dots Rule: (Write it

8. Guided Practice: Draw the Lewis Structure for the following:

- a. Si₂
- b. O₂

NAME: _____ DATE: _____ PERIOD: _____

c. CH_2O

d. NH_2F

CHECKPOINTS

Give the Lewis Structure for each of the following:

1. HF

7. NF_3

2. N_2

8. CH_3OH

3. NH_3

9. SO

4. CH_4

10. C_2H_6

5. CF_4

11. C_2H_4

6. NHO

12. C_2H_2