

## Drawing Lewis Structures

Name \_\_\_\_\_

With a partner, use the dry erase board to draw each Lewis structure. Use the following steps to help guide you through each one. Write your final answer on this sheet.

- Rough draft**
- Step 1:** Write down the central atom.  
**Step 2:** Arrange the other atoms around it.  
**Step 3:** Make bonds between the central and outer atoms.  
**Step 4:** Complete the octets on the central atom and then the outer atoms by adding electron pairs.
- Step 5:** Compare the number of electrons we have drawn to what we need by counting up each atoms valence electrons.
- Proofreading Step 6:** If the number of electrons don't match up, you have two options:
- If the number of electrons is more than what is needed, erase a lone pair from the central atom and a lone pair from an outer, and then add a bonding pair between them.
  - If the number of electrons is less than what is needed, add a pair of electrons to the central atom.

1. Follow **steps 1-4** from above on the dry erase board provided for the following molecule:  **$\text{NCl}_3$**

**Step 5:** How many valence electrons?

N → \_\_\_\_\_

Cl → \_\_\_\_\_

Total → \_\_\_\_\_ (remember there 3 Cl)

Does the number of electrons from your "rough draft" match what you calculated above? \_\_yes \_\_no

(if you marked yes, there is no need to do step 6)

- Draw your final answer here
- Circle all bonding pair electrons.



2. Follow the **steps 1-4** from above on the dry erase board provided for the following molecule:  **$\text{CBr}_4$**

**Step 5:** How many valence electrons?

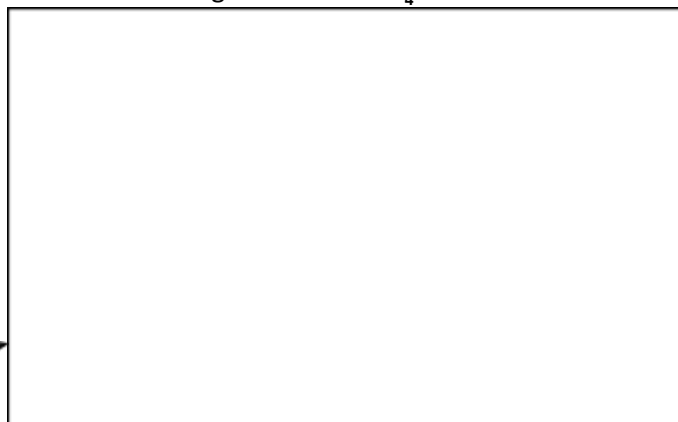
C → \_\_\_\_\_

Br → \_\_\_\_\_

Total → \_\_\_\_\_ (remember there 4 Br)

Does the number of electrons from your "rough draft" match what you calculated above? \_\_yes \_\_no

- Draw your final answer here
- Circle all lone pair electrons.



3. Follow the steps 1-4 from above on the dry erase board provided for the following molecule: **NH<sub>3</sub>**

Step 5: How many valence electrons?

N → \_\_\_\_\_

H → \_\_\_\_\_

Total → \_\_\_\_\_ (remember there 3 H)

Does the number of electrons from your "rough draft" match what you calculated above? \_\_yes \_\_no

- a. Draw your final answer here  
b. Circle all lone pair electrons.



4. Follow the steps 1-4 from above on the dry erase board provided for the following molecule: **SeO<sub>3</sub>**

Step 5: How many valence electrons?

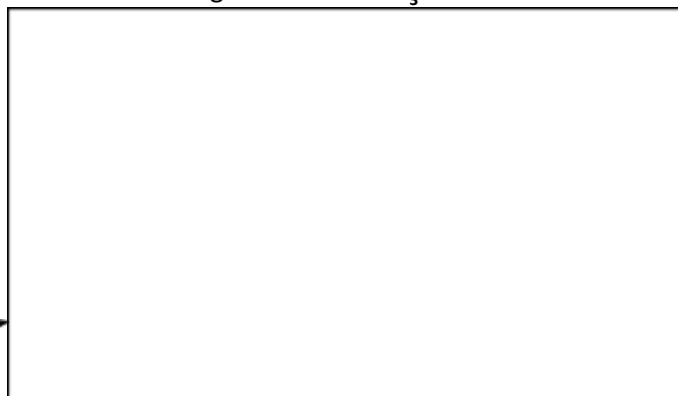
Se → \_\_\_\_\_

O → \_\_\_\_\_

Total → \_\_\_\_\_

Does the number of electrons from your "rough draft" match what you calculated above? \_\_yes \_\_no

- a. Draw your final answer here  
b. Circle all lone pair electrons.



5. Follow the steps 1-4 from above on the dry erase board provided for the following molecule: **SF<sub>4</sub>**

Step 5: How many valence electrons?

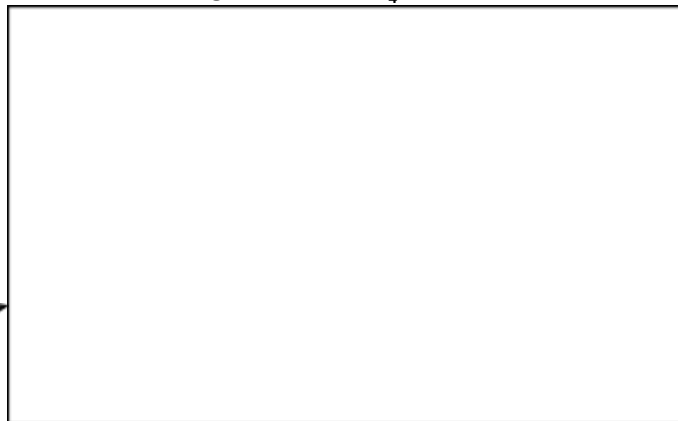
S → \_\_\_\_\_

F → \_\_\_\_\_

Total → \_\_\_\_\_

Does the number of electrons from your "rough draft" match what you calculated above? \_\_yes \_\_no

- a. Draw your final answer here  
b. Circle all lone pair electrons.



Follow up questions:

1. In your own words, state the purpose of drawing Lewis structures.
2. Why do you think hydrogen does not obtain a full octet?
3. Draw Lewis structures for the following:

HBr

OF<sub>2</sub>

CO<sub>2</sub>