Name _____ Date _____ Period _____

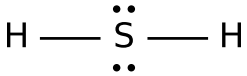
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Lewis Structures

Chemistry

Use a periodic table. For each molecule, count the valence electrons first, then draw the Lewis structure. Every line is 2 electrons and every dot is 1. Your drawing must use exactly the number you counted.
Steps: count, connect with single bonds, fill the outer atoms, put leftovers on the central atom, then make double or triple bonds if the central atom is short of 8.

1. Example (worked for you). Hydrogen sulfide, H_2S.
Valence electrons: S = 6, H = 1 × 2 = 2, total = **8**. Sulfur is central, and H goes on the outside.



Check: 2 lines × 2 = 4, plus 4 dots = 8. It matches the count. S has 8 and each H has 2.

2. Draw the Lewis structure for carbon tetrafluoride, CF_4.
Valence electrons: _____ Check: lines × 2 + dots = _____

3. Draw the Lewis structure for nitrogen trifluoride, NF_3.
Valence electrons: _____ Check: lines × 2 + dots = _____

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4. Draw the Lewis structure for carbon disulfide, CS_2. Carbon is the central atom.

Valence electrons: _____ Check: lines × 2 + dots = _____

5. Draw the Lewis structure for ethyne, C_2H_2. The two carbons bond to each other, and each carbon bonds to one hydrogen.

Valence electrons: _____ Check: lines × 2 + dots = _____

6. Draw the Lewis structure for ethene, C_2H_4. The two carbons bond to each other, and each carbon bonds to two hydrogens.

Valence electrons: _____ Check: lines × 2 + dots = _____

7. Water picks up a hydrogen ion to make the hydronium ion: $H_2O + H^+ \rightarrow H_3O^+$.

(a) Count the valence electrons in H_3O^+. Subtract 1 for the + charge: _____

(b) Draw the Lewis structure of H_3O^+. Put it in square brackets with the charge outside.

(c) Which atom supplied both electrons for the new bond to hydrogen? What is this kind of bond called?

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