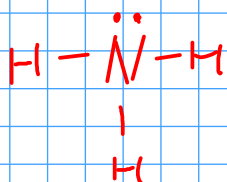
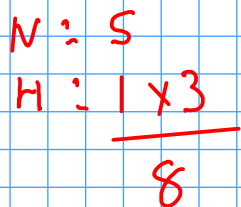
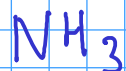


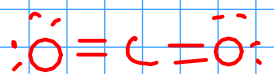
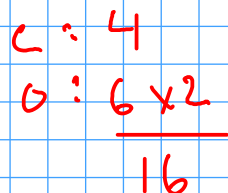
What about shape? **TRIGONAL PLANAR**. There are three things (=O, 2 -H) around the central carbon, so they will spread out as far as possible - 120 degrees.

Polarity? The C=O bond is a polar bond, and it is not "canceled" out by other bonds. The molecule is **POLAR**.



Shape? There are **FOUR** things around the central nitrogen atom - forcing the bond angles to be 109.5, or tetrahedral. **BUT**, only three of the things are atoms, and we describe shape based on **ATOMS**. We call this one **PYRAMIDAL**.

Polarity? N-H bonds are polar, and they're arranged so that the "top" of the pyramid (N) will be slightly negative, while the "bottom" H atoms will be slightly positive. So the overall molecule is **POLAR**.



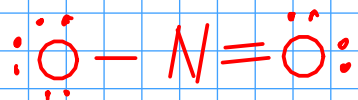
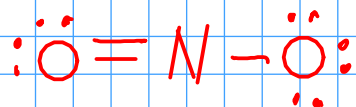
Shape? Only two things (=O) around the carbon center, and they will spread out as far as possible. **LINEAR!**

Polarity? C=O bonds should be polar, but they are arranged so that they will cancel each other out. This molecule is **NONPOLAR**.



$$\begin{array}{l} \text{H: } 1 \\ \text{N: } 5 \\ \text{O: } 6 \times 3 \\ \hline 24 \end{array}$$

Start drawing skeleton by recognizing that this compound is an OXYACID hydrogen attached to a polyatomic ion.



In an OXYACID, the acidic hydrogen atoms are always attached to an OXYGEN atom.

Resonance structures. The "double bond" electrons are really shared between all three atoms (O-N-O)

Shape? Since this molecule has two centers, give the shape around each center! Around NITROGEN, the shape is TRIGONAL PLANAR (3 things around N). Around the bottom oxygen, there are four things but only two atoms: BENT

Polarity? We expect electrons to be pulled away from H, and that the H end would end up slightly positive. POLAR.

In water, the bottom oxygen atom is able to TAKE the electrons it is sharing with H, forming IONS! (H⁺ and nitrate)!