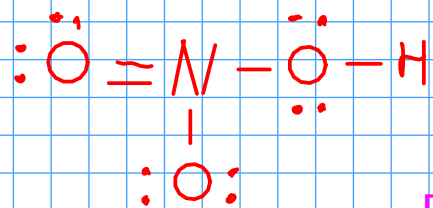


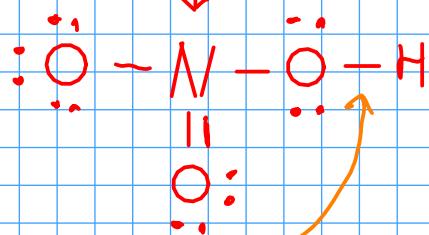


$$\begin{array}{l} \text{H: } 1 \\ \text{N: } 5 \\ \text{O: } 6 \times 3 \\ \hline 24 \end{array}$$

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



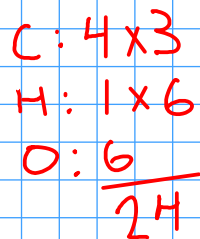
Resonance structures. The oxygen bonded to the nitrogen have a DELocalized bond.



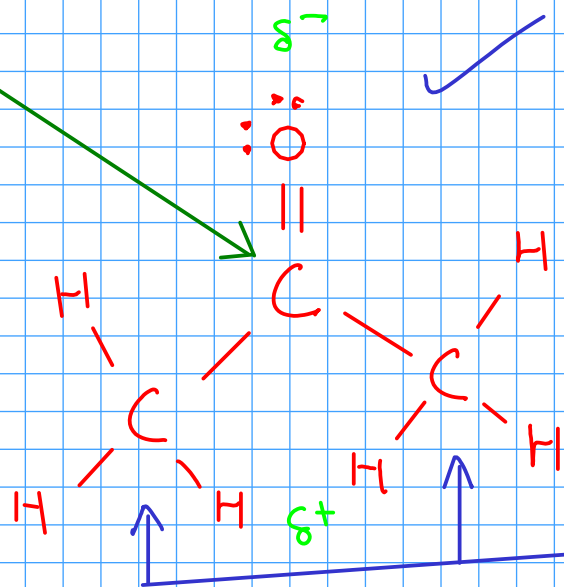
Shape? The molecule has TWO centers, so we describe the shape around each center. Around the NITROGEN, the shape is TRIGONAL PLANAR, since there are three atoms surrounding N and no lone pairs. Around the OXYGEN atom (on the right), the shape is BENT (two atoms and two lone pairs).

Polarity? We expect this molecule to be POLAR. Electrons are pulled away from the acidic hydrogen by the oxygen atom bonded to it.

In water, the acidic hydrogen can lose its electrons entirely to the oxygen atoms - forming H⁺ ion and nitrate ion.



The formula provides a clue to the skeletal structure of the molecule. There are three carbon centers in this molecule!



Shape? We need to describe the shape of the molecule around each one of its centers.

These two carbon atoms are TETRAHEDRAL, since each of these carbons is surrounded by four other atoms.

The carbon in the middle has a TROGONAL PLANAR shape, since it's surrounded by only three atoms (and no lone pairs).

Polarity? C-H bonds are nonpolar, but C=O is polar. Electrons are pulled towards the oxygen end of the bond, making the overall molecule POLAR.

Experimentally, we observe that acetone dissolves very well in water (another polar molecule).