A DOT STRUCTURE FOR A POLYATOMIC ION

① Count valence electrons

② Pick central atom and draw skeletal structure

    - central atom is usually the one that needs to gain the most electrons!

    - skeletal structure has all atoms connected to center with single bonds

③ Distribute remaining valence electrons around structure, outer atoms first. Follow octet rule until you run out of electrons.

④ Check octet rule - each atom should have a share in 8 electrons (H gets 2). if not, make double or triple bonds.
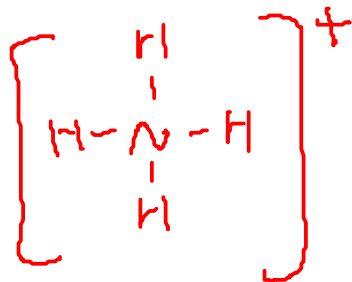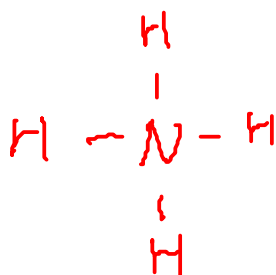
NH_4^+

$N - 1 \times 5 = 5$

$H - 4 \times 1 = 4$

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9 valence electrons

Why an odd number of electrons?

We need to account for CHARGE. Since ammonium ion has a +1 charge, we must subtract an electron from the total.

$9 e^-$

$-1 e^- \ (+1 \ charge)$

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$8 e^-$

$$H$$
$$|$$
$$H - N - H$$
$$|$$
$$H$$

$$\left[\begin{array}{c} H \\ | \\ H - N - H \\ | \\ H \end{array} \right]^+$$

Since this is an ion, we need to indicate the charge. Put brackets around the structure and put the charge in the upper right.