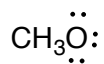# Formal Charges

o Assign formal charges to every atom (except hydrogen) in the molecules below.

CH_4

BH_3

NH_4

(structure: formaldehyde-like with O–H, C double bond O, two H on C)

(structure: O double bond C, two H)

$:NH_2$

$:CH_3$

$:CH_2$

(structure: O double bond C, N with H's, H)

BH_4

$CH_3\ddot{O}:$

$:PH_3$

$:NH_3$

$CH_3\ddot{O}H$

CH_3
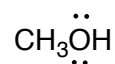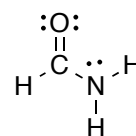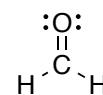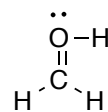
o Do it in reverse! Add electron pairs based on the formal charges drawn.

$\overset{\oplus}{CH_3}$

$\overset{\ominus}{CH_3}$

$H_2N—NH_2$

$H_2C\overset{\oplus}{=}N\overset{\ominus}{=}N$

$H—Br$

$\overset{\ominus}{O}—\overset{\oplus}{O}=O$

$H—C\equiv N$

$H—Cl$

(structure: C double bond O, H, O⊖)

$H—O—O—H$