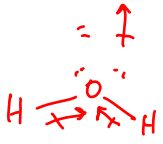
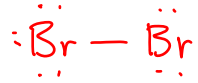
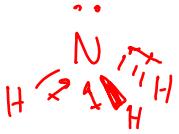
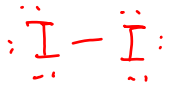
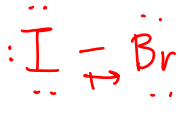
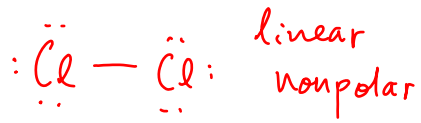
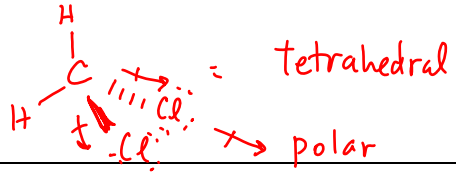
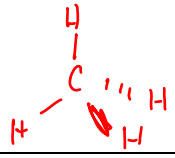
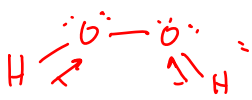
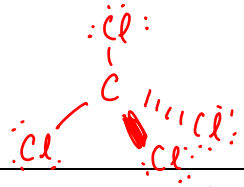
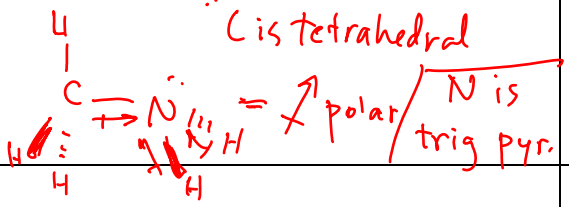
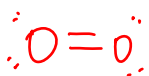
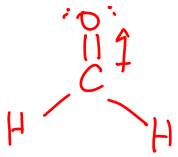
Name_____ Lab Section_____

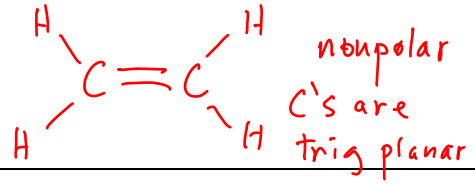
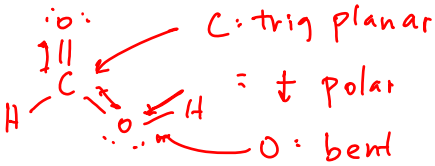
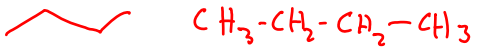
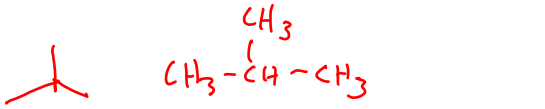
Partner's Name_____

| Formula | Sum of valence $e^-$ | Electron-dot diagram | All valence $e^-$ shown? | All atoms follow octet/duet rule? | Correct # bonds per atom? |
|---|---|---|---|---|---|
| (a) $H_2$ | | H—H linear, nonpolar | ☐ | ☐ | ☐ |
| (b) $H_2O$ | |  bent, polar | ☐ | ☐ | ☐ |
| (c) HCl | |  linear, polar | ☐ | ☐ | ☐ |
| (d) $Br_2$ | |  linear, nonpolar | ☐ | ☐ | ☐ |
| (e) $NH_3$ | |  polar trig. pyramidal | ☐ | ☐ | ☐ |
| (f) HOCl | |  polar bent | ☐ | ☐ | ☐ |
| (g) $I_2$ | |  linear nonpolar | ☐ | ☐ | ☐ |
| (h) IBr | |  linear polar | ☐ | ☐ | ☐ |

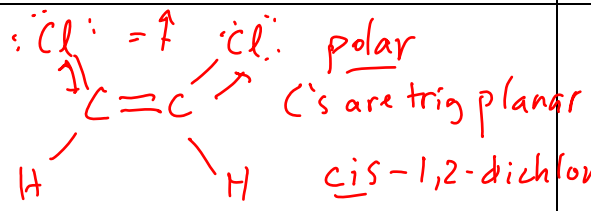
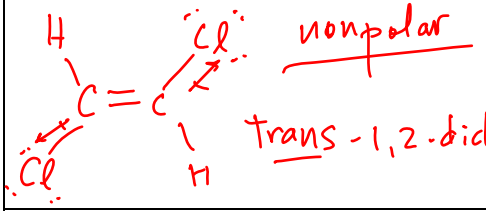
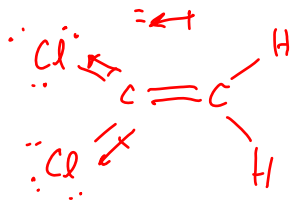
Name_____ Lab Section_____

| Formula | Sum of valence $e^-$ | Electron-dot diagram | All valence $e^-$ shown? | All atoms follow octet/duet rule? | Correct # bonds per atom? |
|---|---|---|---|---|---|
| (i) $Cl_2$ | |  linear nonpolar | ☐ | ☐ | ☐ |
| (j) $CH_2Cl_2$* | |  tetrahedral polar | ☐ | ☐ | ☐ |
| (k) $CH_4$* | |  tetrahedral nonpolar | ☐ | ☐ | ☐ |
| (l) $H_2O_2$ | | both O's are bent  polar | ☐ | ☐ | ☐ |
| (m) $CCl_4$* | |  tetrahedral nonpolar | ☐ | ☐ | ☐ |
| (n) $CH_3NH_2$* | |  C is tetrahedral polar N is trig pyr. | ☐ | ☐ | ☐ |
| (o) $O_2$ | |  linear nonpolar | ☐ | ☐ | ☐ |
| (p) $CH_2O$* | |  polar trig. planar | ☐ | ☐ | ☐ |

Name_____ Lab Section_____

| Formula | Sum of valence $e^-$ | Electron-dot diagram | All valence $e^-$ shown? | All atoms follow octet/duet rule? | Correct # bonds per atom? |
|---|---|---|---|---|---|
| (q) $C_2H_4$* | |  nonpolar C's are trig planar | ❑ | ❑ | ❑ |
| (r) $CO_2$* | |  linear nonpolar | ❑ | ❑ | ❑ |
| (s) HCOOH* | |  C: trig planar ; t polar O: bent | ❑ | ❑ | ❑ |
| (t) $N_2$ | |  linear nonpolar | ❑ | ❑ | ❑ |
| (u) $C_2H_2$* | |  linear nonpolar | ❑ | ❑ | ❑ |
| (v) HCN* | |  linear polar | ❑ | ❑ | ❑ |
| (w) $C_4H_{10}$ | |  all C's are tetrahedral nonpolar | ❑ | ❑ | ❑ |
| | |  C's tetrahedral, nonpolar | ❑ | ❑ | ❑ |

Name_____ Lab Section_____

| Formula | Sum of valence $e^-$ | Electron-dot diagram | All valence $e^-$ shown? | All atoms follow octet/duet rule? | Correct # bonds per atom? |
|---|---|---|---|---|---|
| (x) $C_2H_2Cl_2$* | |  polar C's are trig planar cis-1,2-dichloroethene | ❑ | ❑ | ❑ |
| | |  nonpolar trans-1,2-dichloroethene | ❑ | ❑ | ❑ |
| | |  polar 1,1-dichloroethene | ❑ | ❑ | ❑ |

**POSTLAB QUESTIONS** (*Optional – ask your instructor.*)

1. Which of the starred compounds in this experiment have a **tetrahedral** carbon atom? (*See page 5.4 for a description of carbon's geometries.*)

2. Which of the starred compounds in this experiment have a **trigonal planar** carbon atom?

3. Which of the starred compounds in this experiment have a **linear** carbon atom?