**CONCEPT:** REACTION MECHANISM: STABILITY AND REACTIVITY

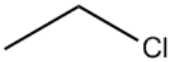
The currency of organic chemistry is _____

- Stability and *reactivity* generally have an _____ relationship.
- The 4 common indicators of reactivity:

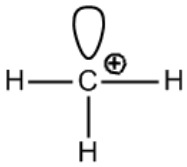
1. _____ 2. _____

3. _____ 4. _____

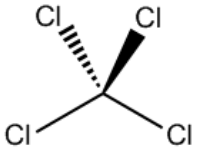
**EXAMPLE:** Identify which of the following molecules would be expected to be reactive.

a. 


☐ Reactive
☐ $Nu^-$
☐ $E^+$

b. 

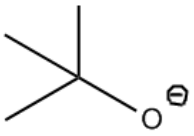

☐ Reactive
☐ $Nu^-$
☐ $E^+$

c. 

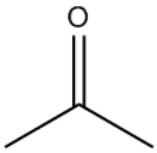

☐ Reactive
☐ $Nu^-$
☐ $E^+$

d. 

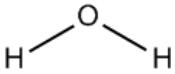
☐ Reactive
☐ $Nu^-$
☐ $E^+$

e. 

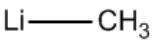

☐ Reactive
☐ $Nu^-$
☐ $E^+$

f. 


☐ Reactive
☐ $Nu^-$
☐ $E^+$

g. 


☐ Reactive
☐ $Nu^-$
☐ $E^+$

h. 


☐ Reactive
☐ $Nu^-$
☐ $E^+$

We can categorize almost all reactive molecules into two massive subtypes. These will display similar behaviors.

- Negatively charged species are known as _____
- Positively charged species are known as _____

The side of the dipole with the _____ bonding preference can be used to predict nucleophilicity or electrophilicity

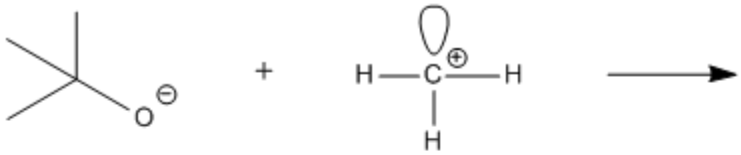
**EXAMPLE:** Identify which of the above molecules are *nucleophilic* or *electrophilic*

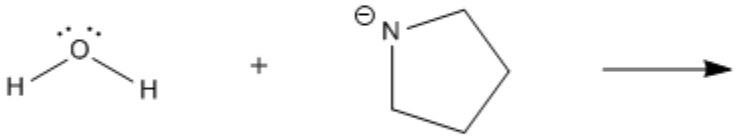
**CONCEPT:** REACTION MECHANISM: ELECTRON MOVEMENTS

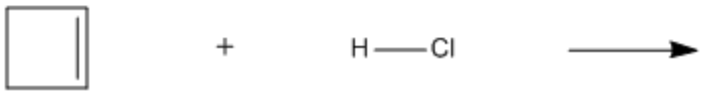
*Reactive* molecules share electrons to become more stable. _____ are used to show which direction they are going.

- Arrows always move from regions of _____ electron density to _____ electron density
- By that logic, _____ must ***always*** attack _____
- Each attacking arrow represents ____ electrons being shared. Replace that arrow with a new ____ - _____

**EXAMPLE:** Determine the initial direction of electron movement by drawing the *first* arrow of each mechanism:

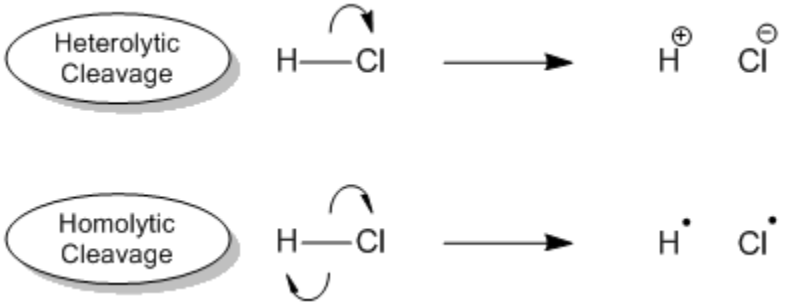
a. 

b. 

c. 

□ Bond breaking is sometimes also required in mechanisms, but ***only*** when it is required to preserve octets.

There are two ways to break chemical bonds:




**EXAMPLE:** Identify which of the above reactions require bond breaking and/or more arrows to satisfy all octets