The Curved Arrow Convention

1. Curved arrows show the movement (flow) of electron during bond breaking and/or bond making processes. The foot of the arrow indicates where the electron or electron pair originates, the head of the arrow shows where the electron or electron pair ends up.
    A. The movement of a single electron is denoted by a curved single headed arrow (fishhook or hook).

    B. The movement of an electron pair is denoted by a curved double headed arrow.

2. If an electron pair moves in on a new atom, another electron pair must leave so that the atom does not exceed a full valance of eight electrons. There are two common exceptions:
    A. When an atom already has an incomplete valance (R_3C^+).
    B. With second row (or below) elements the octet rule may be violated.

3. The arrows completely dictate the Lewis structure of the product.

Other Suggestions for Proper Arrow Pushing:

4. The natural polarization of double bonds between unlike atoms is in the direction of the more electronegative atom and this will be the important direction of electron movement.

5. In drawing a mechanism, the formal charges of atoms in the reactants may change in the product. Use your knowledge of Lewis structures and formal charge to determine this.

6. The first step in writing a mechanism is to identify the nucleophile (Lewis Base) and the electrophile (Lewis Acid). The first arrow is always from the nucleophile to the electrophile.

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