Summary

1. Substitution reactions at 1° and 2° (but not 3°) C(sp^3) centers usually proceed by the S_N2 mechanism under basic or neutral conditions. Substitution at C(sp^2) centers rarely (if ever) occurs by the S_N2 mechanism.
2. Leaving group ability:
   - The weaker the base, the better is the leaving ability.
   - F^-, OH^-, RO^- (except epoxides), H^-, and carbanions are almost never leaving groups in [S_N1] or [S_N2] reactions.
3. Nucleophilicity (an **aprotic** solvent like DMSO):
   - The stronger the base, the stronger the nucleophile.
4. Nucleophilicity (in a **protic** solvent like methanol):
   - Neutrals are poorer nucleophiles than anions.
   - Comparing nucleophilic atoms that are in the same **row**, the stronger the base, the stronger the nucleophile.
   - Comparing nucleophilic atoms that are in the same **column**, the larger the atom, the stronger the nucleophile.