

Nucleophile	Anionic Nucleophiles (Weak Bases: I ⁻ , Br ⁻ , SCN ⁻ , N ₃ ⁻ , CH ₃ CO ₂ ⁻ , RS ⁻ , CN ⁻ etc.)pK _a 's from -9 to 10 (left to right)	Anionic Nucleophiles (Strong Bases: HO ⁻ , RO ⁻)pK _a 's > 15	Neutral Nucleophiles (H ₂ O, ROH, RSH, R ₃ N)pK _a 's ranging from -2 to 11
Alkyl Group			
Primary RCH ₂ -	Rapid S _N 2 substitution. The rate may be reduced by substitution of β-carbons, as in the case of neopentyl.	Rapid S _N 2 substitution. E2 elimination may also occur. e.g. ClCH ₂ CH ₂ Cl + KOH → CH ₂ =CHCl	S _N 2 substitution. (N ≈ S >>O)
Secondary R ₂ CH-	S _N 2 substitution and / or E2 elimination (depending on the basicity of the nucleophile). Bases weaker than acetate (pK _a = 4.8) give less elimination. The rate of substitution may be reduced by branching at the β-carbons, and this will increase elimination.	E2 elimination will dominate.	S _N 2 substitution. (N ≈ S >>O) In high dielectric ionizing solvents, such as water, dimethyl sulfoxide & acetonitrile, S _N 1 and E1 products may be formed slowly.
Tertiary R ₃ C-	E2 elimination will dominate with most nucleophiles (even if they are weak bases). No S _N 2 substitution due to steric hindrance. In high dielectric ionizing solvents, such as water, dimethyl sulfoxide & acetonitrile, S _N 1 and E1 products may be expected.	E2 elimination will dominate. No S _N 2 substitution will occur. In high dielectric ionizing solvents S _N 1 and E1 products may be formed.	E2 elimination with nitrogen nucleophiles (they are bases). No S _N 2 substitution. In high dielectric ionizing solvents S _N 1 and E1 products may be formed.
Allyl H ₂ C=CHCH ₂ -	Rapid S _N 2 substitution for 1° and 2°-halides. For 3°-halides a very slow S _N 2 substitution or, if the nucleophile is moderately basic, E2 elimination. In high dielectric ionizing solvents, such as water, dimethyl sulfoxide & acetonitrile, S _N 1 and E1 products may be observed.	Rapid S _N 2 substitution for 1° halides (note there are no β hydrogens). E2 elimination will compete with substitution in 2°-halides, and dominate in the case of 3°-halides. In high dielectric ionizing solvents S _N 1 and E1 products may be formed.	Nitrogen and sulfur nucleophiles will give S _N 2 substitution in the case of 1° and 2°-halides. 3°-halides will probably give E2 elimination with nitrogen nucleophiles (they are bases). In high dielectric ionizing solvents S _N 1 and E1 products may be formed. Water hydrolysis will be favorable for 2° & 3°-halides.
Benzyl C ₆ H ₅ CH ₂ -	Rapid S _N 2 substitution for 1° and 2°-halides. For 3°-halides a very slow S _N 2 substitution or, if the nucleophile is moderately basic, E2 elimination. In high dielectric ionizing solvents, such as water, dimethyl sulfoxide & acetonitrile, S _N 1 and E1 products may be observed.	Rapid S _N 2 substitution for 1° halides (note there are no β hydrogens. E2 elimination will compete with substitution in 2°-halides, and dominate in the case of 3°-halides. In high dielectric ionizing solvents S _N 1 and E1 products may be formed.	Nitrogen and sulfur nucleophiles will give S _N 2 substitution in the case of 1° and 2°-halides. 3°-halides will probably give E2 elimination with nitrogen nucleophiles (they are bases). In high dielectric ionizing solvents S _N 1 and E1 products may be formed. Water hydrolysis will be favorable for 2° & 3°-halides.