Halogenoalkanes

Nucleophilic substitution, and the two mechanisms.

Chemistry

SN1

- Two steps via a carbocation
- Rate depends on the halogenoalkane only
- Favoured by tertiary — stable carbocation
- Racemic mixture from a chiral centre

SN2

- One step, backside attack
- Rate depends on both reactants
- Favoured by primary — less steric hindrance
- Inversion of configuration

THE DIFFERENCE THAT MATTERS

C-I is weakest and reacts fastest; C-F is strongest and slowest. Bond enthalpy, not electronegativity, controls the rate.

Common nucleophiles: OH^- gives an alcohol, CN^- gives a nitrile and extends the chain, NH_3 gives an amine.