

KEY FACTS

- Enzyme: biological catalyst — protein that speeds up reactions without being used up
- Specific: each enzyme has an active site complementary to only ONE substrate
- ★ Lock and key: rigid active site. Induced fit: active site changes shape slightly to fit substrate
- Temperature: increases rate to optimum, then enzyme DENATURES (irreversible)
- pH: extreme pH → denaturation. Each enzyme has its own optimum pH
- Denaturation = PERMANENT change in active site shape. Not the same as inhibition.

KEY TERMS

Active site	Region of enzyme where substrate binds — specific shape
Denaturation	Irreversible permanent change in enzyme shape — active site destroyed
Optimum	Temperature/pH at which enzyme works fastest
Induced fit	Active site moulds around substrate (more accurate than lock and key)

■ EXAM TIP: DENATURED = permanent. At LOW temperature: enzyme is slow, NOT denatured. Cooling a denatured enzyme does NOT restore activity.