

Enzymes

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Biological catalysts

Proteins Not changed Speed up reactions

Needed to sustain life

All metabolic reactions Rate fast enough

Active site

Complementary shape Substrate to products

Enzyme-substrate complex and specificity

Supplement

Substrate binds One substrate only Shape and fit

Temperature

Optimum temperature Denatured above optimum

pH

Optimum pH Denatured at extremes

Explaining temperature and pH **Supplement**

Kinetic energy Effective collisions Shape and fit lost

Investigating amylase

Iodine test Water bath Time to end point

Rate = $1000 \div \text{time}$