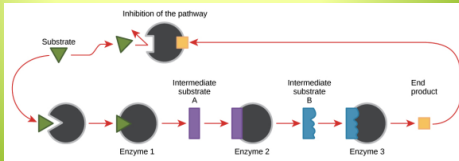


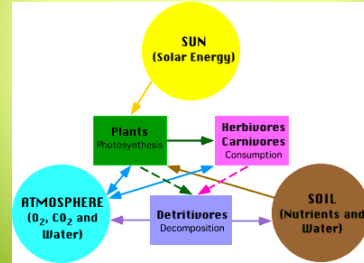


3.2 Enzyme Catalysis



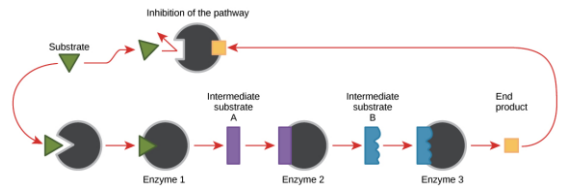
ENDURING UNDERSTANDING

ENE-1 The highly complex organization of living systems requires constant input of energy and the exchange of macromolecules



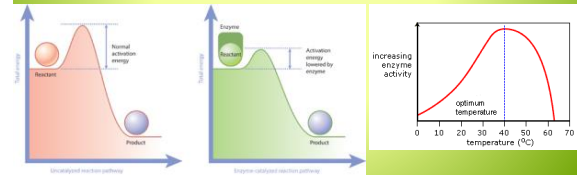
ENE-1.E Explain how enzymes affect the rate of biological reactions

□ The structure and function of enzymes contribute to the regulation of biological processes



ENE-1.E Explain how enzymes affect the rate of biological reactions

- Enzymes are biological catalysts that facilitate reactions in cells by lowering activation energy
 - Energy of activation (E_A) is energy that must be added to cause molecules to react
 - Heat speeds a reaction, but denatures proteins
 - Enzymes allow reactions to proceed at moderate temps



Enzyme Activity

- Enzymatic reactions are rapid
 - Most occur 1000 times/sec
 - $2\text{H}_2\text{O}_2 \rightarrow 2\text{H}_2\text{O} + \text{O}_2$ (600,000 times/sec with catalase).

