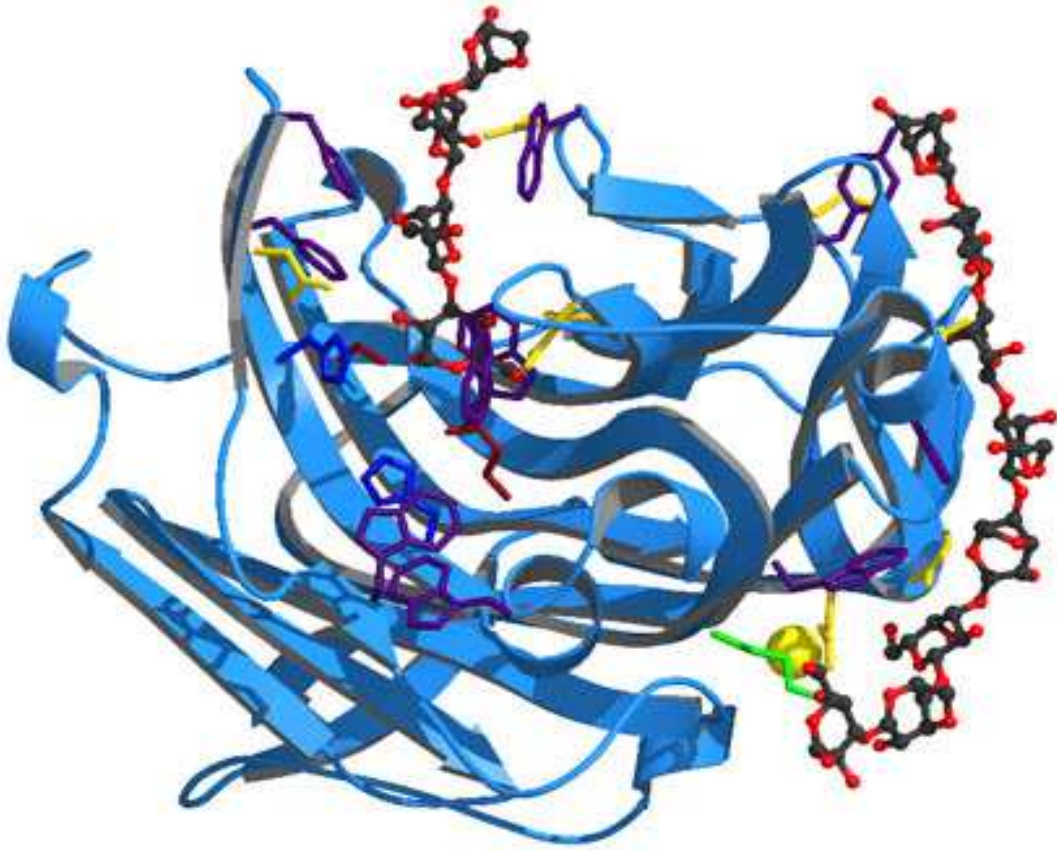


Enzymes

A Cell's
Catalysts



Credit picture: Mirjam Czjzek

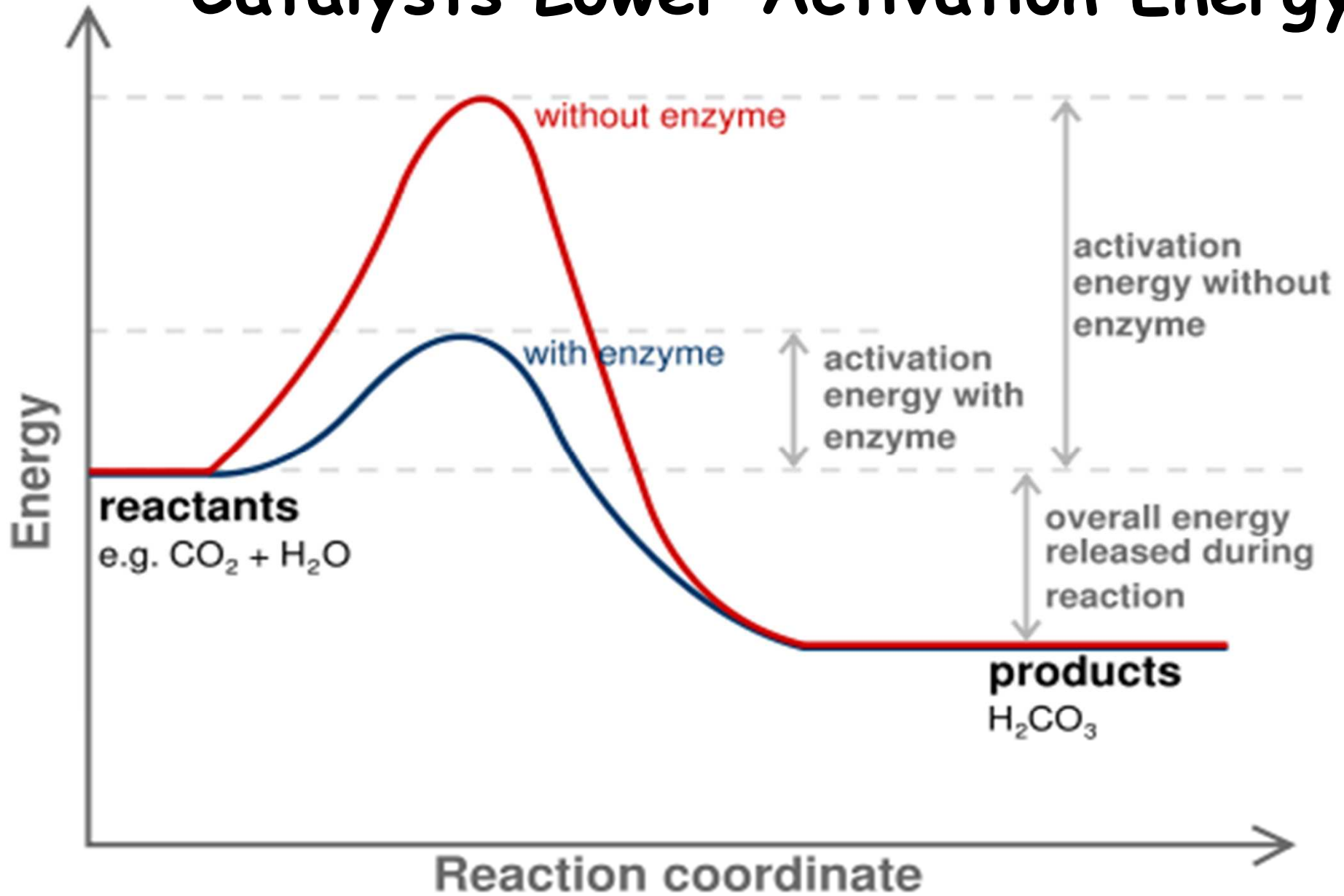
CA Standard

Students know enzymes are proteins that catalyze biochemical reactions without altering the reaction equilibrium and the activities of enzymes depend on the temperature, ionic conditions, and the pH of the surroundings.

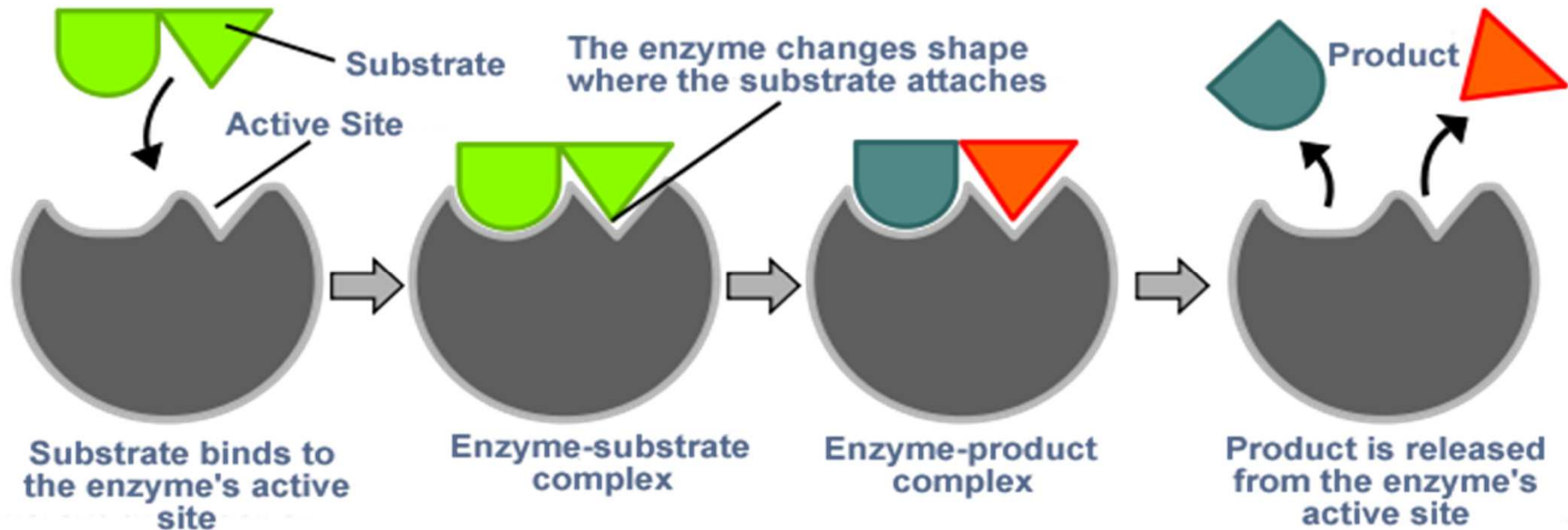
Vocabulary

- **Catalyst:** A substance that speeds up a chemical reaction without itself being changed
- **Enzyme:** A biological catalyst that is usually a protein
- **Substrate:** The reactant(s) upon which an enzyme has its action
- **Product:** A substance that results from a chemical reaction

Catalysts Lower Activation Energy

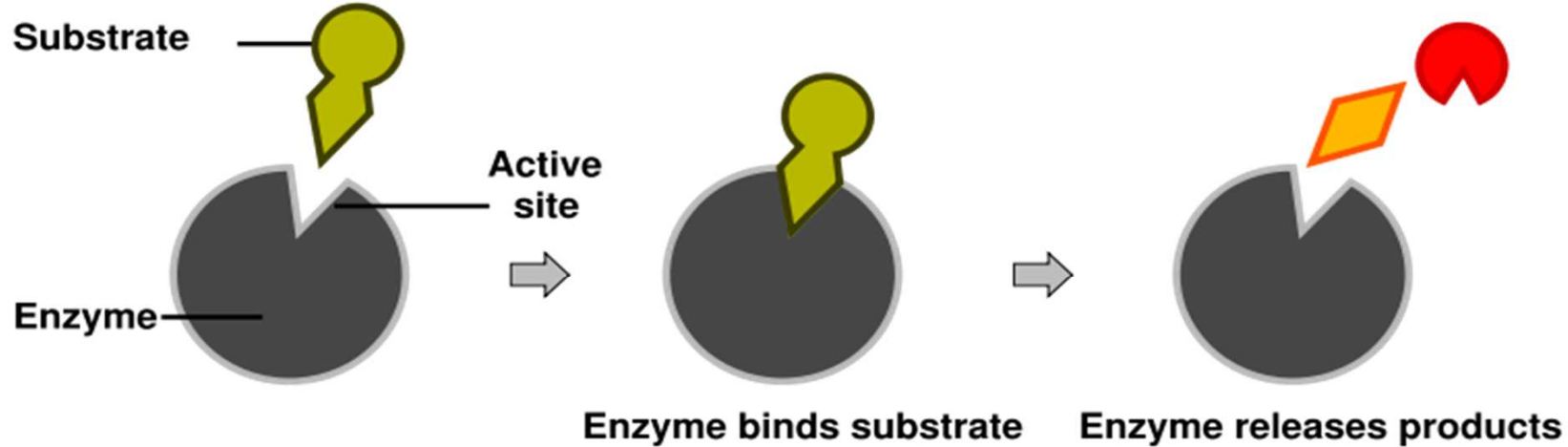


Enzyme-Substrate Interaction

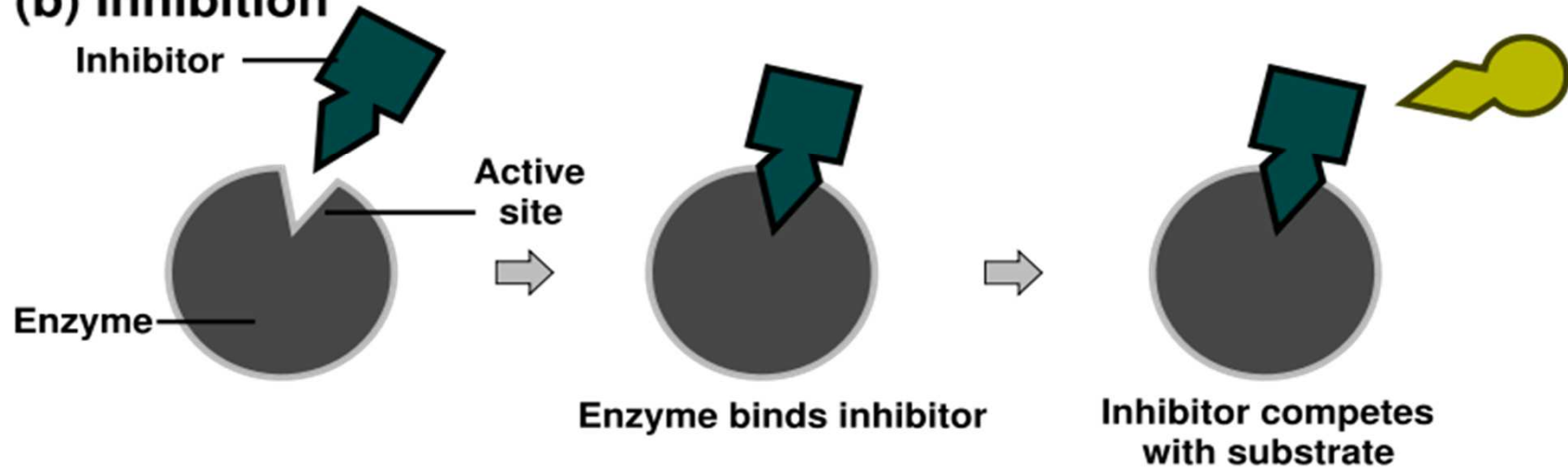


Enzyme Inhibition

(a) Reaction



(b) Inhibition



Enzymes are...

- Essential to all forms of life
- Not "used up" by the reaction that they catalyze
- Specific to the reaction that they catalyze