Introduction to Enzymes
Enzymes

Enzymes are biological catalysts

They speed up the rate of biological reactions
Enzymes

Enzymes are proteins

They have a complex 3 dimensional shape
Enzymes

The thing the enzyme works on is called the substrate, and their shapes must match.
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Enzyme / Substrate Complex
Enzymes

Afterwards, the products no longer fit in the active site
Enzymes
This is the LOCK and KEY theory
Enzymes

The enzyme is not used up and is, therefore, available to catalyse further reactions.
Factors Affecting Enzyme Reactions
Temperature

Enzyme reactions rely on successful collisions between enzymes and substrates
Increased temperature results in increased kinetic energy
Temperature

Beyond an optimum temperature (usually 40°C), there is a loss of 3° structure of the enzyme.
Temperature

The enzyme is now DENATURED.

There is a loss of specificity and hence the enzyme ceases to function.
Extreme pH's cause enzymes to denature
Enzymes in Digestion
Digestion in the mouth

Saliva also contains AMYLASE which digests starch to maltose
The stomach wall produces pepsin which digests protein to amino acids.
The Duodenum

The pancreas injects a range of enzymes to complete digestion.
Products of digestion

Carbohydrates are digested to sugars
Products of digestion

Fats are digested to glycerol and fatty acids
Products of digestion
Proteins are digested to amino acids
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**Lock and Key**
http://www.originaldating.com/Lockandkey/lock_key_parties_lock.htm

**Digestive System**
http://www.tihsst.edu/~ileaf/leaf_online_folder/leaf_online/disability/gerd/pictures.htm

**Pancreas**
http://www.gxs.home.texas.net/work_samples/pancreas

**Fats**
http://www.veggie-mon.org/students4_6/VM_nutrition/nutrition/fats.htm

**Fatty Acids and Glycerol**
http://fig.cox.miami.edu/~cmallery/150/chemistry/organic.htm

**Steak**