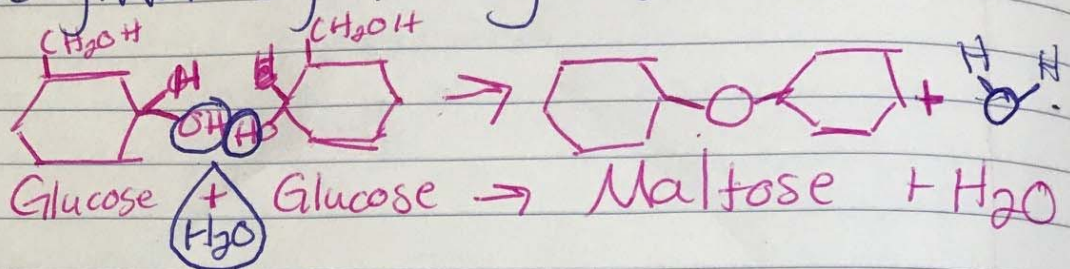


Biomolecule	Elements	Monomer - smallest unit	where in the cell?	Function	Examples	Structure
Carbohydrate	CHO 1:2:1	monosaccharide sugar one	chloroplast cell membrane	quick energy (easily broken down)	Sugar Starch Cellulose	
Lipids	CHO lots few	fatty acid	CELL MEMBRANE ↑ main part	long term energy	Oils fats waxes phospholipid	
Protein	CHON	Amino Acids	ribosomes cell membrane	Structure control reaction rates	muscles hair, nail enzyme	
Nucleic Acids	CHONP	nucleotide	Nucleus	Code for protein	DNA RNA	

10 Making & Breaking Polymers

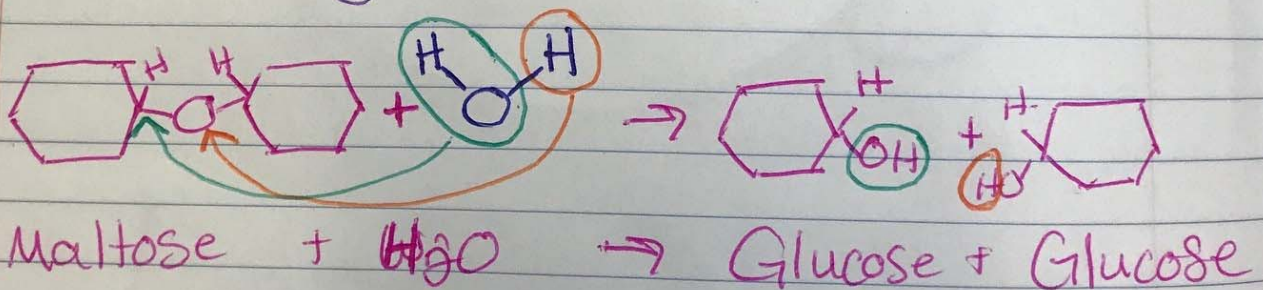
Making Polymers - Dehydration Synthesis
remove water to make

Two monomers combine into a larger polymer by making H_2O molecule



Breaking Polymers - Hydrolysis
water break

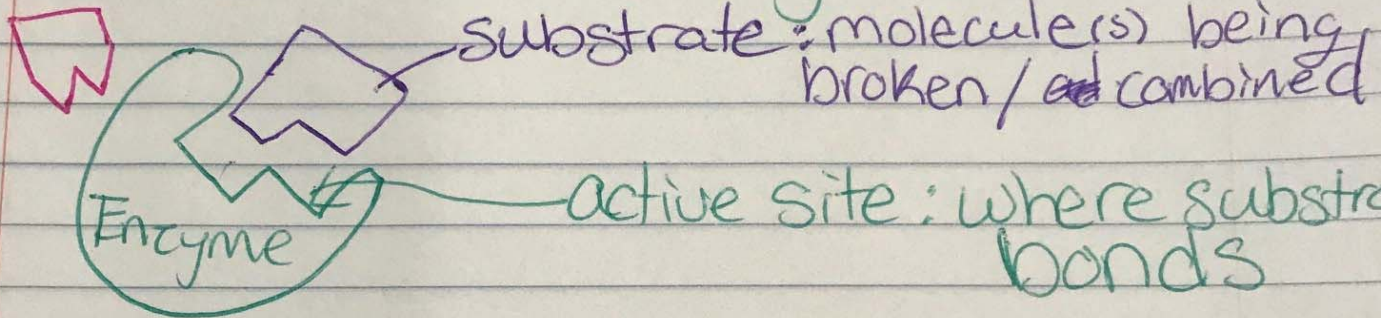
Polymer broken into monomers by adding H_2O



Enzymes

- type of protein
- work as biological **catalyst**
 - speeds up chem. reactions
- lower activation energy
 - amt of energy needed to start rxn
- Enzymes can make or break polymers
 - dehydration synthesis hydrolysis

Structure of Enzymes



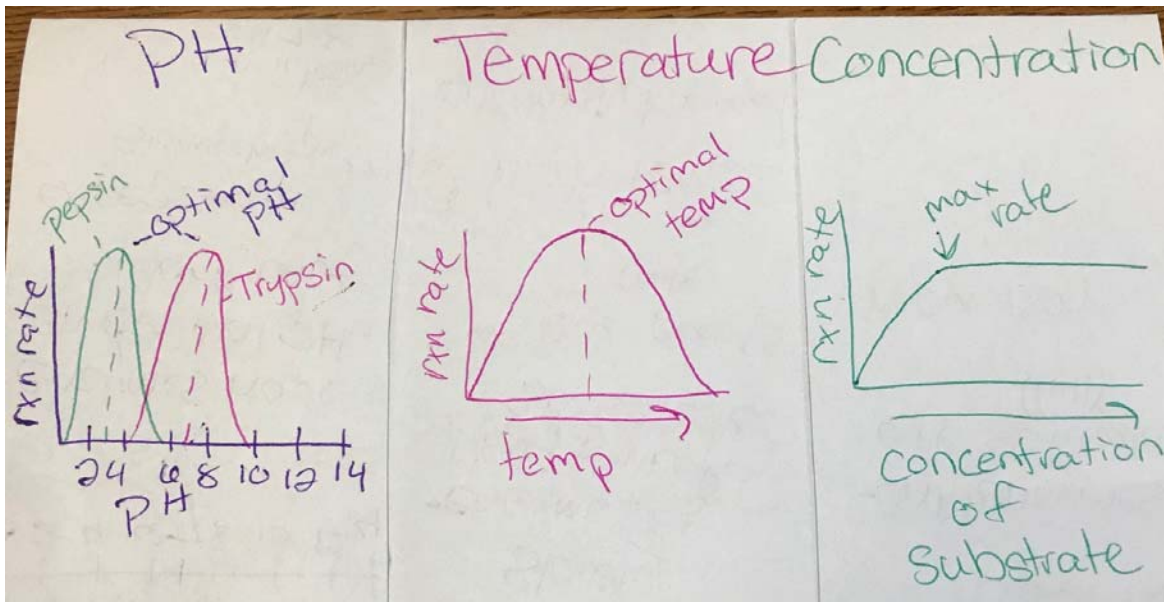
- Enzymes are substrate specific
- only have one substrate
 - lock & key

Lactose

Lactase enzyme

Enzymes are not changed / used up by rxn

Product - what is created in rxn



pH scale

0 2 4 6 8 10 12 14

acid neutral bases

lemons vinegar milk bleach drain

enzymes have an optimal pH
- work best

pepsin in stomach pH 3-4
trypsin in intestines pH 7-8

@ cold temps
molecules move slowly
- enzyme less likely to meet substrate
- slow rxn rate

@ high temps
enzymes denatured

More substrate = faster rxn
- until enzymes are saturated (full)
- max rxn

Strong acids or strong bases will denature enzyme
↑
unfold, change shape
- stops enzyme functioning

- rxn rate slow or stop
- some enzymes are adapted to diff. temps
- TAA polymerase - works @ 98°C

Inc. ↑ enzymes = faster rxn
- until substrate runs out