Main Idea

What is the Big Idea of Chapter 21?

> Hydrocarbons are molecules composed of only carbon and hydrogen and are unreactive until they get a functional groups. These functional groups can participate in multiple types of reactions. Because of these reactions, materials can be synthesized both naturally and industrially.

Hydrocarbons

Alkanes	saturated molecule made from only carbon and hydrogen
Alkenes	unsatured double bonded molecule with hydrogen and carbon
Alkynes	unsaturated triple bond molecule with hydrogen and carbon
Aromatics	a ring structure that has benzene as its base

Functional Groups

What are alcohols(primary,secondary,tertiary)

> R-OH

What are carboxylic acids?

> R-COOH

What are ketones

> R-CO-R

What are aldehydes?

> R-CHO

What are esters?

> R-COO-R

What are ethers?

> R-O-R

Types of Rxn

Types of Reactions	Description
Hydrogenation Rxn	The double bond is broken and hydrogen is added to the backbone.NOTE:This is not limited to only H2
Halogentation	The double bond is broken and a halogen is added to the carbon backbone
Substitution	Alkanes undergo a reaction where halogens replace hydrogen atoms

Types of Rxn (cont)

Dehydrogenation	Hydrogen atoms are removed in order to produce a unsaturated hydrocarbon
Esterification	A carboxylic acid combines with an alcohol to form an ester

Synthetic Polymers

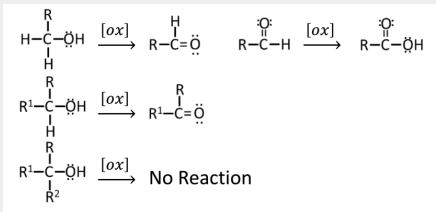
Addition Polymers	Polymers formed by adding monoers together by breaking a double bond.Characterized by not missing any atoms
Condensation Polymers	Polymers formed by adding monomers together by emitting a small molecule usually water.Characterized by double bonds

Natural Polymers

PROTEIN	CARBOHYDRATES	DNA
monomer is amino acid	monomer is glucose	monomer is nuclotide(5 ring sugar,phosophate backbone, and nitrogen organic base)
Three structures:primary,tertiary,and secondary	formed by condensation rxn.	OH group on sugar=>RNA
Formed by condensation rxn.	Carbon backbone	H group on sugar=>DNA
Transcription and Translation make proteins	Glycoside linkage holds two sugars together(-C-O-C)	phosophate backbone

Peptide bond holds amino acids together

Organic Reactions



Oxidation reactions for organic compounds occur when electronegative atoms are added or hydrogen is removed
reduction reactions for organic compounds occur when electronegative atoms are removed or hydrogen is added

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