Chemical Components of Cells
* Organic chemistry
* Carbon atoms
  - Methane:
  - Ethane:
  - Ethylene:
  - Tetrahedral shape
  * Isomers
    - structural isomers
    - geometric isomers
    - enantiomers
  - Example of enantiomers:

Hydrocarbons in fats
- Variations in carbon skeletons (hydrocarbons):
- OH
- OH
- OH
- OH
- catechol
- hydroquinone

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- OH
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- OH
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Macromolecules
*macromolecule
*most macromolecules are polymers
polymer
monomer
The making and breaking of polymers:

Dehydration reaction:

Hydrolysis:

Macromolecules
*Proteins

Polypeptide

Protein

R groups:
Nonpolar
Polar
Acidic
Basic

Synthesis of a polypeptide

Macromolecules
*Four levels of protein structure
Primary structure

Single amino acid changes can have very serious consequences!
Macromolecules

Secondary structure

Tertiary structure

How does this all happen?
Spontaneously
Chaperonins

Macromolecules

Quaternary structure

Two types of nucleic acids:
deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)

Flow of information within a cell:
*nucleic acids = polymers of nucleotides