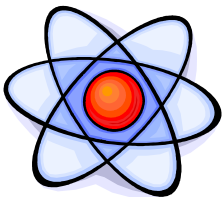


Lipids

- ✍ **Organic compounds that are waxy or oily**
- ✍ **Commonly called fats and oils**
- ✍ **Composed of carbon, hydrogen, oxygen**
- ✍ **Large proportion of C—H bonds**
- ✍ **Less oxygen than carbohydrates**
- ✍ **More carbon – hydrogen bonds than carbohydrates**
- Common formula = $C_{57}H_{110}O_6$**
- ✍ **Insoluble in water but soluble in oil**
- ✍ **Produced by animals – solid fats (generally)**
- ✍ **Produced by plants – liquid oils (generally)**

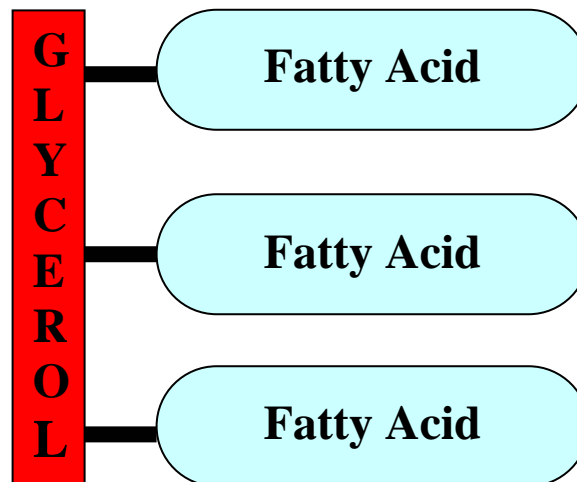
THREE MAJOR ROLES IN LIVING ORGANISMS:



1. **Used to store energy**
2. **Used to form membranes (major component)**
 - ➔ **insulation/nerve transmission**
 - ➔ **protective coating**
3. **Used as chemical messengers**

Building Blocks of Lipids

- ☺ **Fatty acids** – long chains of CH_2 - many types – share common carboxyl group ($-\text{COOH}$)
- ☺ **Glycerol** – organic alcohol – backbone of the lipid molecule
- ☺ **Typical lipid** consists of 3 fatty acids attached to a glycerol



Major Types of Lipids

- ☺ **Saturated** – carbon atoms linked by single covalent bonds ($\text{C} - \text{C}$)
- ☺ **Unsaturated** – carbon atoms linked by one or more double covalent bonds ($\text{C} = \text{C}$)

So what's the difference between saturated and unsaturated ?



UNSATURATED fats lower the risk of heart and circulatory diseases

Other Types of Lipids

- ☺ **Steroids**
 - **sex hormones**
 - **cholesterol**
- ☺ **Waxes**
 - **earwax**
 - **beeswax**

Let's review so far.....

4 main groups of organic compounds

 **Carbohydrates**

 **Lipids**

 **Proteins**

 **Nucleic Acids**

	Carbohydrates	Proteins	Lipids	Nucleic Acids
Elements contained	Carbon Hydrogen Oxygen	Carbon Hydrogen Oxygen Nitrogen	Carbon Hydrogen Oxygen	
Building blocks	monosaccharides	Amino acids	Fatty Acids Glycerol	
Functions	Energy source Energy reserve Plant cell walls	Structural material Enzymes Transport	Energy reserves Cell membranes Insulation Nerve transmission	