

# LIPIDS



Lipids & Water don't Mix because of Polarity.

Lipids are: **Non-Polar**

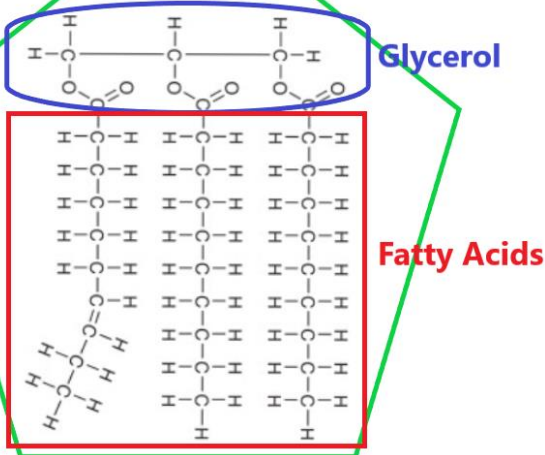
Water is: **Polar**

Like dissolves Like

## Key Properties of Lipids

- ✓ **Hydrophobic** Insoluble in water (H<sub>2</sub>O)
- ✓ **Non-Polar** no N or S pole
- ✓ **Monomers** Glycerol, Fatty Acids, Alcohols, Carbon Rings
- ✓ **Polymers** Triglycerides, Phospholipids, Cholesterol, Wax
- ✓ **Identity** Steroids/Hormones, Waxes, Fats, Cell Membranes,
- **Cholesterol** Steroids, Hormones, Cortisol, Estrogen, Testosterone
- **Waxes** Beeswax, seed, leaf, fruit, feather coatings
- **Triglycerides** Fats, Saturated & Unsaturated
- **Phospholipids** Cell Membranes.

## Triglycerides (aka: FATS)

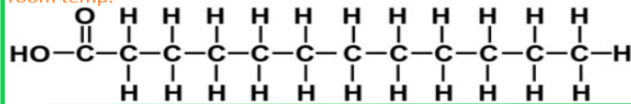


Fatty Acids are made of: **Hydrocarbons**

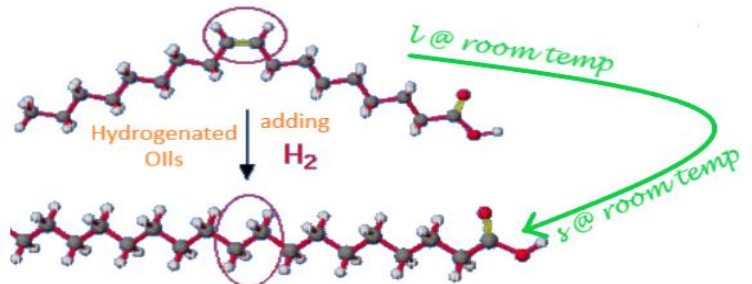
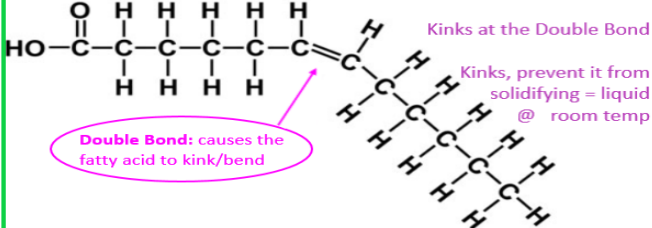
**Hydrocarbons:** Compound composed exclusively of Hydrogen and Carbon

**Carbohydrates:** carbon with attached water molecules.

**Saturated Fatty Acid:** There are **NO** double bonds (=). Its straight chain **Structure** allows it to be packed tightly into a solid @ room temp.

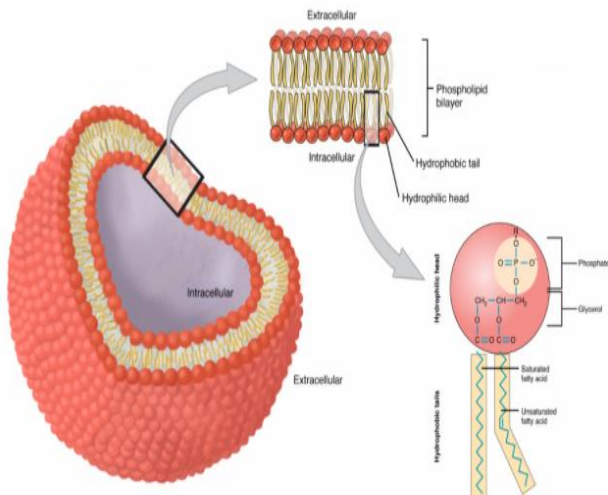


**Unsaturated Fatty Acid:** Double Bonds ≥ 1

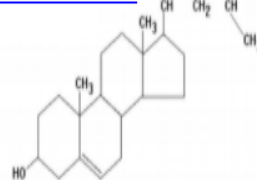


Know what you're putting in your diet!!!!

<b>Saturated Fats</b>	Animal products (meat, dairy, etc.) think butter, grease, gravy.
<b>Unsaturated Fats</b>	Plants & Fish Products (avocados, cooking oil, nuts) think clean & healthy
<b>Trans-unsaturated Fats</b>	Fried food, popcorn, pizza, baked goods. Super unhealthy (heart disease)
<b>Waxes (do NOT eat)</b>	Ear wax, candles, leaf & seed coatings, fur, feather, skin, beeswax



## Cholesterol



- ✓ Important precursor for all steroids.
- ✓ Get it from your diet (animal & dairy)
- ✓ You **DON'T** have to Eat it to Get it
- ✓ Synthesized in the Liver
- ✓ Made from 4 fused Carbon Rings

You betcha yeah!!!! If you **C**hange the **S**tructure of a **L**ipid you change the **f**unction of a **L**ipid

<b>Triglycerides</b>	Long energy storage, insulation (blubber) cushion for vital organs
<b>Phospholipids</b>	Form bi-layer cell membrane. Separate intra/extracellular environments.
<b>Cholesterol</b>	Steroids (hormones), important for not too stiff, not too fluid cell membrane