

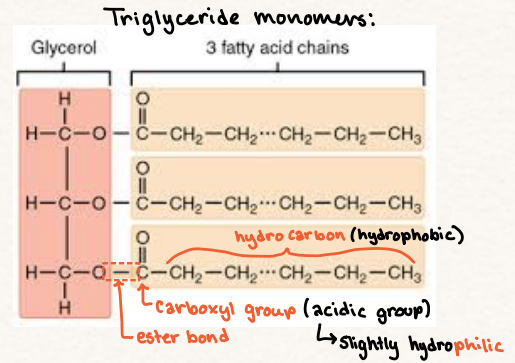
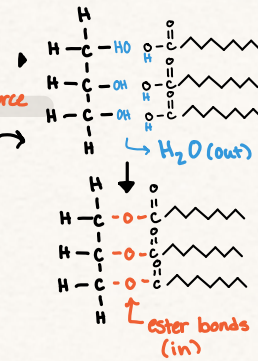
# Lipids

## Structure

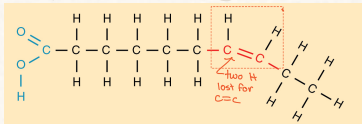
- there are **three** types of lipids:
  - contain **carbons, hydrogens, oxygens (CHO)**
  - ↳ many more C + H than O

## Triglycerides:

- structure of natural **fats/oils**
- **high energy molecules** → long-term energy storage/source
- formed through **dehydration synthesis**
  - ↳ form **ester bonds**
- can be **saturated** or **unsaturated** triglycerides

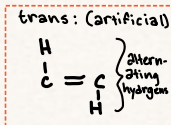
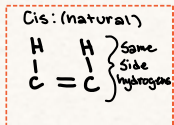


## Unsaturated e.g. oil

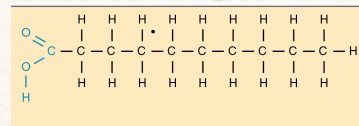


- **liquid** at room temp
- contain **kinks** → not compact
- contain **1+ C=C bonds**

depending on which Hs removed:



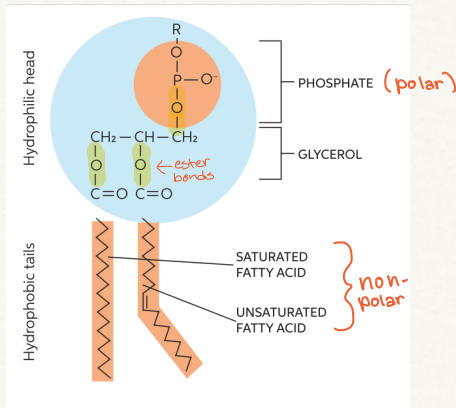
## Saturated e.g. butter



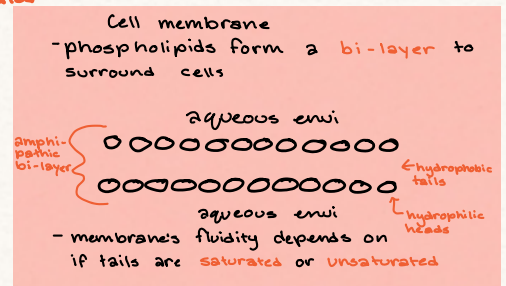
- **Solid** at room temp
- **very stable**
- lots of **H bonds** → can compact

## Phospholipids (biglycerides)

### Monomers:

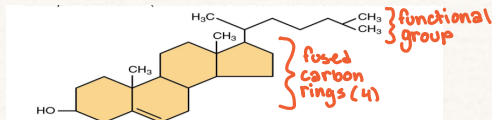


- similar to triglyceride
  - ↳ one fatty acid replaced by **phosphate group**
- **amphipathic** due to **polar head** and two **non-polar tails**
  - ↳ loves water
  - ↳ hates water
- either tail can be **saturated** or **unsaturated**
  - ↳ affects **fluidity**
- these are **structural lipids**



## Steroids

### monomers:

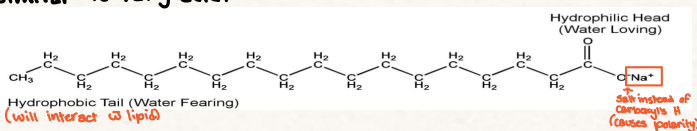


- steroids will differ due to **functional group + ring arrangement**
- examples:
  - **cholesterol** → alter cell membrane's fluidity
    - ↳ always in 6, 6, 6, 5 order!
  - **cell communication** → signalling molecules that
    - ↳ hexo, hexo, hexo, pento
- ↳ activate **steroid hormone receptors** (sex hormones)

## Soap

- used to **reduce surface tension** w/ water + lipids

similar to fatty acid:



- Soap will cause water to **adhere to lipids** (oil/grease)

## emulsification

- produced by body to aid digestion
  - ↳ **fat globules** are broken down to increase their **surface area**
  - assisted by **bile** → produced by **liver**
- **increased SA** allows easier **break-down/digestion** of fats
  - ↳ **breaking the ester bonds** = **hydrolysis**