

# November 20 Lipids

## LIPIDS

- large, non-polar organic molecules that do NOT dissolve in water(H<sub>2</sub>O)
- have high ratio C:H:O
- store energy efficiently
- C:H bonds (high energy) C:O low energy

1. FATTY ACID : building block of lipids  
(see pix p. 58)

# STRUCTURE OF FATTY ACID

Draw:

carboxyl group

polar

attracted to H<sub>2</sub>O

HYDROPHILIC

water loving

fatty acid group

non polar

doesn't like H<sub>2</sub>O

HYDROPHOBIC

water fearing

# Carbon chains

saturated : all "C's" are filled (with H)  
covalent bond  
straight chain

unsaturated : some carbon atoms are double  
bonded so chain is NOT filled w H  
kinks in chain

# COMPLEX LIPIDS

- Lipids are categorized according to their structure

## A) TRIGLYCERIDE:

- 3 molecules of fatty acid
- 1 molecule of glycerol

Draw here:

1. saturated- solid @room temp  
shortening/animal fat
2. unsaturated - liquid @ room temp  
plant seeds, fruits, energy for sprout

## B. PHOSPHOLIPID:

- 2 molecules of fatty acid
- 1 molecule of glycerol
- non polar/do not dissolve in H<sub>2</sub>O
- bilayer of a cell membrane/  
-stable & effective barrier for cell

Draw Here:

## C) WAX :

- very long fatty acid chain attached to a very long alcohol chain
- very water proof
- earwax, protective coating of plants

## D) STEROIDS :

- unlike F. A. ...4 fused carbon rings  
w. varied functional groups
- animal hormones (ex. testosterone)
- cholesterol (most familiar) needed for proper functioning of cells

# NUCLEIC ACIDS

- \* Very large complex organic molecules that **STORE IMPORTANT INFORMATION!**
  - use a system of 4 cpds. that store hereditary information
    - Adenine, Guanine, Cytosine, Thiamine
    - store genetic code

## NUCLEOTIDE :

- building block of a nucleic acid
- monomer of nucleic acid

## Some familiar nucleic acids:

1) DNA - Deoxyribonucleic acid

- contains info, stored in nucleus

2) RNA - Ribonucleic acid

- polymer that stores and transfers information from nucleus to cell
- essential for making proteins

Structure of Nucleic acid: (see p 59)

Phosphate grp.      sugar      nitrogen base

Draw  
here:

