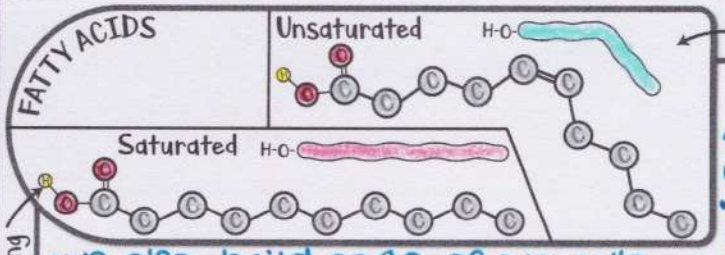
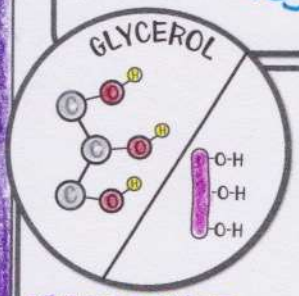
Name: _____

Fatty Acids

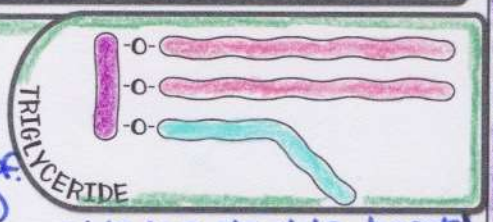


- long chains of carbon atoms with hydrogens attached to them
- our bodies can break them down for energy, like carbohydrates
- we also build parts of our cells and cell membranes
- saturated fatty acid and "trans" unsaturated fatty acids are considered less healthy for you
- not all fatty acids are bad for you. Polyunsaturated and monounsaturated fats are better for you.
- some are essential to eat in your diet because your cells cannot make them yourself.
- omega 3 and omega 6 fatty acids are essential and found in vegetable oils, nuts and fish.

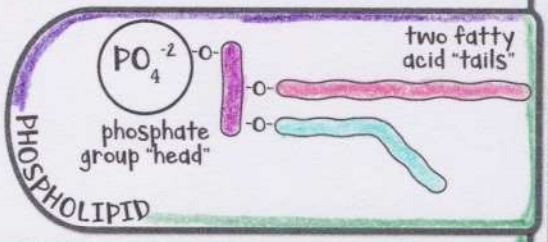


- connecting molecule that can bond to three fatty acids to form a triglyceride.

Triglycerides



- what human, animal and vegetable fats are made of.
- Saturated fats (triglycerides) are made of saturated fatty acids (no double bonds) and are generally solid at room temperature
- unsaturated fats (triglycerides) are made of unsaturated fatty acids (has some double bonds) and are generally liquid at room temperature.
- our cells are made of modified triglycerides called phospholipids

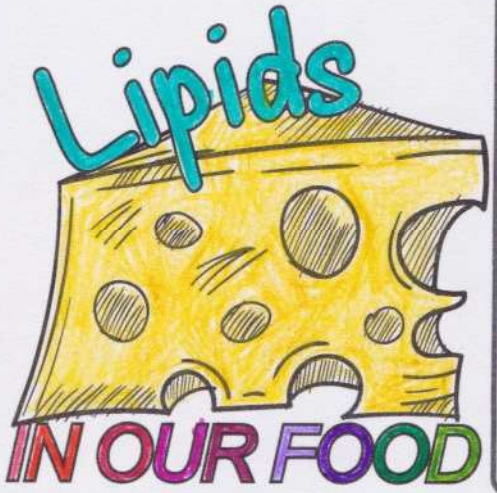


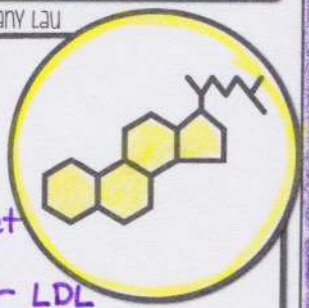
Nutrition Facts

Serving Size: 1 slice of cheese (17g)
Servings Per Container: 20

Amount Per Serving	
Calories 70	
Calories from Fat 50	
Calories from Saturated Fat 65	
	% Daily Value*
Total Fat 6g	**9%**
Saturated Fat 3.5g	**18%**
Trans Fat 0g	
Polyunsaturated Fat 2g	
Monounsaturated Fat 0.5g	
Cholesterol 20mg	**6%**
Sodium 115mg	**5%**
Potassium 0mg	**0%**
Total Carbohydrate 0g	**0%**
Dietary Fiber 0g	**0%**
Sugars 0g	
Other Carbohydrate 0g	
Protein 4g	**8%**
Vitamin A 4%	Vitamin C 0%
Calcium 10%	Iron 0%
Thiamin 0%	Riboflavin 0%
Niacin 0%	Folic Acid 0%

Percent(%) Daily Value are based on a 2,000 calorie diet.





- cholesterol is another type of lipid common in our food.
- when you get a blood test, they test for LDL (low density) and HDL (high density)
- LDL is the kind that can build up in your blood vessels. HDL helps remove LDL from your body.

Cholesterol

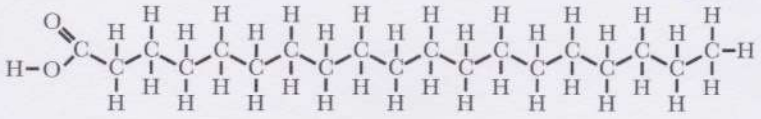
Fatty Acids: Structure & Function

Name: _____

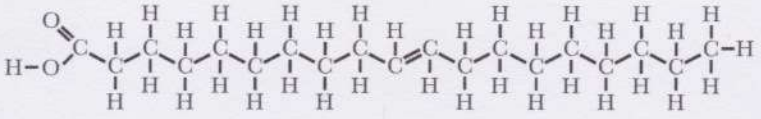
Elements: C, H, O

Functional Groups: carboxylic acid

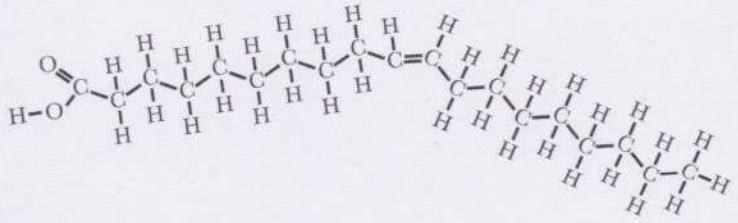
Saturated: no double bonds, forms straight chain



Trans-unsaturated
has double bond but chain is still often pretty straight



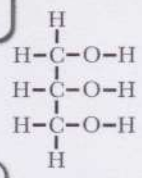
Cis-unsaturated
has double bond and chain is bent



- fatty acids can be broken down in cells to provide energy
- fatty acids are also used in the construction of several cellular structures

Triglycerides: 3 Fatty Acids Plus a Glycerol

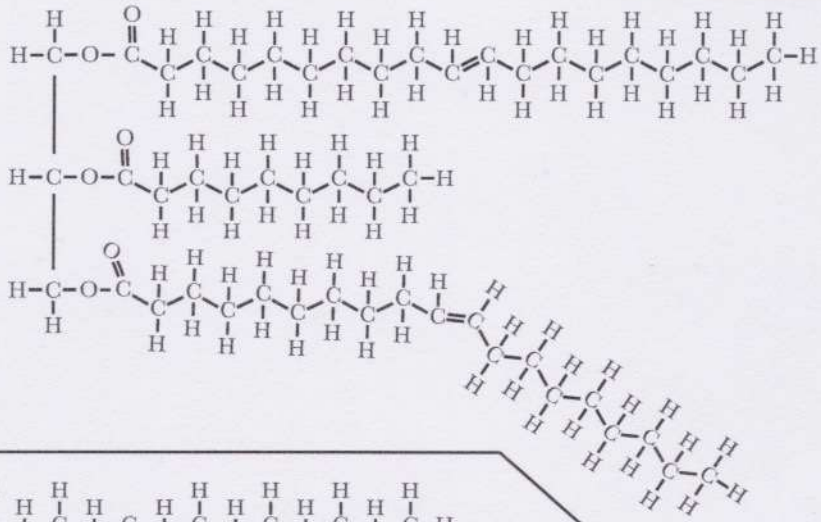
Glycerol

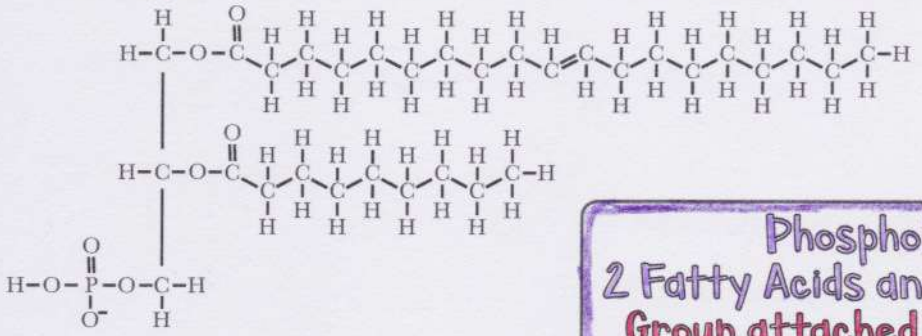


connector molecule

Function

- Triglycerides can be stored in cells or body tissue as fat, to save energy for later
- modified triglycerides like phospholipids are used to form the cell membrane





Phospholipids: 2 Fatty Acids and a Phosphate Group attached to a glycerol

Other Important Lipids:

Sterol lipids (steroids):

cholesterol is also a lipid. Many hormones and signalling molecules are made with cholesterol

wax molecules are also lipids. They are created by reacting a fatty acid with an alcohol. Animals and plants use wax-type lipids to prevent water from getting into a tissue.

Lipids: Structure and Function