W-PS Physical Science Week 26

½ cup of water

237 g

20°C → 21°C

237 cal

1 calorie the amount of energy required to raise 1 gram of water by 1°C

19.2°C → 76.8°

Energy (in cal) = (mass of water)(change in temp °C)

(237g)(76.8 - 19.2)

(237)(57.6)

13,651.2 calories

13.7 Cal (nutritional)

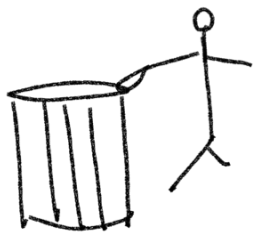
Macromolecules

Carbohydrates (sugars) — 1 g → 4 Cal

proteins (amino acids) — 1 g → 4 Cal

fats — 1 g → 9 Cal

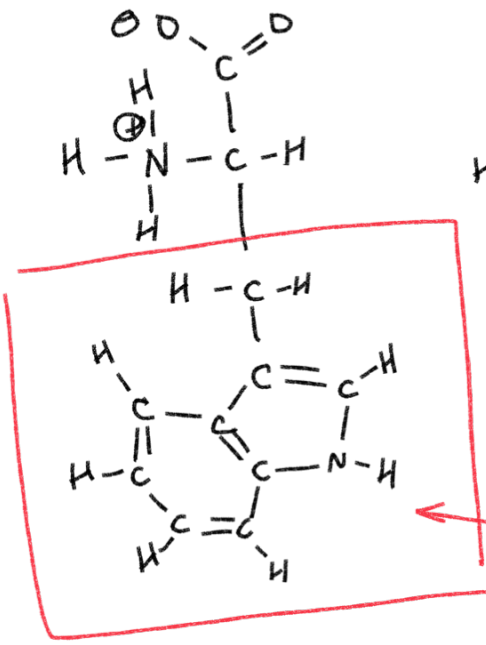
nucleic acids (DNA)



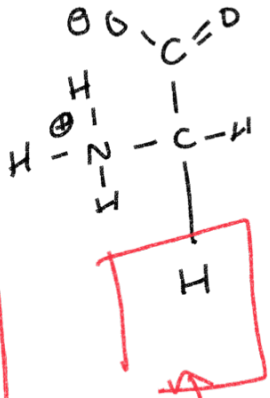
if it burned.... it was 100% proof that the contents were at least 50% alcohol

Amino Acid Thanksgiving → turkey → sleepy

Tryptophan



Glycine



20 Amino Acids

tools

functional groups

Different amino acids contain different functional groups

proteins

Structural: building block
muscle fiber

Enzymatic: make chemical reactions occur more quickly

Elephant Toothpaste

Yeast → catalase – an enzyme that breaks down hydrogen peroxide into water and oxygen

$$2H_2O_2 \xrightarrow{\text{catalase}} 2H_2O + O_2$$

hydrogen peroxide → water + oxygen

The shape of the catalase enzyme is specific and cleaves apart H_2O_2.

$$2H_2O_2 \longrightarrow 2H_2O + O_2$$

catalase speeds up the reaction

HW

Elephant Toothpaste experiment

HW/Q 25 due April 14th