

# W-PS Physical Science Week 27

## Macromolecules

### Dietary Calories

1 gram of fat  $\rightarrow$  9 Calories

1 gram of carbohydrates  $\rightarrow$  4 Calories

1 gram of <sup>sugars</sup> proteins  $\rightarrow$  4 Calories

Proteins  $\rightarrow$  enzymes (catalase)

Structural proteins  $\rightarrow$  muscle fibers  
 $\rightarrow$  collagen

Enzymes - biological machines that greatly speed up reactions.

"Genes" - regions of DNA that code for proteins.

DNA - deoxyribonucleic acid

nucleic acids serve as a genetic code or template.  
(macromolecule)

# DNA macromolecules

4 major nucleic acids that comprise DNA:

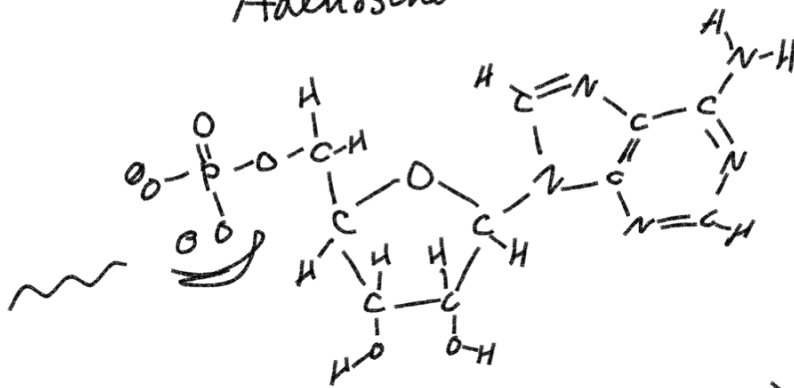
A - Adenosine

G - Guanosine

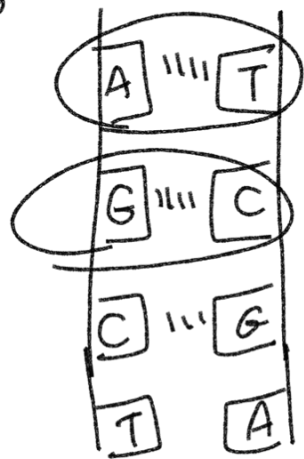
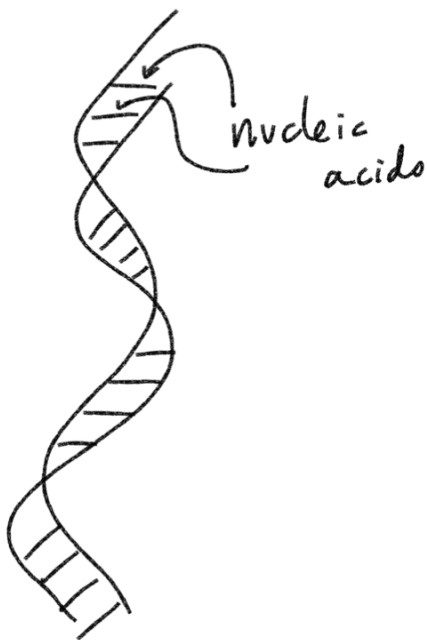
C - Cytidine

T - Thymidine

Adenosine



(ATP - has 3 phosphates)  
"energy currency of the cell")



sequence is  
a gene

# Central Dogma of Biology

A G  
T C



coded region  
of DNA  
gene

transcribed



translated



protein  
↓  
speed up  
reactions

DNA

RNA

Deoxy核ic acid

ribonucleic acid

HW  
Strawberry -  
Extraction  
Experiment