
 **Learning Target**
 We will describe the structure and function of the DNA molecule

Do Now:

Green Work Book
 Page 175 answer #2
 Page 176 answer # 13

Look over the review sheet. Bring in questions to review tomorrow!

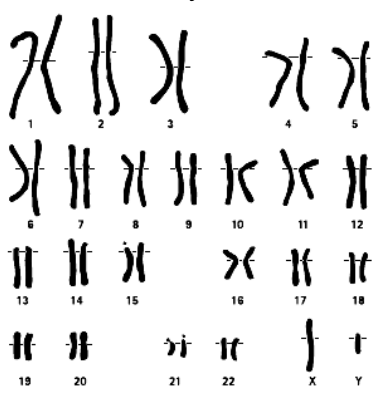
 List the terms below in order from Largest to Smallest

Largest ↑

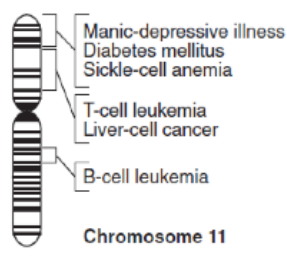
Human Body
 Skin
 Cell
 Nucleus
 Chromosome
 Gene
 DNA molecule

Smallest ↓

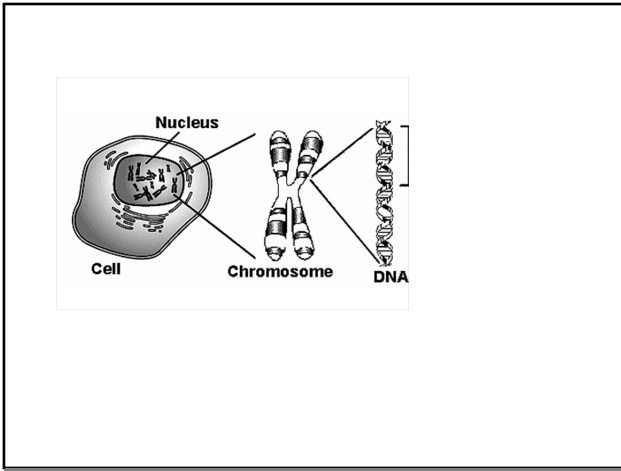
Remember that there are 46 chromosomes in EVERY human body cell.



Genes are places on a chromosome that control a specific trait or ability.



Chromosome 11



Take a guess.. What do you think this is?

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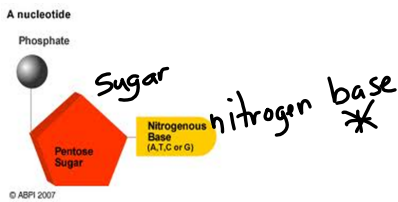
GATCCCTGGC TGGGCTTGG CTTCTGAGCC CCGCCGCCA CAGGTTGACA CTTGGGGTCT
TCTCCACCGC TGCCACACGC CAGAGCCTGT AGCGGGGSCCT CAGAGTCTGG GAGGTGGGAC
TCTGCACTCT CAGCCATCAT CAGACCCATC GGGCCACCCA GCGAACCTTG CAGGGGACCA
TTACCCAGTA CTTGCCGAGG CCGCCGACTC TGCCAGCCAG CTTGTCCGGC CACCCCTGCC
CGGACAGTGC CCGTTTATGT GGGAACTAGG GGGACATSEF GTTCTTGGCA TCTGATGATG
TAGGCCCTGG GCACTTGGC ACGGGGGGGC GCTCCGAGA TGGATATGAG GAGGCCCTCC
TGCCCACTC CCAGAAAGGC CGAGGCTCTG CAGCCGGAGG AAGTCTGGG ATGTCCCTGGG
TGGCAGCAGC CGAGGACACA GGGACAGCCC CCGTCCACAG CTTCTCTGGC CCAGCCCTGC
CCACTATCTG CCAGGAGGTT GCTTCTTCCA GAGGGCTTET CCGACCCAGC CCAGGGGTCC
AGGCTCTGGG GCTCCAGCT GCTGTGATG CTCCACATTC TCTTGAGGAC AGCCCCCTCC
TTCGCCACAC CACTTCTGCT GCGCACTGTG GCGCACGCAA GCACTGGGGC CTGCACTCAC
GGACTCCGGG GCTCCTGGG GAGCTGCTGA CCGTAGCCAG AGAGATTGCA CATCCCTAAG
AGTCTACAGA CACCOCAGTG TTTGGCAGTG TTTGGCCGTG TTAGCCAGTG TTTGCCAGTG
TTTGGCAGTA TTTGGTCCC ASTGTTCCC ACTTGTCCCT CTGGCTGCAA GAGTCACTGG
GTTTGGCGGG SAAGTGGAG GTCCCTCCAG GACAGTTGGC CGATGACGTG GAGACAGACC
CACCCGCCAA TCTGGCTCC CTGAGGAGC GGGGGCCCC CGAGATCTG GCGGTGTCA
CCACGACGGG CACTCCGCTT TCACCCAGT CAATGGGCAC GGAGCGTGGC TTTATTGCA
TGCTGGATT CCTAACGACT TCAGCCTCTG CACTGGCTGG GTTTTCCCTG CTGCAAAATG
CAITTTGGG TGTCCCAA TTTCCGGCCA AGCCCGCCTC GTCTGCTGG TGTAAATTT
GATGTGGGA GTTCTAGATA CCAAGTCTC GTCCGTTTA GACATCGCAA ACGTCCCTCC
CAGTGGGCC CGTCCATTG CTTGTGCA GCAAAATCTT TAATTAATTT ATGGCATCAA
NATGTGTGC CAGTITTAGC TTTAGTTTA TACTTTCGAA CATTGTTTG AGAAATCTTT
TTCACCCTG TGGTGTATG TGACGTCTTC TAACCTCCCA TTTACTATGT TACATTGAA
CCATCATCT TCAGGAAGAC GCTTGTGTG GAGACGGSTA TGAGGCCCCC ACACCCCGCC
TCAGGACCC TGTCCATGCT TCCACCCCTG ACCCCGGACT CCGCTCCCA GACCTCCTAA
    
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Genetic Code

1. Nucleic Acids (DNA and RNA)



- Their function is to store information about inherited traits.
- Each unit (building block) is called a NUCLEOTIDE
- Nucleotides are composed of a Phosphate Group, a Sugar Group (deoxyribose) and one Nitrogen Base



NUCLEIC ACID

The diagram shows a chain of nucleotides. Each nucleotide is connected to the next by a phosphate group. The components of each nucleotide are a phosphate group, a pentose sugar, and a nitrogenous base. The copyright notice '© ABPI 2007' is repeated for each nucleotide.

Is this organic?
 Yes it contains Carbon and Hydrogen

Is this a macromolecule?
 Yes because it is made of smaller repeating subunits

DNA Review

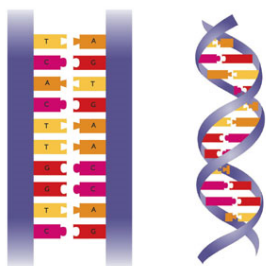
http://www.pbs.org/wgbh/nova/genome/dna_flash.html

Notes:
 Read Page 94 "Structure of DNA" and Page 95 "Complex Molecule. Complete the graphic organizer using facts from the TEXT

<p>What is DNA? (Function)</p> <p>A chemical found in cells that holds a code</p> <p>It includes information about the cells growth and function</p>	<p>Describe the structure of DNA</p> <p>It looks like a twisted ladder.</p>
<p>What does DNA stand for?</p> <p>Deoxyribonucleic Acid</p>	<p>Additional Facts</p>

**** for at home work use the index find DNA**

Twisted Ladder or Double Helix

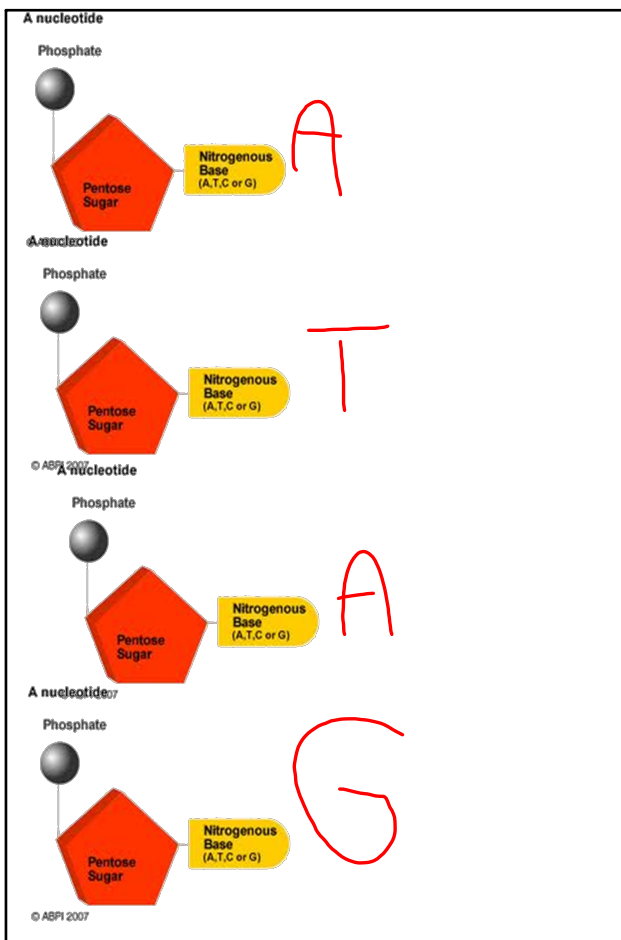
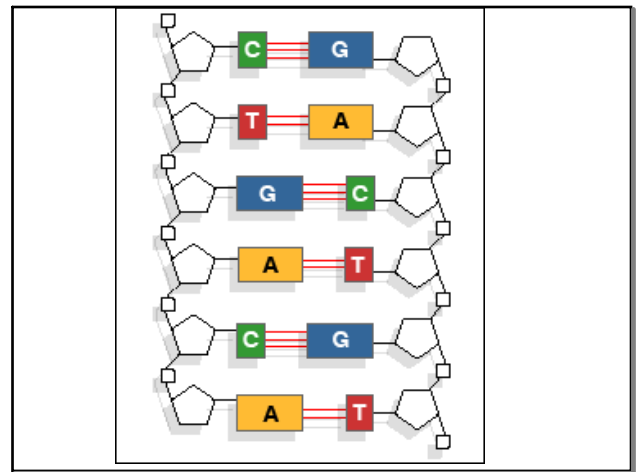
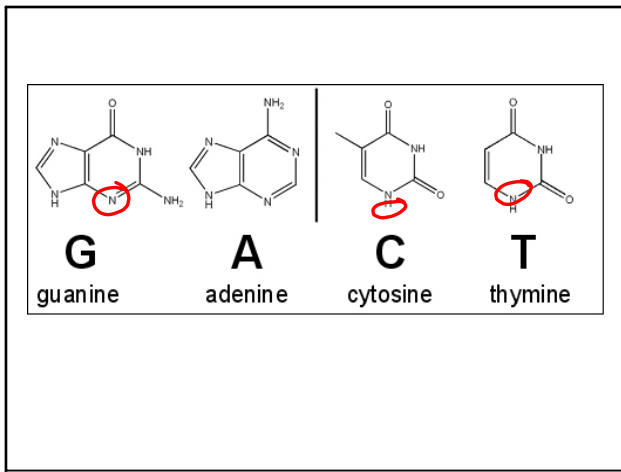


What do you think the letters stand for?

Notes:
 Read page 95 and fill in the correct terms

The four nitrogen bases that are found in the DNA molecule are...

Adenine Thymine
 Cytosine Guanine

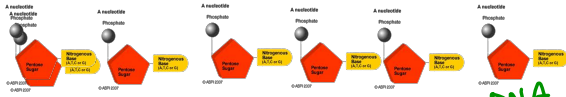


How does the structure of the DNA molecule help it perform its function of storing information?

Learning Target

We will describe the structure of the DNA molecule and how it stores information about hereditary traits.

Do Now:



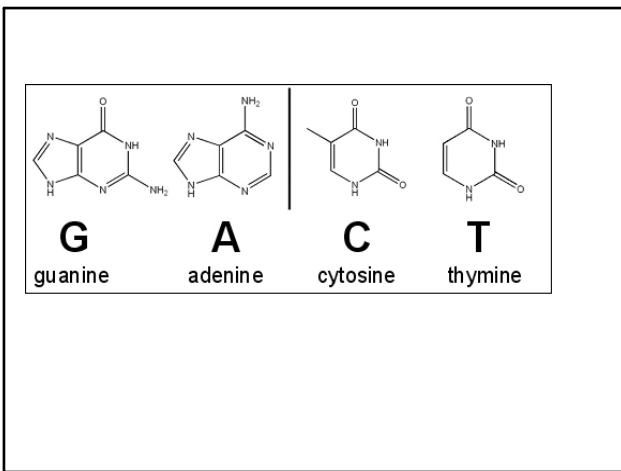
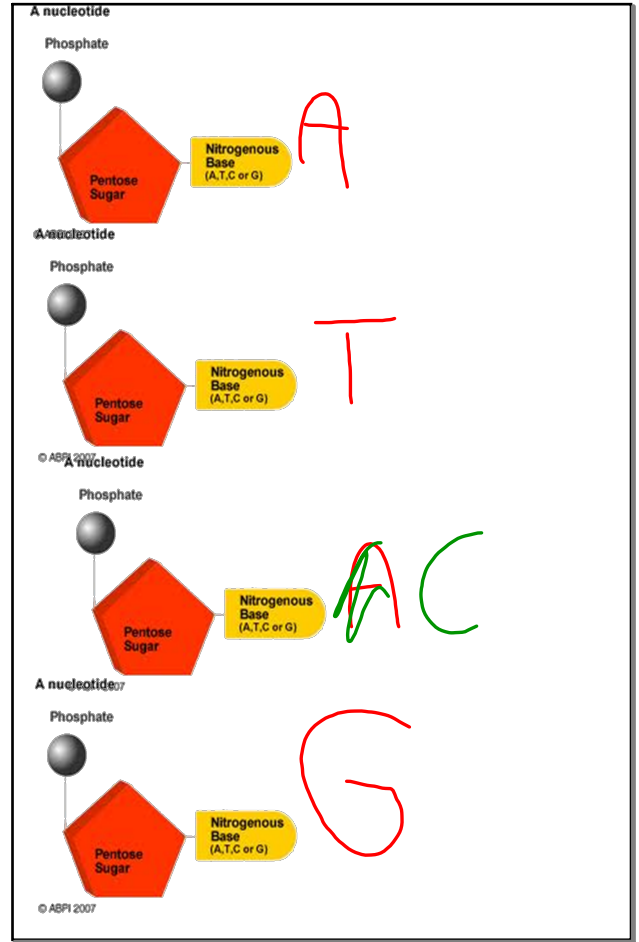
1. What macromolecule is shown?
2. What is the function of this macromolecule?

It stores information about inherited traits

3. Identify the building block.

*Nucleic Acid - DNA
Nucleic Acid - RNA*

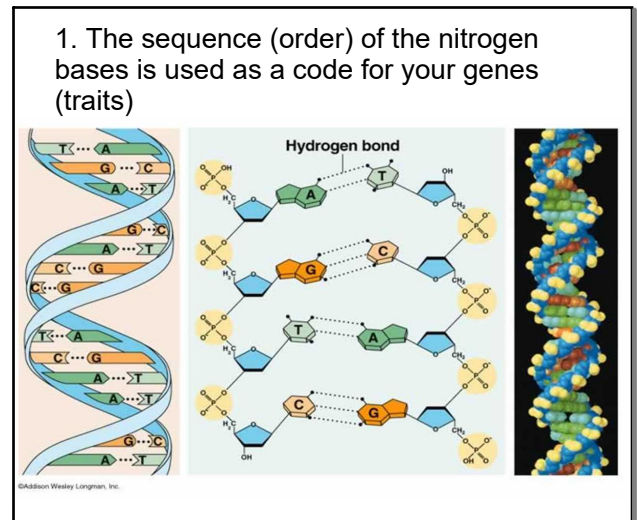
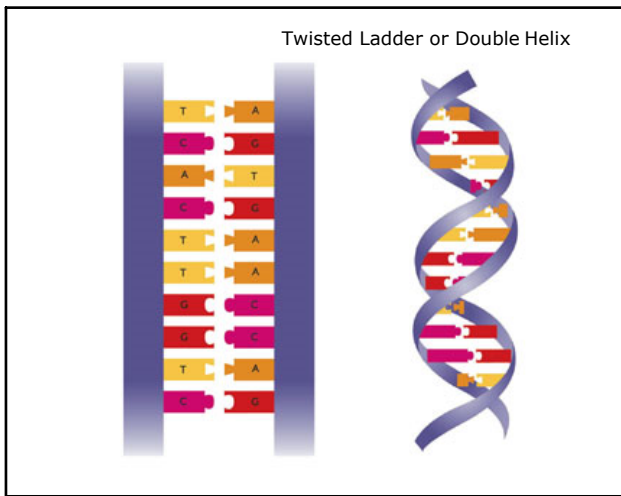
Nucleotide



REGENTS QUESTION

The diagram below represents a portion of a DNA molecule. The letters represent different types of

- (1) sugar molecules
- (2) molecular bases
- (3) enzymes
- (4) proteins



How does the code work?

AATTGGCTCAATTC = Protein for Blue Eyes

GGCTCAATTCTTCA = Protein for Brown Eyes

REGENTS QUESTION

Part of a molecule found in cells is represented below. Which process is most directly affected by the arrangement of components 1 through 4?

(1) diffusion through cell membranes (3) inherited traits
 (2) fertilization of a sex cell (4) increasing the number of cells in an organism

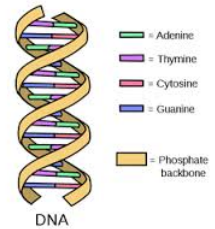
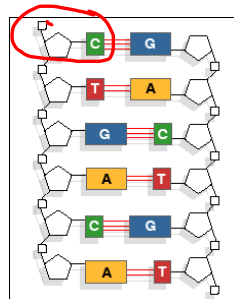
REGENTS QUESTION



The instructions for the traits of an organism are coded in the arrangement of

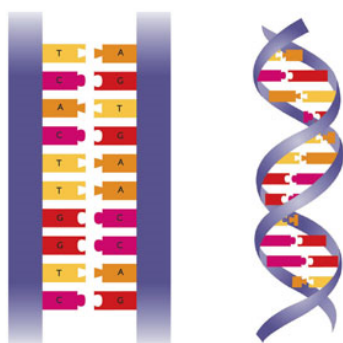
- (1) glucose units in carbohydrate
- (2) bases in DNA in the nucleus
- (3) fat molecules in the cell membrane
- (4) energy-rich bonds in starch molecules

2. DNA is a double stranded molecule.



Can you circle ONE nucleotide?

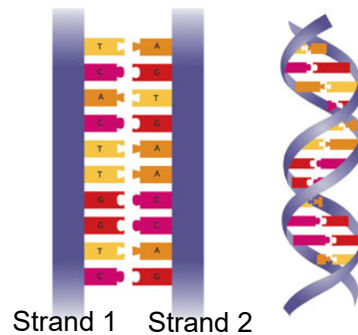
Twisted Ladder or Double Helix

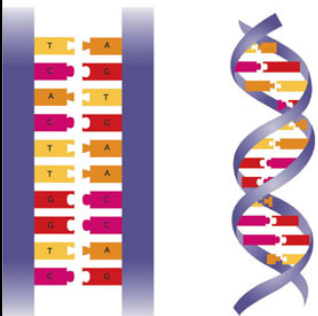


Do you see a pattern in the nitrogen bases?

Notes: 3. Base pairing rules


Adenine -- Thymine
Cytosine -- Guanine





What do you notice about the number of A's and the numbers of T's?

Count the number of Adenines (orange)
Count the number of Thymines (yellow)

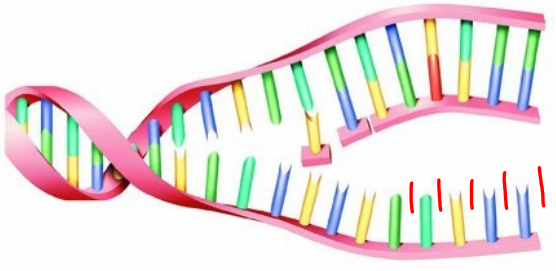


Think Write Pair Share

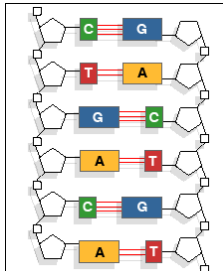
A scientist analyzes the bases in a segment of DNA from a human skin cell to determine if it codes for a protein. The base *A* (*Adenine*) is 12% of the bases in this segment of DNA. Calculate the percentage of bases that would be *C*. [1] **Answer = 38 %**

If there is 12 % A then there is 12 % T
24 % of the DNA is A-T base pairs
Percents add up to 100 so there is 76 % of the DNA made of the C-G pairs
76 divided by 2 is 38% C

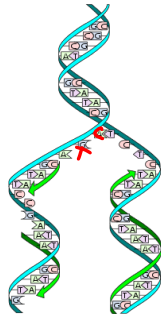
Can you guess what the DNA is doing?



4. Weak hydrogen bonds connect the bases in the center.



5. The DNA unzips when it needs to replicate (copy itself)

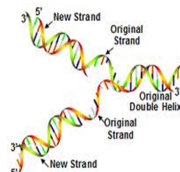


When would DNA need to make a copy of itself?



Notes:

- 6. The replication or copying of DNA occurs during meiosis AND mitosis
- The process begins with the double helix “unzipping” itself in the middle of the chain.



<http://sites.temple.edu/~jacobson/animations/replication1.swf>



Notes:

7. Follow the rules of base pairing to draw the COMPLEMENTARY strand.



<https://learn.genetics.utah.edu/content/evolution/builddna/>

Brain
POP®

DNA

Regents question

The diagram below represents a structure found in most cells. The section labeled A in the diagram is most likely a

- (1) protein composed of folded chains of base subunits
- (2) biological catalyst

(3) part of a gene for a particular trait



Attachments

17-sickle-cell.webloc