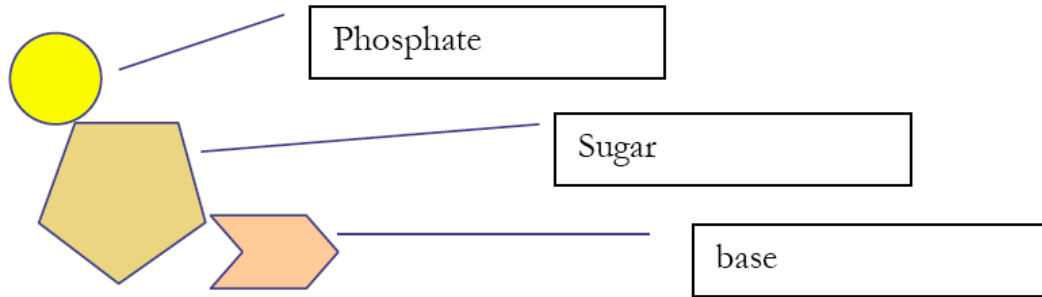


Name: _____ Period: _____

DNA Study Guide for Quiz

Know the following:

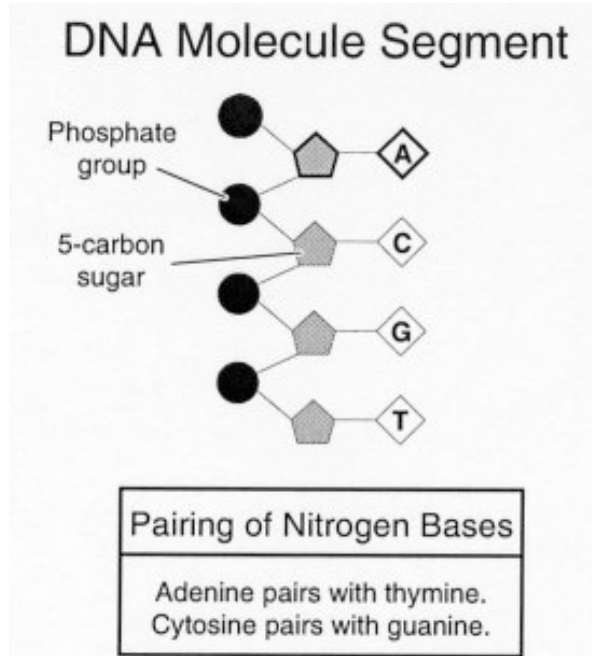
1. 3 parts of a nucleotide. Nucleotides make up DNA



2. Know the names of the four DNA bases.

Adenine, Cytosine, Guanine, and Thymine.

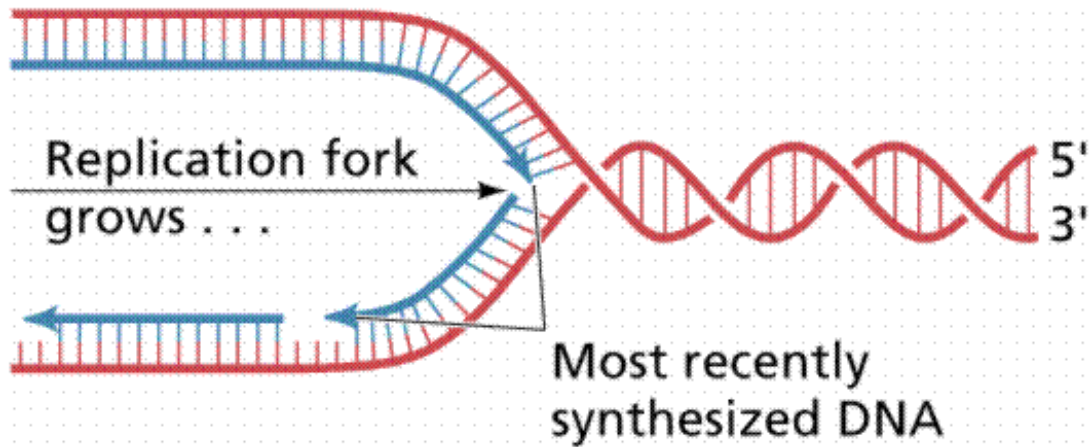
3. Know which DNA bases combine with which.



4. Condensed DNA. Why does it condense?

DNA condenses to protect itself and to save space.

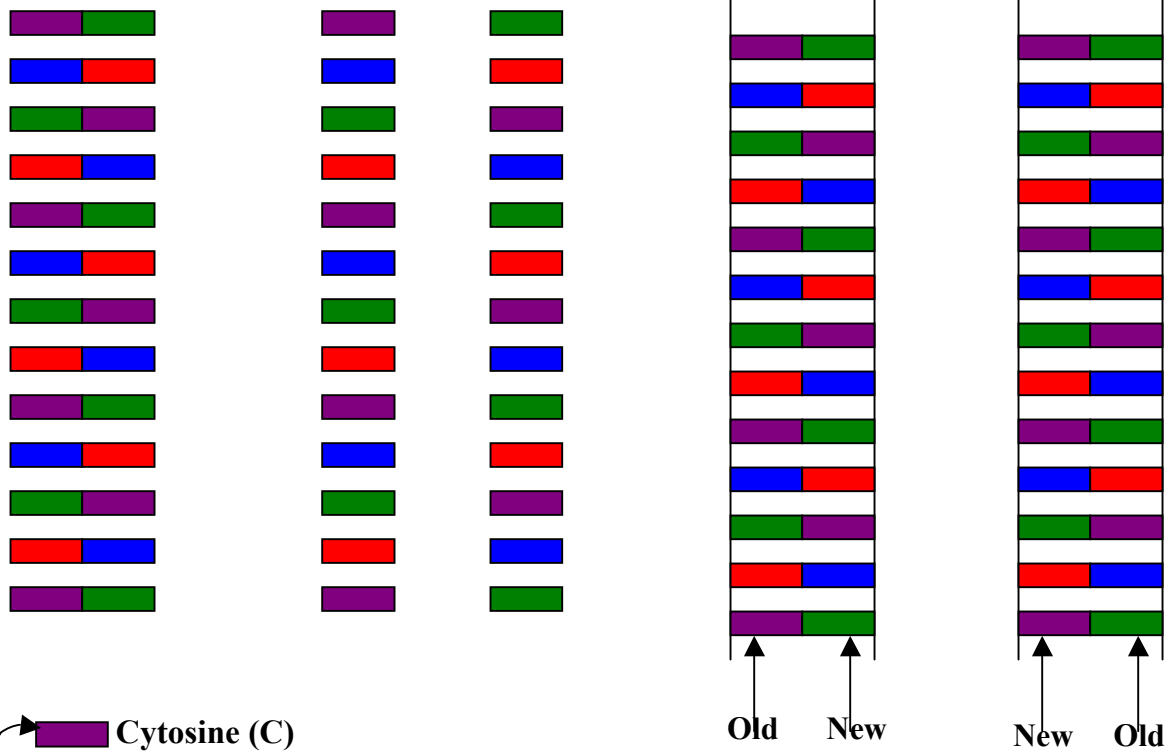
5. DNA Replication: when, why and how



WHEN: DNA is copied every time a cell divides.

WHY: To make more DNA.

HOW: A DNA molecule is split down the middle, where the bases meet. When the bases of the original molecule are exposed, complementary nucleotides are added to each side of the ladder. There are two DNA molecules formed, half of each is old DNA, while half of each is new DNA.



→ Cytosine (C)

→ Guanine (G)

→ Adenine (A)

→ Thymine (T)

6. Extraction Lab done on Wednesday, February 13:
(Refer to Lab)

7. Codon: 3 nucleotides (of mRNA): code for one amino acid
3 nucleotides = one amino acid

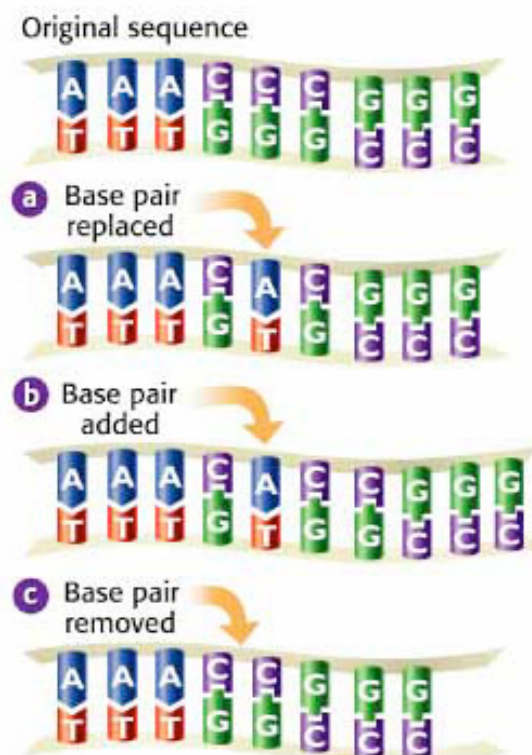
8. Sequences of amino acids = a protein

9. Function of ribosomes in the making of proteins

The messenger RNA is fed through a protein assembly line and the “factory” that runs the assembly line is the ribosome.

The ribosome is a cell organelle made up of RNA and protein. It is the site of where the proteins are built or synthesized.

10. Mutations: 3 types, effects of mutations



A. Substitution – One base is replaced by another – this is the most common mutation and is the least harmful

B. Insertion – An extra base is added

C. Deletion – A base is left out

There are three consequences: An improved trait, a harmful trait, or no change. If the mutation happens in the sex cells, then it can be passed down from one generation to the next.

11. Mutagen: define and be able to give examples

A physical or chemical agent that can cause a mutation in DNA. Some examples include: Radiation from X-rays and ultraviolet radiation (a type of energy in sunlight), asbestos (a fire resistant and insulating material), and the chemicals in cigarette smoke.

12. Know the major scientists who contributed to the DNA model (Erwin) Chargaff – His findings are known as Chargaff's Rule's. He found out that guanine always equals the amount of cytosine. He also found that adenine equals the amount of thymine.

(Rosalind) Franklin – She used a process called X-ray diffraction to make images of DNA molecules. Her pictures showed that DNA has a spiral shape.

(James) Watson and (Francis) Crick – They looked at Franklin's pictures and came to a conclusion that DNA is a log, twisted ladder. They made a model, which fit with Chargaff and Franklin's findings.

13. Genetic Engineering

To manipulate genes within organisms. It can even be from one type of organism to another. Scientists can use to create things like drugs, foods, and fabrics.

14. Genetic Fingerprinting (DNA Fingerprinting)

Everyone's DNA is so unique that it can be used just like a fingerprint to identify you. DNA samples are taken from crimes and then goes through a process where things are poured and combine with the DNA, and become a gel. An alkaline solution or heat is applied to the gel so the DNA separates into single strands. Everyone's strands are different so they can match the fingerprint up with the suspects' DNA to see who committed the crime.