

Lesson 4.2

DNA Replication

Name _____

Date _____

Period _____

Key Terms

Semi-conservative Replication

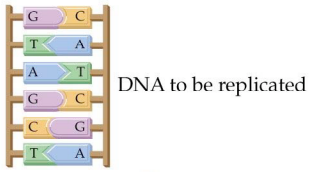
Daughter Strand

Complementary Base Pairing

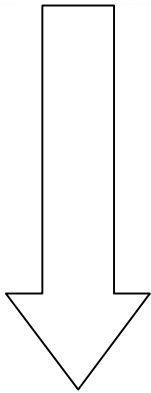


Engage DNA Replication

<http://www.lew-port.com/10712041113402793/lib/10712041113402793/animations/DNA%20Replication.html>



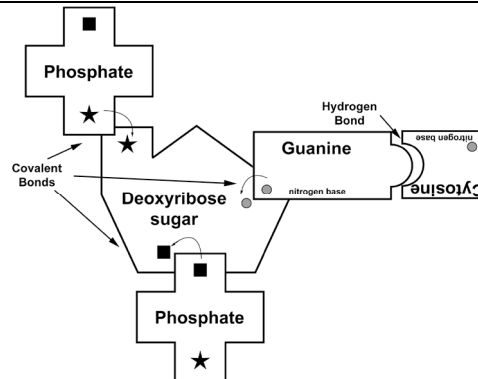
Watch the video and fill in the missing steps on the graphic on the left.



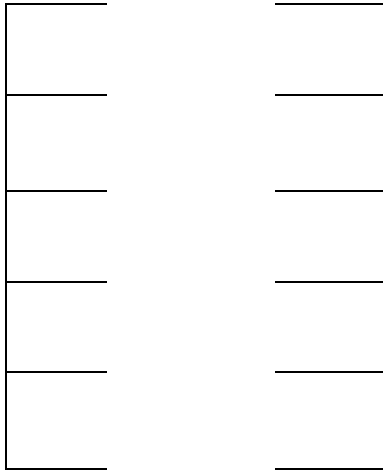
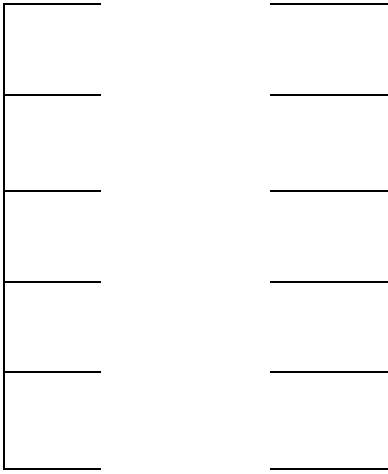
Explore II – Replicating a strand of DNA

The teacher will provide you with sheets of deoxyribose molecules, phosphate molecules, guanine, cytosine, adenine and thymine nitrogen bases.

- Cut out these components.
- Use clear tape for **covalent** chemical bonds.
- Use blue tape for **hydrogen** bonds



- Unzip the hydrogen bonds on your prepared DNA strand from the previous lesson.
- Bind the complementary nucleotide to your parent strands to create two new daughter strands.
- Draw your daughter strands below.

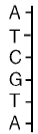


The model you just completed is called semi-conservative replication. Why is it called SEMI-conservative?

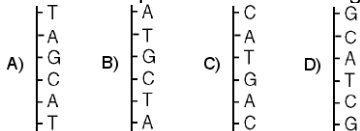


Explain II

1. Explain the process of DNA replication.
2. Which series is arranged in correct order according to decreasing size of structures?
 a) DNA, nucleus, chromosome, nucleotide, nitrogenous base
 b) chromosome, nucleus, nitrogenous base, nucleotide, DNA
 c) nucleotide, chromosome, nitrogenous base, nucleus, DNA
 d) nucleus, chromosome, DNA, nucleotide, nitrogenous base



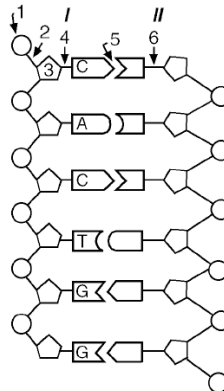
3. Which strand below represents the complementary base sequence of a DNA strand represented in the diagram above?



4. Which is the sugar component of a DNA nucleotide?
 a) glucose c) adenine
 b) deoxyribose d) phosphate

5. Which substances are components of a DNA nucleotide?
 a) phosphate, ribose, and adenine
 b) phosphate, deoxyribose, and uracil
 c) ribose, phosphate, and uracil
 d) thymine, deoxyribose, and phosphate

The diagram below represents a portion of a double-stranded DNA molecule.



6. The base sequence of strand II is most likely

- a) G-T-G-A-C-C
- b) G-T-G-U-C-C
- c) G-G-T-C-A-C
- d) C-A-C-T-G-G

7. What kind of chemical bond exists at 5?

- a) ionic
- b) metallic
- c) covalent
- d) hydrogen