



# DNA and Protein Synthesis

Name: \_\_\_\_\_

Per: \_\_\_\_\_

## DNA Replication Worksheet - PAP

### The Big Idea!

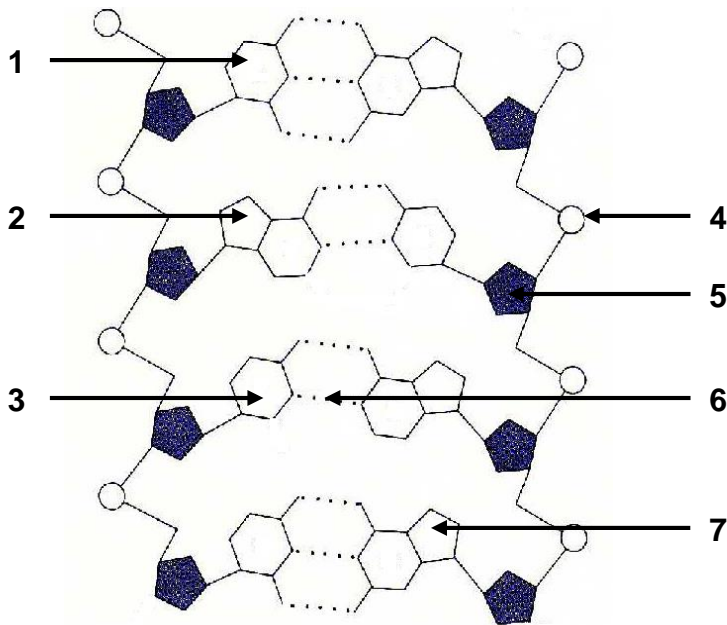
- The structure of DNA, the molecule of heredity, enables the molecule to copy itself.

### Concepts

- DNA is composed of nucleotides (Deoxyribose, Nitrogen Base, Phosphate Group).
- DNA is shaped like a double helix
- The strands of DNA are antiparallel.
- Bases always form complementary base pairs (adenine with thymine and cytosine with guanine).
- Complementary base pairing enables DNA to replicate, or copy itself
- DNA replication involves three steps and each step uses a specific enzyme

Complete the following strand of DNA by placing the letter of the correct nitrogenous base on the line provided

5'      C      C      A      G      T      A      G      T      T      3'



1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

1. Why does DNA need to replicate? \_\_\_\_\_  
\_\_\_\_\_
2. How do base-pairing rules make DNA replication possible? \_\_\_\_\_  
\_\_\_\_\_
3. Explain three main steps in the process of DNA replication. Name the enzymes that go with each step.
  - a. \_\_\_\_\_
  - b. \_\_\_\_\_
  - c. \_\_\_\_\_

# DNA and Protein Synthesis



Name: \_\_\_\_\_

Per: \_\_\_\_\_

12/13

4. Enzymes have several important jobs in DNA replication. The jobs of some enzymes are listed below. Label the order in which they occur by placing a number (1-3) on the line.

\_\_\_\_\_ join free nucleotides to existing DNA strand      \_\_\_\_\_ unwind DNA  
\_\_\_\_\_ unzip DNA

5. In your own words, define the word *replicate*.

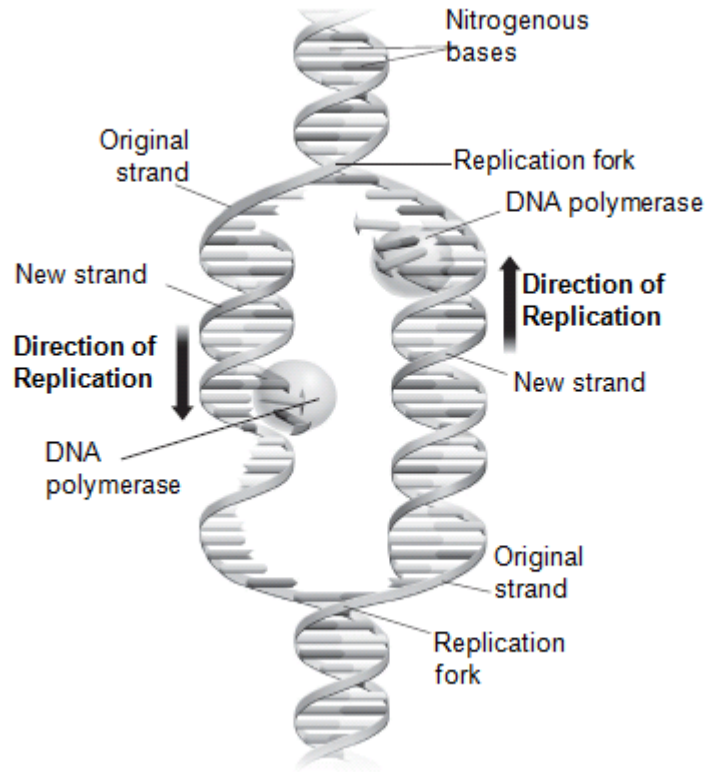
\_\_\_\_\_  
\_\_\_\_\_

6. What is the name of the enzyme that joins individual nucleotides?

\_\_\_\_\_  
\_\_\_\_\_

7. A(n) \_\_\_\_\_ is the place where a DNA strand opens to make new strands.

8. Describe how DNA is anti-parallel.



Read Chapter 12 (yes... all of it... reading quiz? hmmm maybe!). Answer the following section review questions below.

Page. 343 3b.

page 348 2b.

page 348 3a

page 353 2b.

page 359 1-11