



## **DNA Replication and Transcription Worksheet**

Lending Library: DNA Starter Kit<sup>©</sup> (DS)

## Part A: DNA Structure

- 1. Explain what is meant by each of the following terms as they relate to DNA structure:
  - A. Complementary base pairing
  - B. Antiparallel strands
  - C. Sugar-phosphate backbone
- 2. Record the sequence of your DNA structure, and indicate 5' phosphate and 3' carbon ends of the strands. Draw lines between complementary base pairs:

## Part B: DNA Replication

1. Explain what is meant by semi-conservative DNA replication.

2. Forming the phosphodiester linkage in the DNA backbone is an endergonic reaction. What is the source of the energy that drives this reaction?

- 3. In what direction is the newly synthesized DNA made?
- 4. Recall that the two DNA strands are antiparallel. In what direction is the DNA polymerase reading the *template* strand?
- 5. What is an Okazaki fragment?

6. What is the purpose of DNA ligase?

## Part C: Transcription

1. What are two differences between DNA and RNA?

2. Complete the following table comparing and contrasting DNA replication with transcription:

DNA replication	Characteristic	Transcription
	How many strands of DNA are used as the template?	
	Direction of synthesis of the new strand?	
	Direction of movement of polymerase along the template strand?	
	What happens to the new strand as it is being made?	
	Enzyme(s) involved in the process	