



12.3 DNA Replication

Lesson Objectives

-  Summarize the events of DNA replication.
-  Compare DNA replication in prokaryotes with that of eukaryotes.

BUILD Vocabulary

A. The chart below shows key terms from the lesson with their definitions. Complete the chart by writing a strategy to help you remember the meaning of each term. One has been done for you.

Term	Definition	How I'm Going to Remember the Meaning
DNA polymerase	Enzyme that joins individual nucleotides to make a strand of DNA	
Replication	The process of duplicating DNA	<i>DNA makes a <u>replica</u> during <u>replication</u>.</i>
Telomere	The tip of a chromosome	

B. As you work through this lesson, you may find these terms in the activities. When you need to write a key term or a definition, **highlight** the term or the definition.

BUILD Understanding

Preview Visuals Previewing visuals and taking notes about them can help you remember what you read and review for tests. Look at the diagram of DNA Replication in your textbook. Write down any questions you may have about it. Then, as you read Lesson 3, find the answers to your questions. Organize your questions and answers in the two-column table below.

Questions	Answers
<ul style="list-style-type: none"> • <i>What causes the DNA to split?</i> 	

Copying the Code

The Role of Enzymes Enzymes have several important jobs in DNA replication. The jobs of some enzymes are listed below.

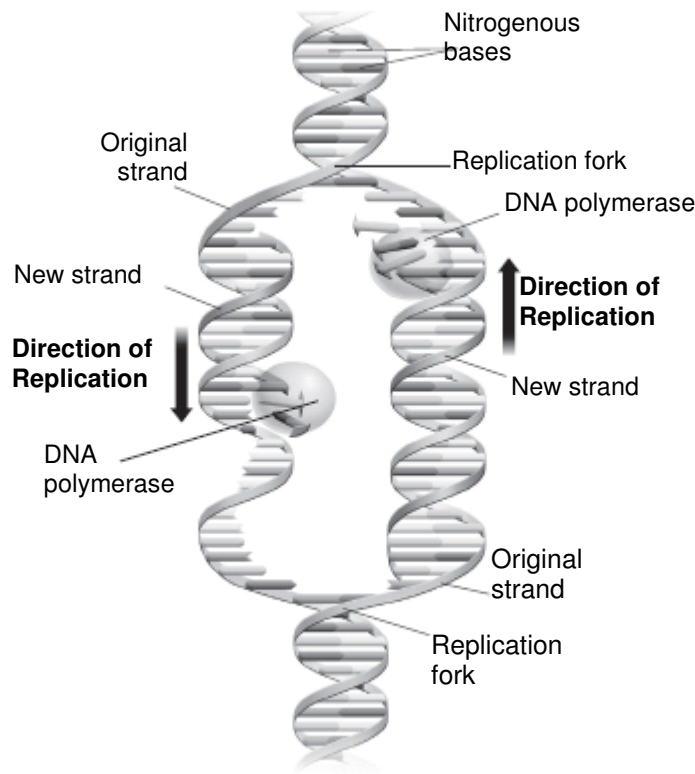
Write the jobs in the order in which they occur.

join free nucleotides to existing DNA strand
unzip DNA

unwind DNA

1. _____
2. _____
3. _____

The diagram below shows the replication of DNA. Look carefully at the diagram.



Answer the questions.

4. In your own words, define the word *replicate*. _____

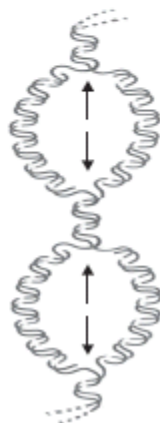
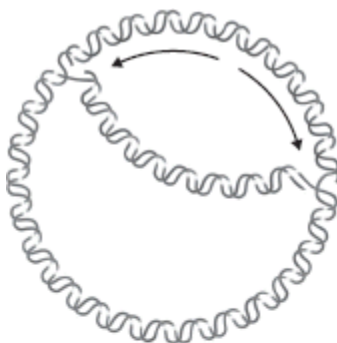
5. Enzymes usually end in -ase. What is the name of the enzyme that joins individual nucleotides? _____
6. Circle the correct answer to complete the sentence. A(n) _____ is the place where a DNA strand opens to make new strands.
original strand old strand replication fork

Replication in Living Cells

During replication, a DNA molecule copies itself. In eukaryotes, DNA is organized into chromosomes within the nucleus. In prokaryotes, DNA is a circular molecule that is free in the cytoplasm.

Follow the directions.

1. Label one diagram as Prokaryotic DNA.
2. Label the other as Eukaryotic DNA.
3. Label both drawings with the following terms: unreplicated DNA, replication fork, origin of replication.



Answer the questions. Circle the correct answers.

4. In which type of cell is DNA circular?
 prokaryotic eukaryotic
5. In which type of cell does replication begin at several points?
 prokaryotic eukaryotic