


Name: _____ Date: _____

Student Exploration: Building DNA

<p>Activity B: DNA replication</p>	<p><u>Get the Gizmo ready:</u></p> <ul style="list-style-type: none"> Be sure the hint reads: "The DNA molecule is complete." If not, click Reset and build a new DNA molecule. 	
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Question: How does DNA make a copy of itself?

- Build:** Follow the steps given in the Gizmo to construct a molecule of DNA. (Note: For simplicity, this DNA molecule is shown in two dimensions, without the twist.) Stop when the hint reads: "The DNA molecule is complete."
- Observe:** An **enzyme** is a protein that facilitates certain cell processes. Click **Release enzyme** to release **DNA helicase**. What does DNA helicase do to the DNA molecule?

- Observe:** Click **Release enzyme** to release **DNA polymerase**.
 - Notice that two groups of **Nucleotides** appear on the right. What are the *three* parts of a nucleotide? _____, _____, _____
 - Drag one of the nucleotides to a corresponding nitrogenous base on one of the two strands. What is the role of DNA polymerase in this process? _____

- Build:** Complete the two molecules of DNA by dragging nucleotides to their corresponding locations. When you have finished, compare the two completed daughter DNA molecules.

How do the two molecules compare to each other? _____

How do these molecules compare to the original? _____

- Think and discuss:** Why is DNA replication such an important process (hint: DNA replication occurs before the cell performs an important process.)?

- Extend your thinking:** Sometimes errors called **mutations** occur during DNA replication. What do you think are some of the possible consequences of mutations?
