

## Part B: DNA Replication

A chromosome contains DNA. Your DNA model represents only a short length of the DNA portion of a chromosome. An entire chromosome has thousands of rungs rather than only six. Although your model is only a small part of a chromosome, its replication is the same as that of an entire chromosome during mitosis and meiosis.

<b>Open your DNA model along the point of attachment between base pairs and separate the two ladder halves. Use scissors.</b>	
1. What <u>enzyme</u> do your scissors represent?	
2. What type of bonds are you breaking?	
<b>Glue each strand of your DNA molecule on opposite edges of tan paper.</b>	
<b>Using the <u>left half</u> of your model as a pattern, add new nucleotides to form a new right side. This will then become DNA strand #1.</b>	
3. What enzyme do your hands represent when you add each nucleotide?	
<b>Build a second DNA model by adding new nucleotides to the right half of the original model. This will then become DNA strand #2.</b>	
4. Do the 2 new DNA molecules contain the same number of rungs?	
5. How many adenine molecules are in DNA strand #1 ?	
6. How many thymine molecules are in DNA strand #2?	
7. Are these numbers the same, why or why not?	
8. Are the two DNA molecules exact copies of each other?	

### Critical Thinking Question:

1. A DNA molecule (A) replicates to produce two new DNA molecules (A and B). Both of the DNA molecules (A and B) then replicate to form four new DNA molecules (C and D). Are any nucleotide chains from (A) present in the (C) DNA molecules, and if so, how many? Explain your answer with words or a drawing.



