Biology
Ms. Ye

Name _____
Date _____ Block _____

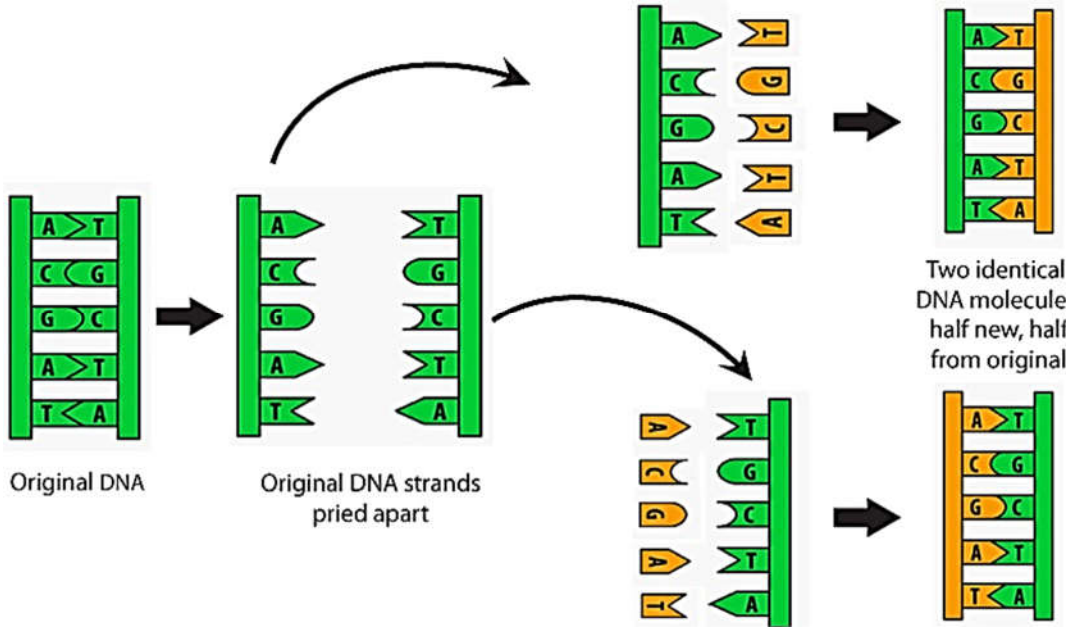
Base Pair Review

1. The proportions of the bases are consistent within a species; however they do vary between species. Using the base-pair rules, complete the following table to show the percentage of each type of base in the five different organisms.

Organism	Percentage of each type of base			
	Adenine	Guanine	Cytosine	Thymine
Human	31		19	
Cow	28	22		
Salmon			21	29
Wheat	27			
Yeast	31	19		

DNA REPLICATION

Look at the following picture that models the process of DNA replication:



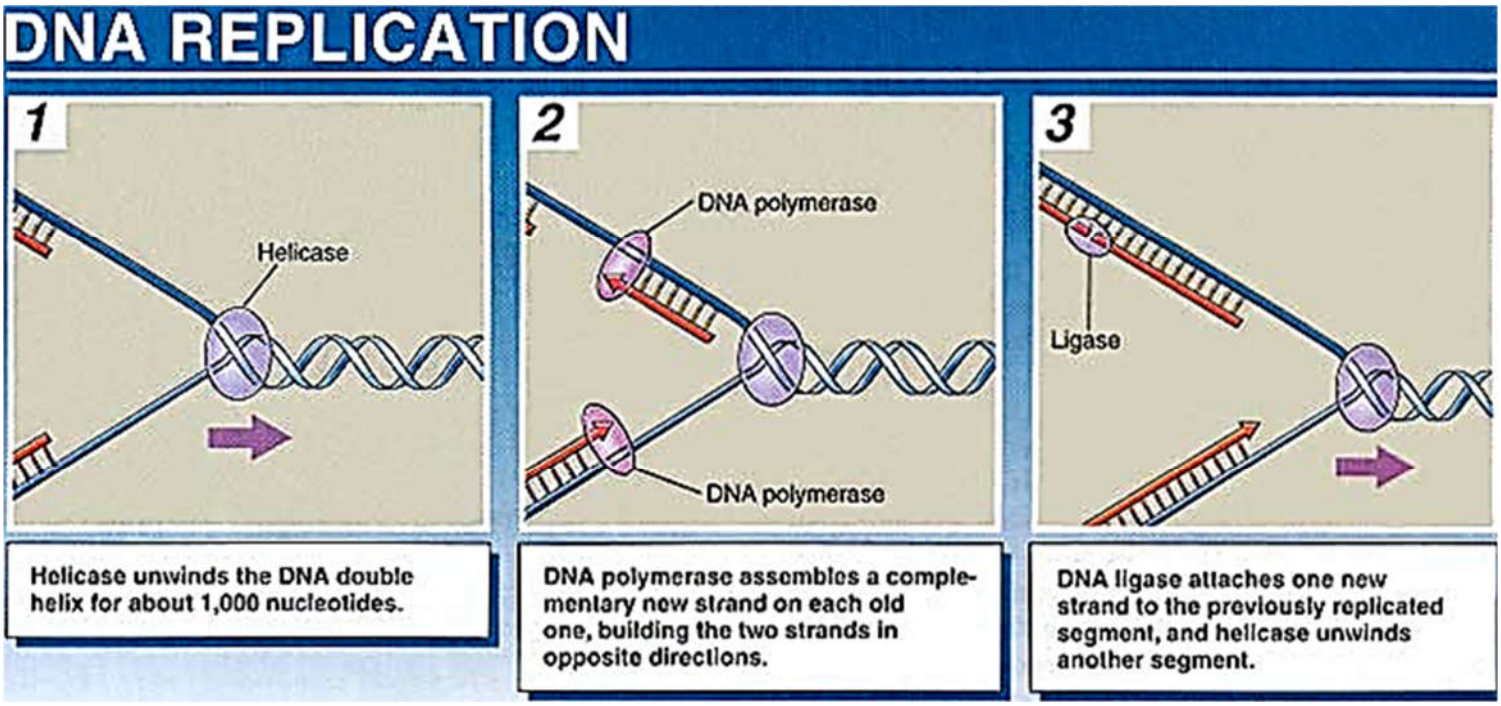
2. Examine the picture and number the steps below in order to describe the replication of DNA in a cell.

_____ Hydrogen bonds between nucleotides form.

_____ Hydrogen bonds between nucleotides break.

_____ Strands of DNA separate.

_____ Free nucleotides are attracted to exposed bases on the loose strands of DNA.



3. There are three enzymes involved in DNA replication. Briefly summarize the role of each of the following enzymes as depicted in the picture above

   a. **DNA helicase**

   b. **DNA Polymerase**

   c. **Ligase**

4. This type of replication is called **semi-conservative replication**. Considering the meaning of these words (semi—half; conserve—to keep), explain why DNA replication is called semi-conservative.

5. DNA molecules can be tens of thousands of base pairs in length. Mistakes in DNA replication lead to mutations, which may or may not be harmful to an organism. How does semi-conservative replication help prevent mutations during DNA replication?