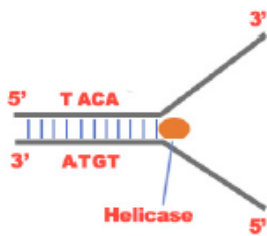


# DNA REPLICATION WORKSHEET

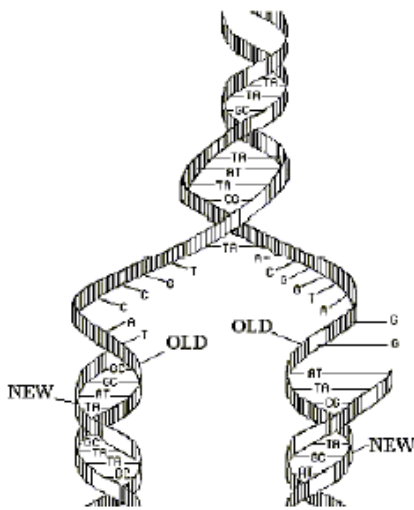
Use chapter 17-2 to help you!

1. Why does DNA need to replicate?
2. In relation to the pictures below: Explain three main steps in the process of DNA replication. Name the enzymes that go with each step.

a.



b.



c.

3. In which direction are new nucleotides added during replication?
4. What is the difference between and leading and lagging strand?
5. Which enzyme is responsible for “unzipping” the DNA double helix?

6. Which enzyme is responsible for facilitating the hydrogen bonding between nucleotides in a new DNA molecule?
7. Which enzyme is responsible for creating the covalent bonds (specifically phosphodiester bonds) that connect the sugar-phosphate backbone of the new DNA molecules?
8. Below is a single strand of DNA. Below each letter write the complementary strand of DNA.  
 A – T – G – C – G – G – C – G – A – T – T – T – A – A – G – C
9. a. In the box A below, fill in the complementary strand of DNA to create a double strand.  
 b. Next to the box, using two different colored pens/pencil, create two new strands from the original strand in the box A. Label which color represents the original strand and which color represents the new strand.

Box A:

A	
T	
G	
G	
C	
T	
A	
G	

Part b:

10. Describe the origin of each strand of the new double helices created after DNA replication.
11. Why do you think DNA replication important to the growth and development of a multi-cellular organism?
12. What do you think would happen if the process occurred incorrectly?