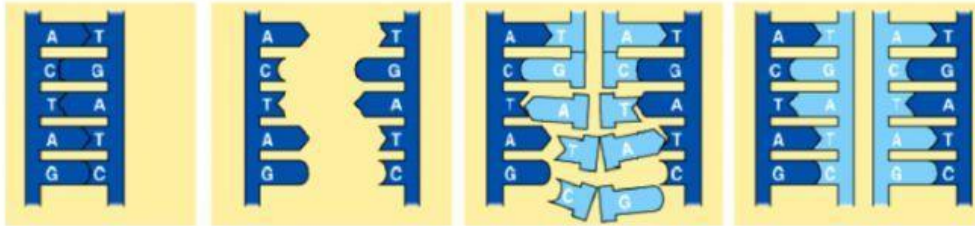


DNA Replication Practice

Directions: Below are the three steps of DNA replication. Follow the instructions for each step and then answer the questions that follow.

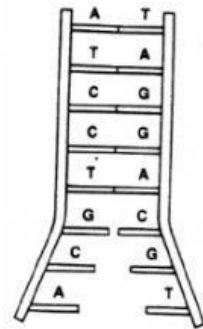
When a cell copies a DNA molecule:

1. DNA is unzipped by helicase (**initiation**).
2. Complementary bases are added to each template strand by DNA polymerase (**elongation**).
3. Two new strands are checked for errors by DNA polymerase, then DNA winds up (**termination**).

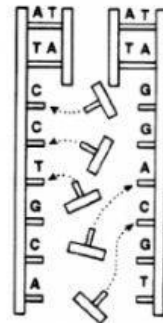


1. What is happening to the DNA molecule in the figure?

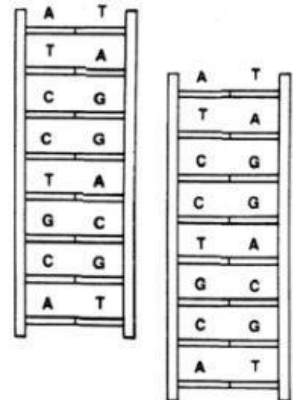
(Explain the first step in DNA replication)



2. What happens to the DNA molecule during the second step of DNA replication?



3. What happens during the third step of DNA replication?



4. What does it mean that the two strands of DNA are **complementary**? _____

5. What is **DNA replication**? _____
6. Using your knowledge of DNA replication, place the steps below in the correct order. (Write "1" for the first step, "2" for the second, etc.)
- _____ The enzyme DNA polymerase moves along the strands and adds complementary nucleotides to each exposed nucleotide in the existing strands.
 - _____ Helicase unzips the DNA double helix down the middle between the base pairs.
 - _____ A complementary strand is created for each of the two strands of the original double helix.
 - _____ Two new identical DNA molecules have been produced.
7. True or False: The process of DNA replication results in a copy of the original DNA molecule.
8. True or False: DNA does not have to break apart to be copied.
9. True or False: After DNA replication is complete, there are two new DNA molecules; one molecule has both of the original strands and one molecule has two new strands of DNA.
10. In what cell organelle does DNA replication happen? _____
11. During what phase of the cell cycle does DNA replication happen? _____
12. Below are some DNA strands. Use the base pairing rules to fill in the complementary strands.
- Original strand: A T G C A A A T T G C T C A C C G G G A T C A C

 - Original strand: A G G G G A T C A G C A C C G G A T T T C A T G

 - Original strand: T G A C G A T C G A T G C A C A T G C A T G G C
