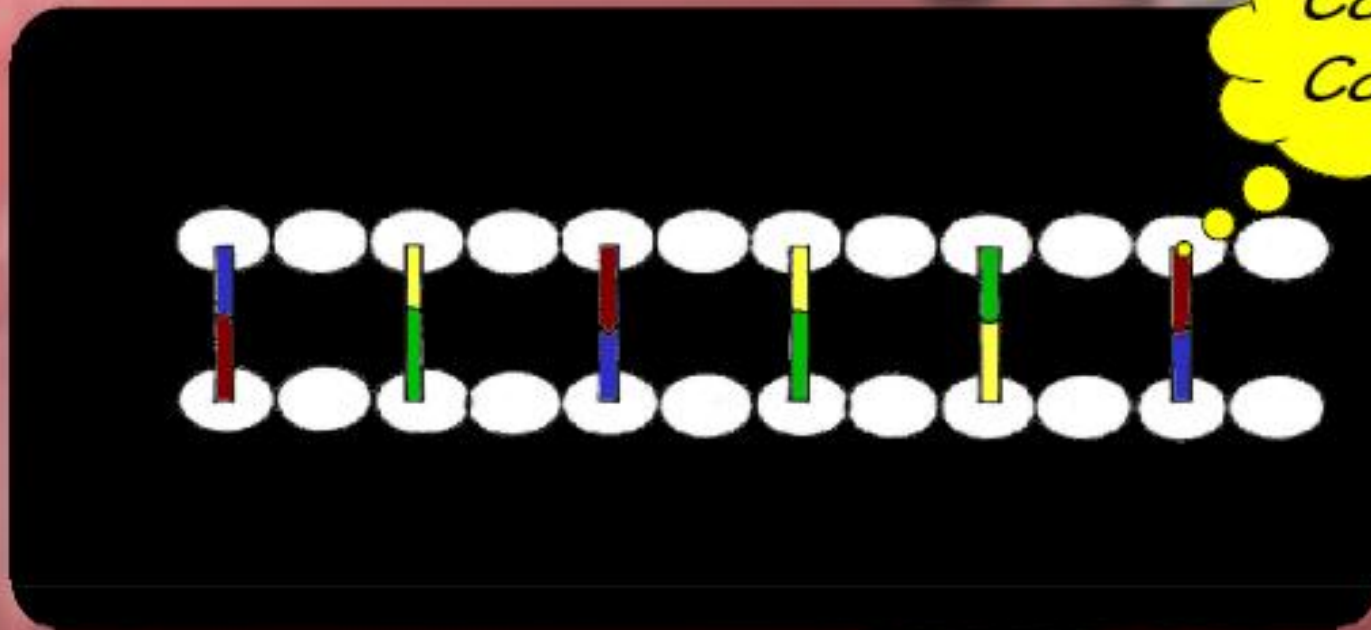


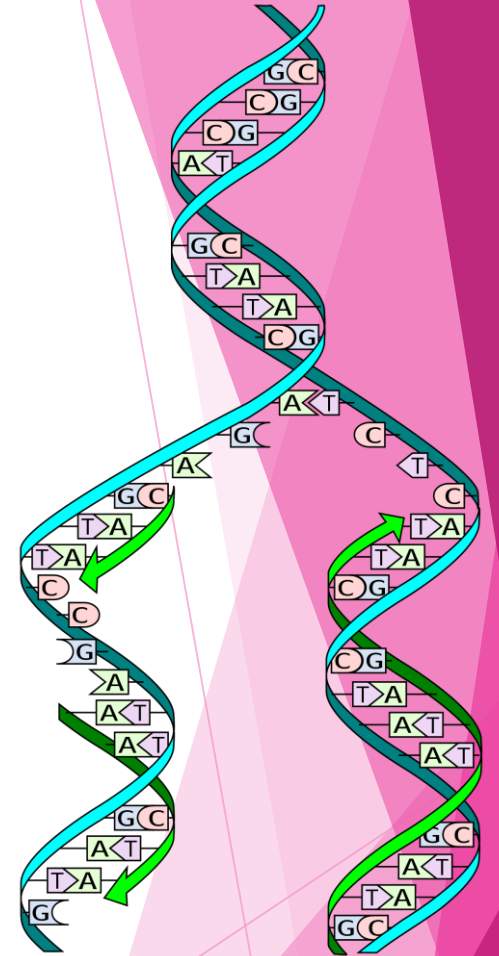
# DNA Replication Notes

# DNA Replication



# What is DNA replication? (Also called DNA synthesis)

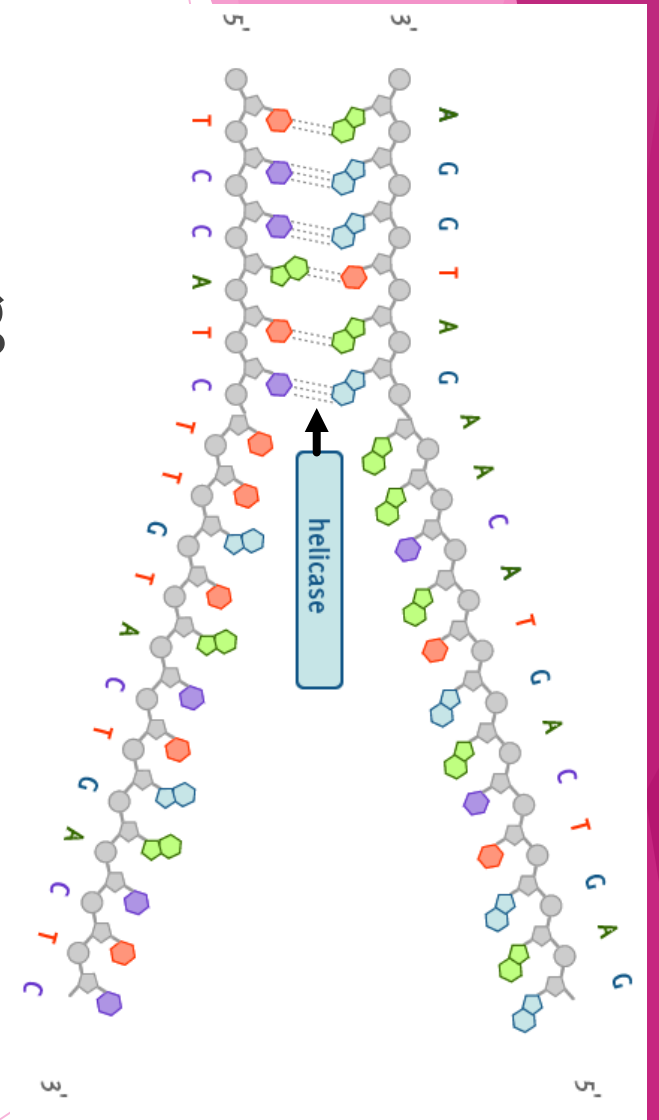
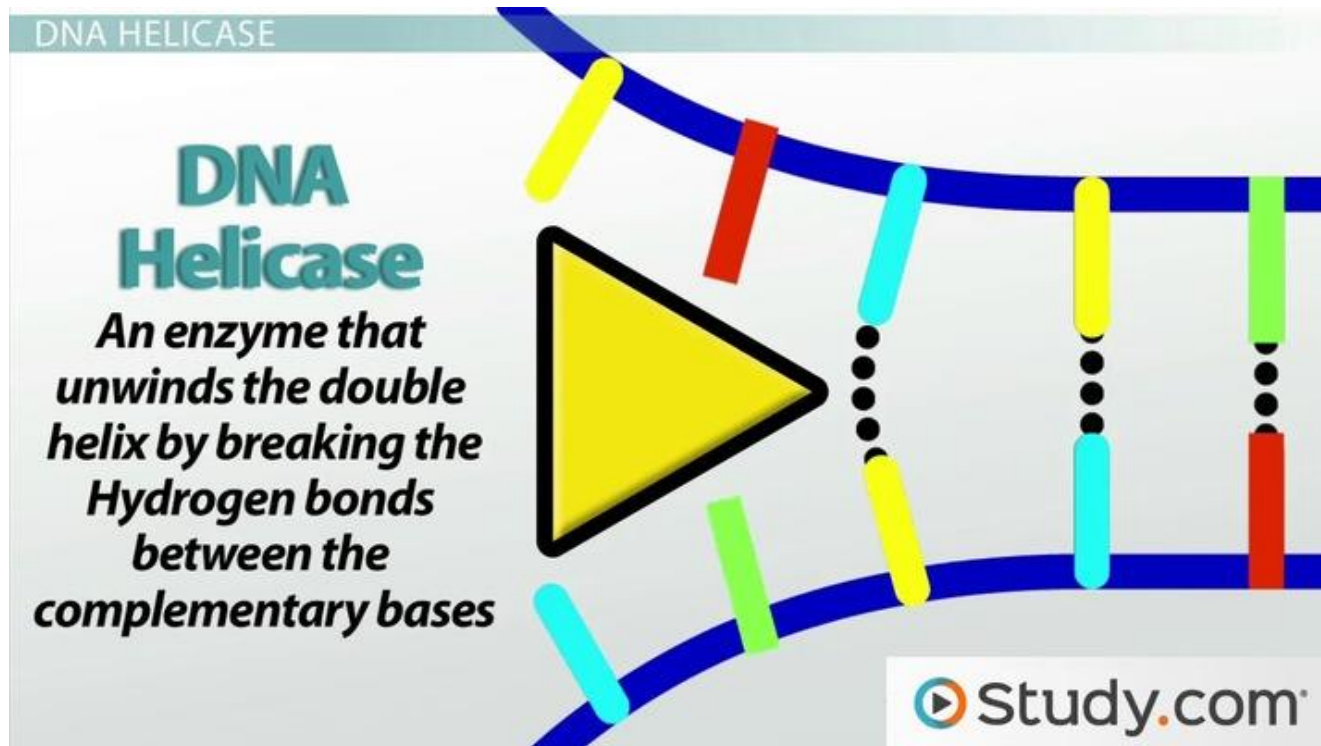
- ▶ DNA replication is the process of copying itself synthesizing two new identical strands of DNA.
- ▶ DNA replicates during the S phase of Interphase during the Cell Cycle. It replicates to prepare for cell division (mitosis).
- ▶ DNA replication takes place BEFORE a cell divides into two new cells.
  - ▶ This allows each new cell to have ONE copy of the DNA.



# How does DNA replication begin?

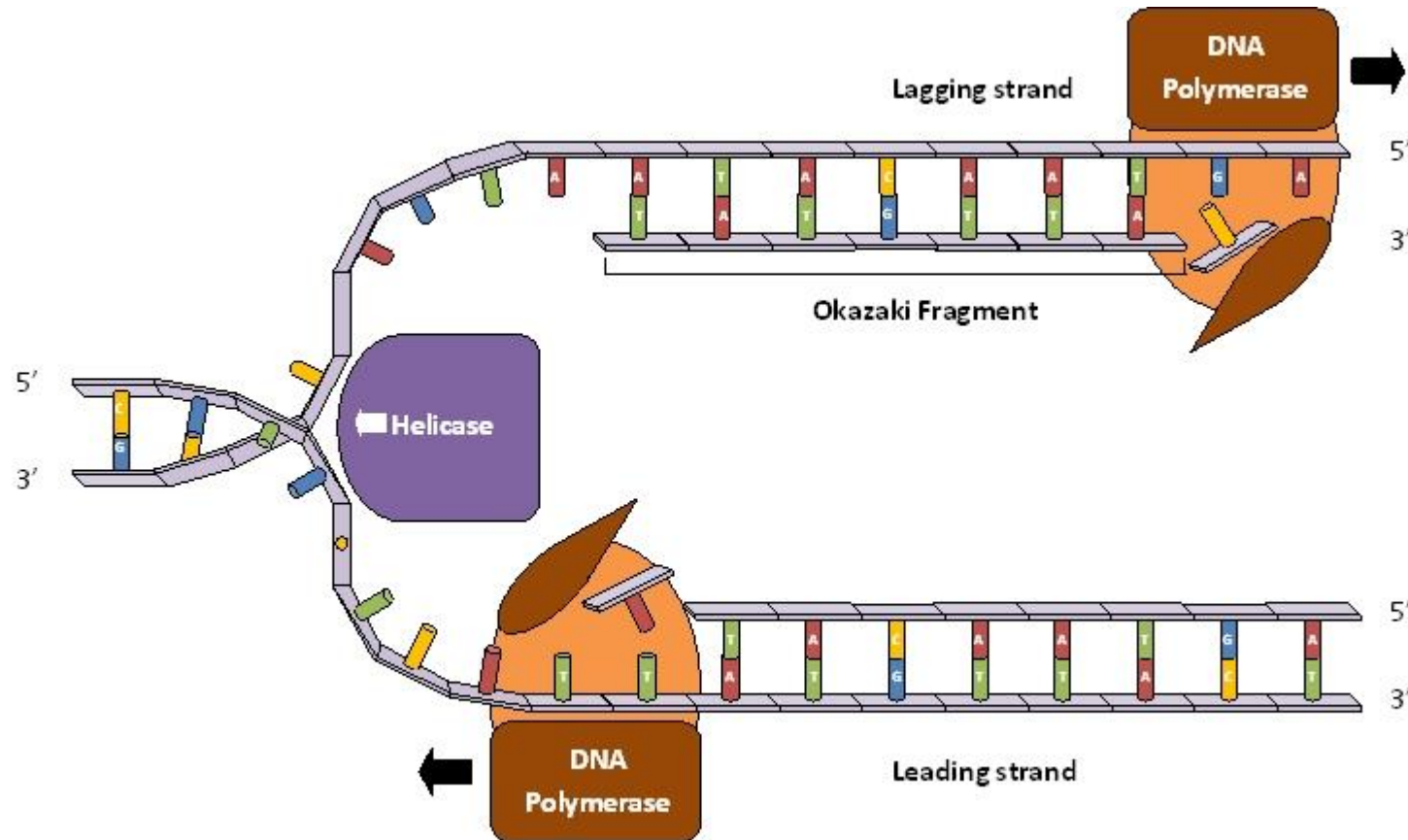
## STEP 1:

- ▶ An enzyme, DNA helicase, breaks open the Hydrogen bonds between the bases, splitting DNA down the middle of the two strands.



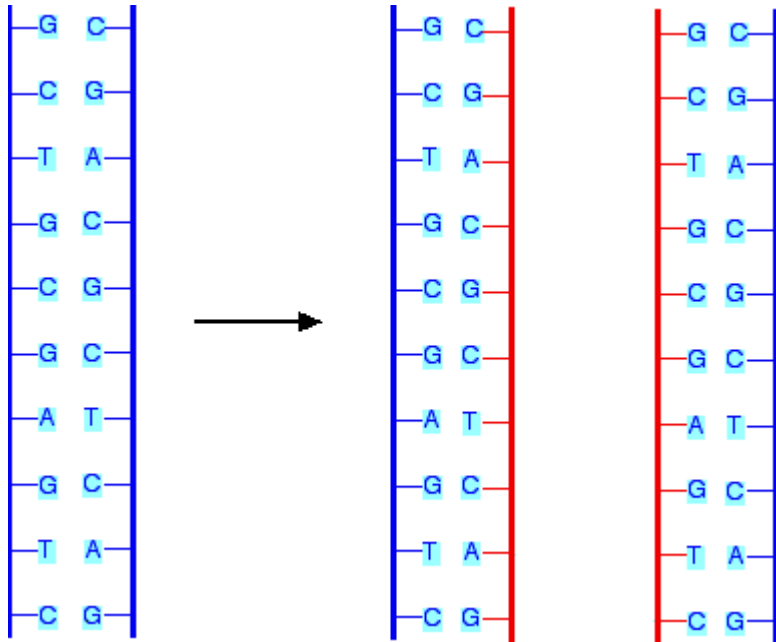
## STEP 2:

- ▶ An enzyme, DNA polymerase, begins to add new DNA nucleotides to the two “parent” strand.

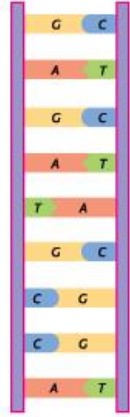


## STEP 3:

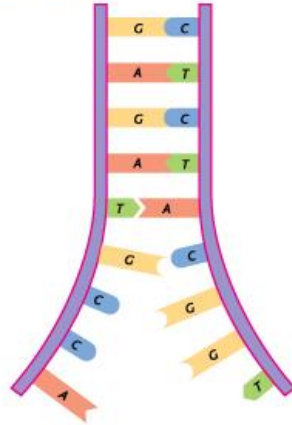
- ▶ Two identical strands of DNA are made.



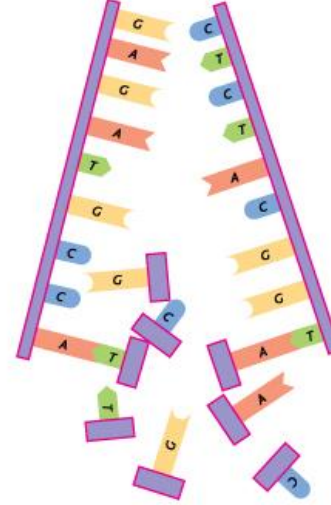
1 A representative portion of DNA, which is about to undergo replication.



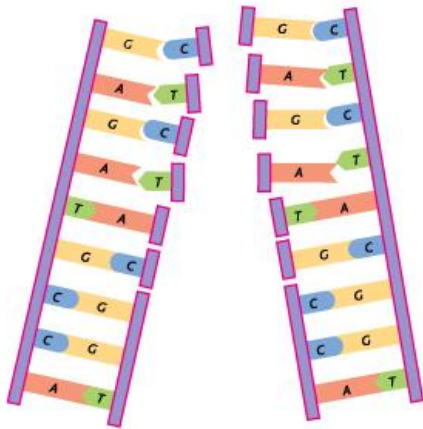
2 The two strands of the DNA separate. The hydrogen bonds between the bases break.



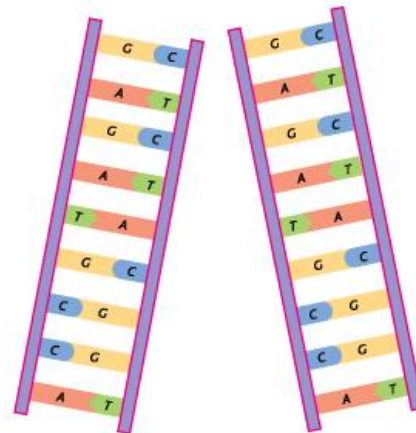
3 Free nucleotides are attracted to their complementary bases.



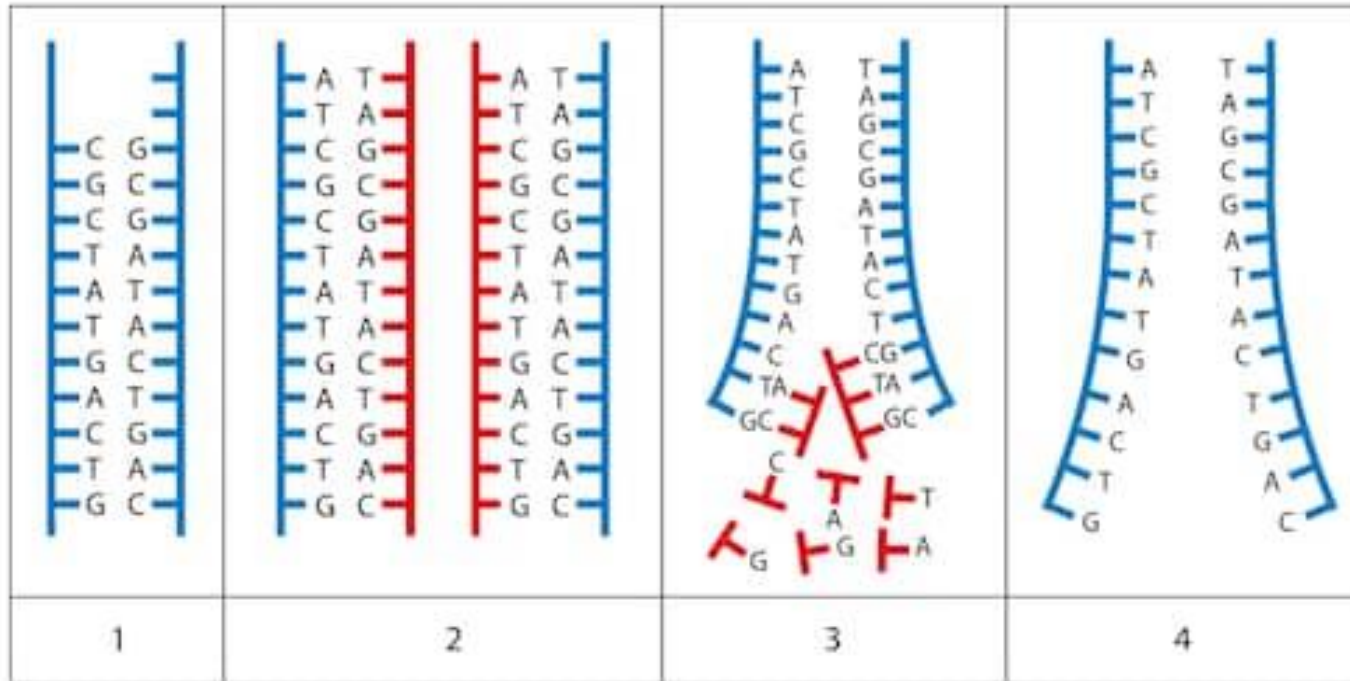
4 Once the new nucleotides have lined up, they are joined together by the enzyme DNA polymerase.



5 Finally, all the nucleotides are joined to form a complete polynucleotide chain using DNA polymerase. In this way, two identical strands of DNA are formed. As each strand retains half of the original DNA material, this method of replication is called the semi-conservative method.



Put the following steps in order:



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▶ Answer 1, 4, 3, 2