8.3 DNA Replication

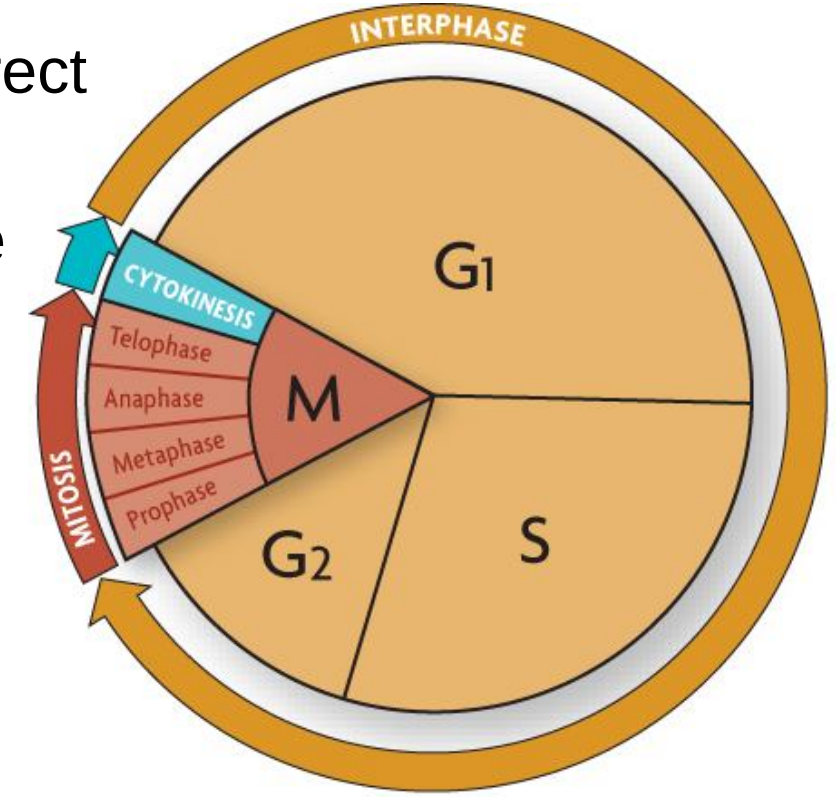
KEY CONCEPT

DNA replication copies the genetic information of a cell.

8.3 DNA Replication

Replication copies the genetic information.

- A single strand of DNA serves as a template for a new strand.
- The rules of base pairing direct replication.
- DNA is replicated during the S (synthesis) stage of the cell cycle.
- Each body cell gets a complete set of identical DNA.



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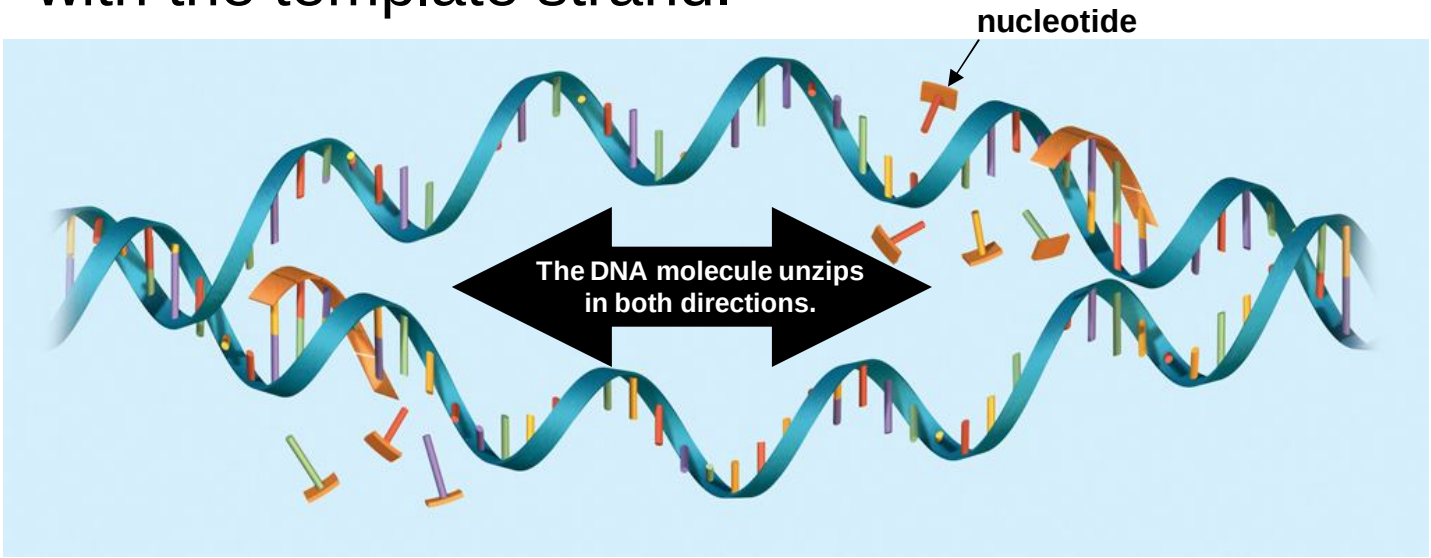
Proteins carry out the process of replication.

- DNA serves only as a template.
- Enzymes and other proteins do the actual work of replication.
  - Enzymes unzip the double helix.
  - Free-floating nucleotides form hydrogen bonds with the template strand.



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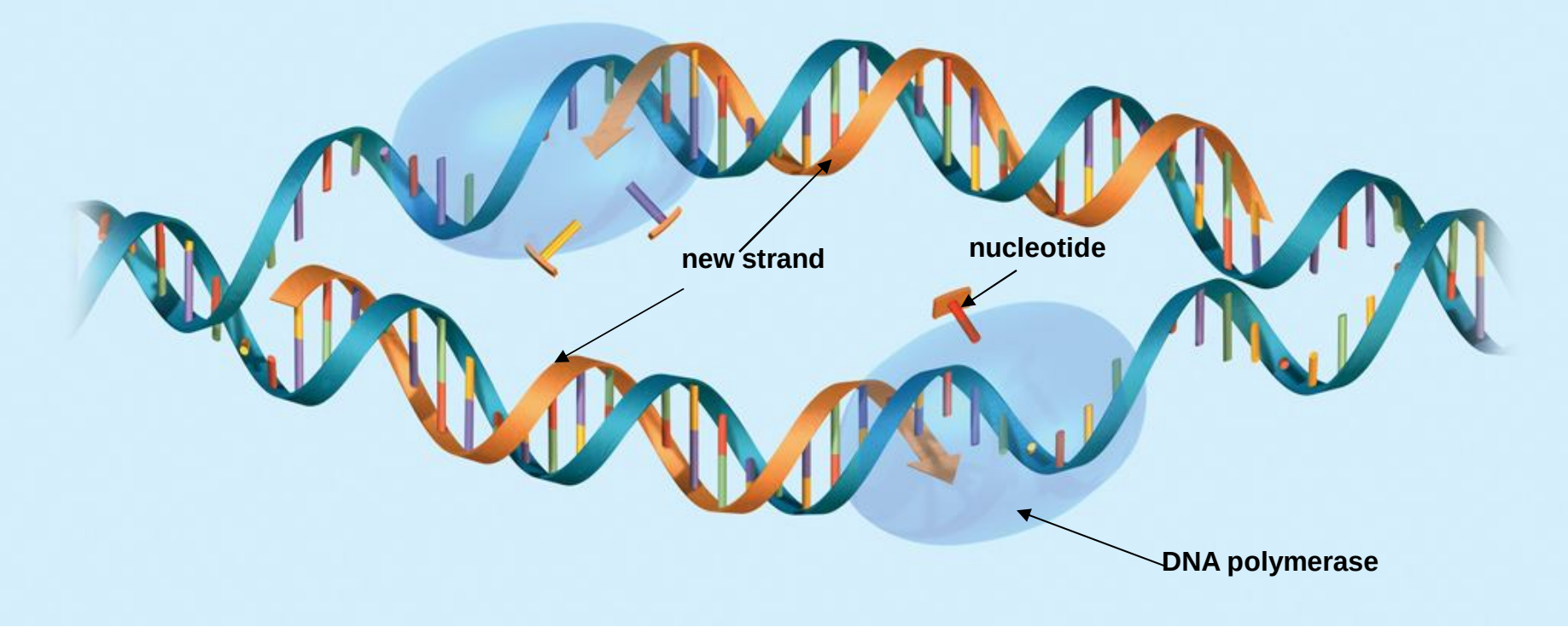
- DNA polymerase enzymes bond the nucleotides together to form the double helix.
- Polymerase enzymes form covalent bonds between nucleotides in the new strand.



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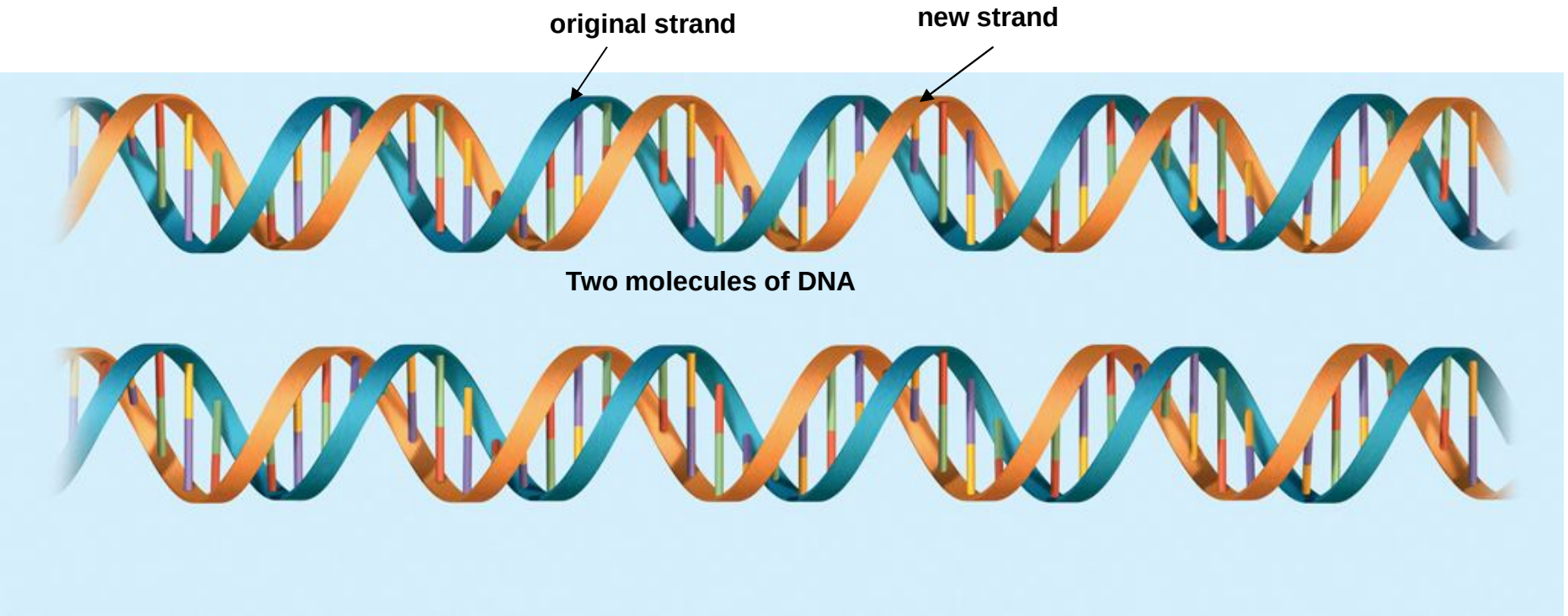
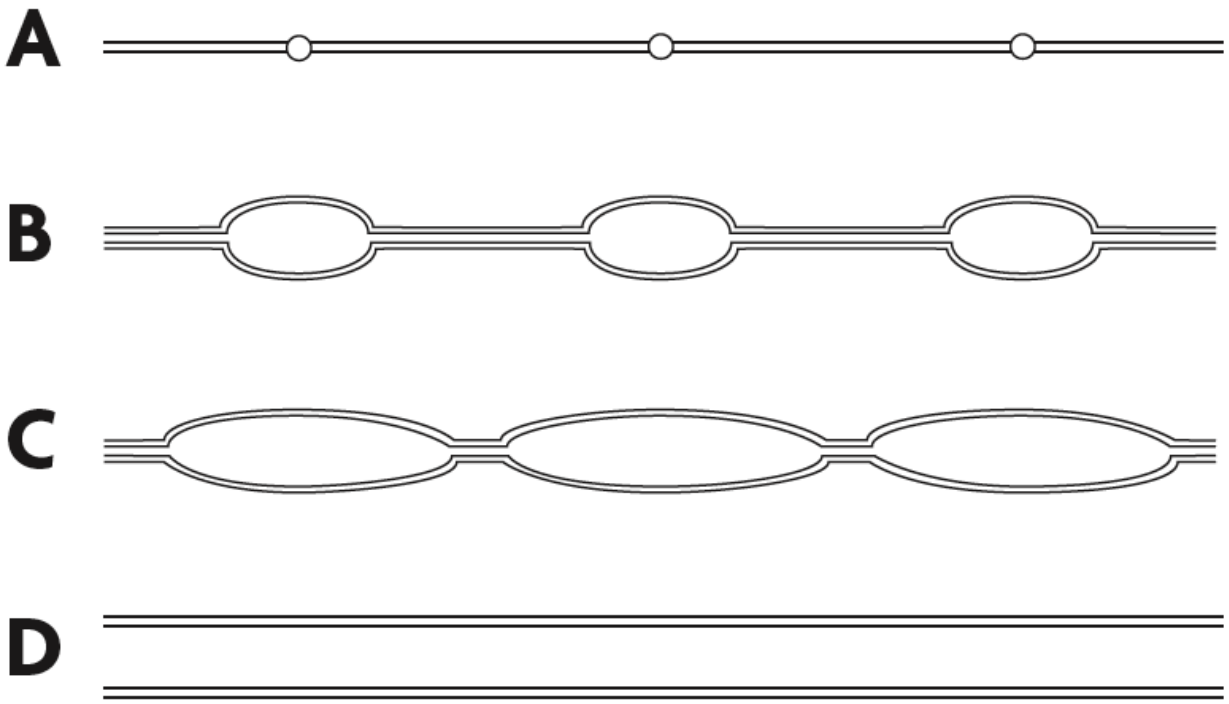
- Two new molecules of DNA are formed, each with an original strand and a newly formed strand.
- DNA replication is semiconservative.



8.3 DNA Replication

Replication is fast and accurate.

- DNA replication starts at many points in eukaryotic chromosomes.



There are many origins of replication in eukaryotic chromosomes.

- DNA polymerases can find and correct errors.