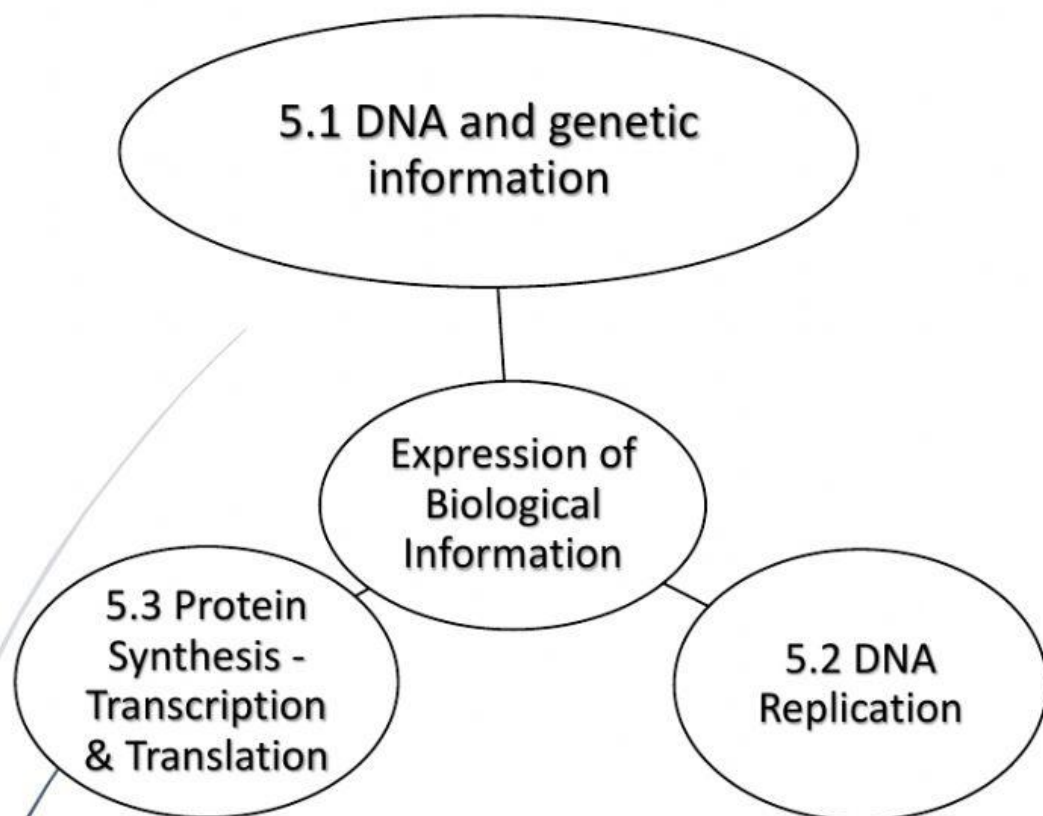


CHAPTER 5

EXPRESSION OF BIOLOGICAL INFORMATION



5.2 DNA REPLICATION

Learning Outcomes

At the end of this lesson, students should be able to:

- Describe** DNA semi-conservative replication of DNA
- State** the enzyme and protein involved in DNA replication
- Describe** the mechanism of DNA replication and the enzyme involved

Exercise 5.2 (a): Complete the table below with the suitable enzyme and protein provided.

• Single strand binding protein	• Primase	• DNA ligase
• DNA polymerase III	• DNA Helicase	• DNA polymerase I
	• Topoisomerase	

Enzymes / protein	Functions
	Untwist & unwind parental DNA strands at replication fork.
	Bind to the unpaired DNA strands, keeping them from re-pairing.
	Breaks, swivels and rejoins the parental DNA ahead of the replication fork, relieving the strain caused by unwinding.
	Synthesize RNA primer, at 5' end of leading strand and of each Okazaki fragment of lagging strand by adding RNA nucleotides to the template.
	Catalyze the synthesis of new DNA by adding DNA nucleotides to a preexisting chain that complementary to the template strand.
	Join DNA fragment (e.g Okazaki fragment) by formation of phosphodiester bond
	Removes RNA nucleotides of primer and replaces them with DNA nucleotides