Tutorial 2: DNA Replication

Answer all questions below.

1. What is a gene, and why must it be duplicated before cell division?
2. Describe the basic structure of DNA as proposed by Watson and Crick.
3. Explain the process of semiconservative replication in DNA replication.
4. What is the role of DNA helicase in DNA replication?
5. What is the significance of Okazaki fragments, and how are they joined together?
6. Why are RNA primers necessary during DNA replication?

1. Gene is the unit of heredity. The gene of the original cell must be duplicated before cell division because each cell needs a complete set of genes.

2. Watson and Crick proposed that DNA is a double helix structure.

3. Semiconservative replication is the process when a parental DNA is replicate, the daughter DNA consists of one original strand and one new strand.

4. DNA helicase play the role to unwound double helix DNA become two strands.

5. Okazaki fragments is the small section of discontinuous DNA formed by DNA polymerase III at lagging strand.
DNA polymerase I fill in the gaps between Okazaki fragments and DNA ligase joins the DNA together.

6. RNA primers is necessary to provide a starting point for DNA polymerase III to build DNA strand.