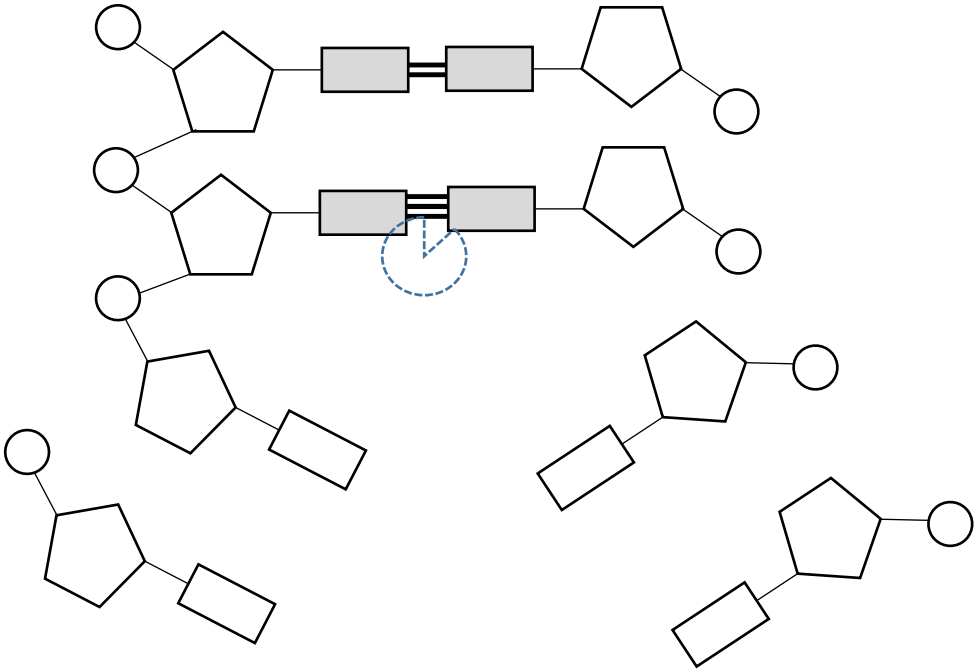
DNA REPLICATION – HL



1. Draw the missing bonds. Name the type of bond you drew. _____ - _____.

2. Label the bases shaded gray. Name the type of bond between them. _____.

3. Label one circle and one pentagon. Together, they form the _____-_____ backbone.

4. _____ enzyme separates DNA into two separate strands by breaking the ___-_____ between _____ _____ _____. This causes strain which is relieved by _____ _____. The strands are held apart by _____ _____ _____ proteins which prevent reformation of ___ - _____.

5. On the _____ strand, _____ _____ _____ adds free _____ in the ____ to ____ direction. Label this strand on the diagram.

6. On the lagging strand, it is not easy for _____ _____ _____ to move in the ____ to _____ direction. Therefore, _____ _____ must add _____ _____ . This allows _____ _____ _____ to add free _____ nucleotides as before. There are segments of DNA formed between _____ _____. These are called _____ fragments. The _____ _____ are removed by _____ _____ ____ and replaced with DNA.

7. DNA replication is _____-_____ because half of each new molecule came from the original molecule. This was discovered by two researchers named _____and _____ using isotopes of _____.

8. DNA replication can take place artificially in the laboratory. This is called the _____ chain _____. It _____ small samples of DNA, so they can be used for purposes such as determining _____ and who might have committed a crime. In this process, the DNA is _____, which breaks the _____ _____. Then _____ enzyme from _____ _____ is used. It does not _____ at high _____ because these organisms evolved by heat vents.

9. Originally, researchers were not sure if it was the DNA or the protein that was the genetic material. _____ and _____ conducted a study using radioactively labelled _____ and _____. This is because protein contains _____, but DNA doesn't, and because DNA contains _____ but protein doesn't. It was concluded that DNA is _____ the _____, so must be the genetic material.

