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Chapter 13: DNA & Chapter 14: RNA

Chapter Review Packet (Pgs.410-431);(438-465)

SC.912.L.16.3: Describe the basic process of DNA replication and how it relates to the transmission and conservation of the genetic information.

SC.912.L.16.4: Explain how mutations in the DNA sequence may or may not result in phenotypic change. Explain how mutations in gametes may result in phenotypic changes in offspring.

SC.912.L.16.5: Explain the basic processes of transcription and translation, and how they result in the expression of genes.

SC.912.L.16.9: Explain how and why the genetic code is universal and is common to almost all organisms.

**Vocabulary:**

Transformation-

Bacteriophage-

Base pairing-

Replication-

DNA polymerase-

Telomere-

RNA-

Messenger RNA-

Ribosomal RNA-

Transfer RNA-

Transcription-

RNA Polymerase-

Promotor-

Intron-

Exon-

Polypeptide-

Genetic code-

Codon-

Translation-

Anticodon-

Operon-

Operator-

Differentiation-

Hox gene-

Mutation-

Point mutation-

Frameshift mutation-

Mutagen-

Polyploidy-

**Questions:**

What are the three key roles of DNA? (HINT: find the keys)

1.

2.

3.

List the chemical components of DNA, and draw the diagram seen on page 419.

Explain the process of replication. When a DNA molecule is replicated, how do the new molecules compare with the original molecule?

How are RNA and DNA similar? How do they differ?

Describe how the cell uses both DNA and RNA to direct protein synthesis:

How do ribosomes use mRNA and tRNA to assemble proteins? Draw a diagram of this process from page 448 in the book.

Why are master control genes almost universal and common to different organisms?

Describe the ways mutations can affect DNA and chromosomes.

What are the possible ways that a mutation may affect an organism?