Transcription and Translation Templates

DNA Extraction Protocol

DNA Structure and ReplicationTranscription

Translation.doc

**Workshop I**

Nucleic Acids

DNA and RNA structure and function

DNA Replication

RNA Transcription

RNA Translation and protein synthesis

PCR and how it is used

Learning Objectives:

Upon successful completion of the session, the attendee should:

1. Understand the basic structures of DNA and RNA and be able to describe the similarities and differences between the two molecules

2. Know how DNA replication occurs and the importance of complementary base pairing

3. Be able to explain the process whereby DNA sequence is used to as a template to synthesize proteins

4. Understand what PCR is and how it is used in many areas of science

5. Be familiar with different laboratory techniques to teach these concepts to students

**Workshop II**

Cell Division

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Somatic cells - Stages of mitosis and cytokinesis

Gametes - Stages of meiosis

Genetics and Heredity

Mendel's Laws of Inheritance

Genotype and Phenotype

Use of Punnett squares to solve genetics problems

Learning Objectives:

Upon successful completion of the session, the attendee should:

1. Be able to explain the stages of mitosis and meiosis and compare and contrast the two processes

2. Understand how traits are passed from parents to offspring

3. Be able to explain what genotype is and how it relates to phenotype

4. Be able to use Punnett Squares to solve genetics problems

5. Be familiar with different laboratory techniques to teach these concepts to students

**Workshop III**

Evolution, Classification, and Diversity

Population changes from generation to generation - natural selection, artificial selection, genetic drift

Relationship between evolution and classification Identification of living organisms and construction of a key Diversity in plant form- what part of the plant do we eat?

Learning Objectives:

Upon successful completion of the session, the attendee should:

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Understand how natural selection, artificial selection, and genetic drift can influence population structure and explain how these processes result in evolution

Understand that current classifications of living organisms are based on evolution and be able to use and

construct keys to identify organisms

Understand how evolution has resulted in diversity that we see every day at the grocery store and on the dinner table

Be familiar with different laboratory techniques to teach these concepts to students

3