Biology K Lesson Plans Unit 5 19-20

UNIT OBJECTIVES: TEKS

Teachers: Amanda Jenkins, Kristi Coleman, Kim Morgan, Kristin Boggs, Mary Scorsone, DeAnna Appling, Sean Brooks and Jonathon Cummings

In Biology, traits are defined as specific characteristics or features in organisms. The variation we see in populations is the result of recombination, mutations, and environmental effects. More specifically, variation is due to differences in the nucleotide sequences of individuals for the same gene. Genes are expressed when a gene has been transcribed and translated (the code in DNA has been "read" and converted into a "real" trait).

The process of gene expression describes how the genotype for a trait is expressed as a phenotype. There are two main factors that determine an organism's phenotype (expressed traits): protein synthesis (from genotype) and the environment. Protein synthesis is the process of converting information stored in DNA into amino acid chains that form proteins. The two basic steps of this process are transcription and translation. Transcription converts the genetic code of DNA into messenger RNA molecules and translation uses that information to build amino acid chains. Gene expression is also influenced by genes being turned "on" or "off" to regulate their use in protein synthesis. Internal as well as environmental factors influence the activation and repression of genes.

Mutations result when there are changes to a cell's DNA sequence. By changing DNA sequences, mutations can change how genes are expressed from one organism to another in a population, or how genes are expressed in one generation to the next. Changes to DNA sequences change codons which may result in changes to amino acid sequences (or may result in no gene expression at all). When amino acid sequences change, the shape of the protein produced during gene expression is changed, which can affect the function. Whether this benefits an organism or not depends primarily on the environment.

TEKS
(6)The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics
6.A ~~identify components of DNA~~, identify how information for specifying the traits of an organism is carried in the DNA, ~~and examine scientific explanations for the origin of DNA~~
6.C explain the purpose and process of transcription and translation using models of DNA and RNA
6.D recognize that gene expression is a regulated process
6.E identify and illustrate changes in DNA and evaluate the significance of these changes

Unit Calendar: NOVEMBER

Monday	Tuesday	Wednesday	Thursday	Friday
			7 Unit 4 TEST	8 Protein Synthesis Notes
11 Cont. Protein Synthesis Protein Synthesis WS (DG) Homework if needed	12 Day 1 Protein Synthesis LAB (AS) ~chart and color	13 Day 2 Protein Synthesis LAB ~assemble protein & questions	14 Complete Protein Syn lab CHNOPS (Any 2= 1 worksheet front/back)	15 Protein Synthesis Quiz (DG) CHNOPS (Any 2= 1 worksheet front/back)
18 Mutation Notes Mutation WS (DG)	19 Karyotype TABLE Activity (NG) Chromosomal Mutations Color WS (DG)	20 Karyotype cut and paste	21 Review	22 Unit 5 TEST
25 THANKSGIVING BREAK	26 THANKSGIVING BREAK	27 THANKSGIVING BREAK	28 THANKSGIVING BREAK	THANKSGIVING BREAK