**Alignment with Texas Essential Knowledge and Skills (TEKS)**

This unit addresses the following Mathematics and Science TEKS:

Science TEKS:

**§112.34. Biology, Beginning with School Year 2010-2011**

(c) Knowledge and skills.

(2) Scientific processes. The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:

(E) Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology;

(F) Collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, cameras, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures;

(G) Analyze, evaluate, make inferences, and predict trends from data; and

(H) Communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.

(6) Science concepts. The student knows the mechanisms of genetics, including the role of nucleic acids and the principles of Mendelian Genetics. The student is expected to:

(A) Identify components of DNA, and describe how information for specifying the traits of an organism is carried in the DNA;

(D) Recognize that gene expression is a regulated process;

(F) Predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance;

(7) Science concepts. The student knows evolutionary theory is a scientific explanation for the unity and diversity of life. The student is expected to:

(C) Analyze and evaluate how natural selection produces change in populations, not individuals;

(D) Analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success;

(E) Analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species;

Math TEKS:

**§111.32. Algebra I (One Credit).**

(b) Knowledge and skills.

(1) Foundations for functions. The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways. The student is expected to:

(A) Describe independent and dependent quantities in functional relationships;

(B) Gather and record data and use data sets to determine functional relationships between quantities;

(C) Describe functional relationships for given problem situations and write equations or inequalities to answer questions arising from the situations;

(D) Represent relationships among quantities using concrete models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities; and

(E) Interpret and make decisions, predictions, and critical judgments from functional relationships.

(2) Foundations for functions. The student uses the properties and attributes of functions. The student is expected to:

(A) Identify and sketch the general forms of linear (y = x) and quadratic (y = x2) parent functions;

(B) Identify mathematical domains and ranges and determine reasonable domain and range values for given situations, both continuous and discrete;

(C) Interpret situations in terms of given graphs or creates situations that fit given graphs; and

(D) Collect and organize data, make and interpret scatterplots (including recognizing positive, negative, or no correlation for data approximating linear situations), and model, predict, and make decisions and critical judgments in problem situations.

(5) Linear functions. The student understands that linear functions can be represented in different ways and translates among their various representations. The student is expected to:

(A) Determine whether or not given situations can be represented by linear functions;

(B) Determine the domain and range for linear functions in given situations; and

(C) Use, translate, and make connections among algebraic, tabular, graphical, or verbal descriptions of linear functions.

(6) Linear functions. The student understands the meaning of the slope and intercepts of the graphs of linear functions and zeros of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations. The student is expected to:

(A) Develop the concept of slope as rate of change and determine slopes from graphs, tables, and algebraic representations;

(B) Interpret the meaning of slope and intercepts in situations using data, symbolic representations, or graphs;

(C) Investigate, describe, and predict the effects of changes in m and b on the graph of y = mx + b;

(D) Graph and write equations of lines given characteristics such as two points, a point and a slope, or a slope and y‑intercept;

(E) Determine the intercepts of the graphs of linear functions and zeros of linear functions from graphs, tables, and algebraic representations;

(F) Interpret and predict the effects of changing slope and y-intercept in applied situations; and

(G) Relate direct variation to linear functions and solve problems involving proportional change.

(9) Quadratic and other nonlinear functions. The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions. The student is expected to:

(D) Analyze graphs of quadratic functions and draw conclusions.