8th Grade Science Curriculum Bundle #11

Title	Suggested Dates
Adaptation & Genetics	4/19-5/7 (12 days)

Big Idea/Enduring Understanding	Guiding Questions
The continuity of life is based on heritable information in the form of DNA. Traits of organisms are passed from generation to generation according to genetic principles.	How are organisms structured to ensure efficiency and survival? What is the difference between traits that are inherited versus those that result from the interactions within the environment? Why am I taller than my whole family?

The resources included here provide teaching examples and/or meaningful learning experiences to address the District Curriculum. In order to address the TEKS to the proper depth and complexity, teachers are encouraged to use resources to the degree that they are congruent with the TEKS and research-based best practices. Teaching using only the suggested resources does not guarantee student mastery of all standards. Teachers must use professional judgment to select among these and/or other resources to teach the district curriculum.

Knowledge & Skills with Student Expectations	Specificity & Examples	Suggested Resources (Read the note above)
8.11 The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organisms. 8.11A Identify that change in environmental conditions can affect the survival of individuals and of species	Including: --- Adaptations are structures or behaviors that increase a species' (population's) ability to survive. • Natural events • Competition/loss of habitat/food • Human impact --- Individual organisms live or die, only species (populations) adapt • Natural selection/Survival of the Fittest • Evolution • Darwin's finches	**VOCABULARY:** evolution, adaptation, natural selection, ratios, chromosomes, probability, chromosome, gene, allele, dominant, recessive, homozygous, heterozygous, inherited traits, monohybrid, genotype, phenotype, offspring, habitat, population, and Punnett Square. AVID Activity- Writing in Science pages 22-23 "Pre-write and Quickwrite" **CORE PREAP:** LTF # 8: Baby Dice Island Life/Earth p. 334 Owl Family Survival
8.11 The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organisms. 8.11C Make predictions about possible outcomes of various genetic combinations of inherited characteristics.	Including: --- Draw Punnett squares and use them to predict phenotype and genotype of monohybrid crosses. • Probability • Ratios/Percentages • Chromosome • Allele --- Distinguish between dominant and recessive traits	**CORE ACTIVITY:** Bikini Bottom Genetics **CORE PREAP:** Bikini Bottom Genetics-Dihybrid Crosses **CORE ACTIVITY:** Bean Genes Lab **CORE PREAP:** LTF # 14: Bean Bunny Evolution Life/Earth p. 413 Fingerprinting Lab How Does Chance Influence Genetics

8th Grade Science Curriculum Bundle #11

	--- Distinguish between homozygous/pure and heterozygous/hybrid --- Identify some characteristics that can be passed on (inherited) from parents to offspring --Monohybrid crosses --Genotype --Phenotype	Punnet Square Power point Like Moths Around a Flame Plastic Egg Genetics **Holt Math Skills for Science** #50: Punnet Square Popcorn PREAP Only: Phenotypes and Genotypes of Dihybrid Crosses
8.1 The student conducts field and laboratory investigations using safe, environmentally appropriate and ethical practices. 8.1A Demonstrate safe practices during field and laboratory investigations.	Including: --- Lab Cleanup Procedures --- Chemical and waste disposal --- Equipment cleaning and storage ---Safety contract In accordance with the Texas Safety Standards: Pflugerville ISD :: Online Curriculum :: Science Teacher Note: Safety skills and process TEKS should be embedded and reinforced throughout the year.	Texas Safety Standards
8.2 The student uses scientific inquiry methods during fields and laboratory investigations. 8.2C Organize, analyze, evaluate, make inferences, and predict trends from direct and indirect evidence.	Including: --- graph interpretation and extrapolation --- predicting outcomes based on data tables (Punnett Squares)	AVID Activity- Writing in Science pages 29-30 "Comparative Analysis"
8.2 The student uses scientific inquiry methods during fields and laboratory investigations. 8.2D Communicate valid conclusions.	Including: --- Experimental conclusions --- Supporting conclusions with data --- Analyze error sources and fix experiment to reduce outside variables --- Graph/Chart/Table extrapolation for conclusion --- Analysis of graphs	AVID Activity- Reading in Science pages 111-132 " Additional Active Reading Graphic Organizers"
8.2 The student uses scientific inquiry methods during fields and laboratory investigations. 8.2E Construct simple graphs, tables, maps, and charts using tools including computers to organize, examine and evaluate data.	Such as: --- Bar graphs, line graphs, pie charts, data tables and determine which is best for each set of data.	
8.3 Uses critical thinking and scientific problem solving to make informed decisions	Teacher Note: Do a current event impact analysis that looks at how scientific research has impacted thought, society and the environment. Such as how the	AVID Activity: Writing in Science page 24 "Brief Autobiography".

8th Grade Science Curriculum Bundle #11

8.3D Evaluate the impact of research on scientific thought, society, and the environment.	manipulation and enhancement of genetic material has produced GMOs.	
8.3 Uses critical thinking and scientific problem solving to make informed decisions 8.3E Connect Grade 8 science concepts with the history of science and contributions of scientists.	Such as: --- Mendel, Wallace, Darwin, Crick, Watson, Franklin McClintok, Leloir	Mendel Background Power point
8.4 Knows how to use a variety of tools and methods to conduct science inquiry. 8.4A Collect, record, and analyze information using tools including beakers, petri dishes, meter sticks, graduated cylinders, weather instruments, hot plates, dissecting equipment, test tubes, safety goggles, spring scales, balances, microscopes, telescopes, thermometers, calculators, field equipment, computers, computer probes, water test kits, and timing devices.	Such as: ---Microscope and slides *Use appropriate tools to collect, record, and analyze information, including lab journals/notebooks, anemometers, psychrometers, spectroscopes, and other equipment as needed to teach the curriculum.*	
8.4 Knows how to use a variety of tools and methods to conduct science inquiry. 8.4B Extrapolate from collected information to make predictions.	Such as: --- extrapolating using graph and data tables to predict expected results.	