



Reavis High School
Curriculum Snapshot/Cover Page for ELL Biology



Unit 1: Scientific Skills and Lab Safety Procedures

15
Days

Students will identify science process skills, recognize, and read tools used to collect data. Students will analyze data, communicate results, and make predictions. Students will learn basic safety procedures to be followed in the lab and read the history of microscopes, its parts and functions, and operation.



Unit 2: Scientific Investigation

15
Days

Students will identify the steps of the scientific method, learn how to identify problem, form a hypothesis, design and carry out an experiment. Students will understand how to differentiate a control group from an experimental group and be able to identify the independent variable and dependent variable of an experiment. Students will learn different ways to record and analyze data and become familiar with stating a conclusion and writing a report.



Unit 3: Characteristics of Living Things

15
Days

Students will define the branches of life science, list the characteristics and needs of living things, and describe how different organisms demonstrate each characteristic. Students will give examples of how organisms meet their needs and describe the properties of life.



Unit 4: Cell Structure and Function

20
Days

Students will learn and explain cell theory, identify the function of each part of a cell, and compare/contrast plant cells and animal cells. Students will explain the role of each cellular organelles, relate cell shapes to their functions, and differentiate between prokaryotic and eukaryotic cell division. Students will describe the three stages of interphase, mitosis and cytokinesis. Students will define the processes of: diffusion, osmosis, active and passive transport, and cell division.



Unit 5: Cell Division and DNA

20
Days

Students will explain and define gamete, describe the type of cell division called meiosis, and define the molecular makeup of DNA. Students will explain the role of DNA in living organisms and describe one method used to produce new DNA.



Unit 6: Genetics and Heredity

20
Days

Students will describe how genes and chromosomes are involved in heredity, explain the difference between dominant and recessive traits, and identify differences in the traits of parents and their offspring. Students will model inheritance of genes, describe incomplete dominance and codominance, and explain how chromosomes in a sperm cell determine the gender of offspring and how certain traits are inherited along with sex chromosomes. Students will identify some inherited diseases and explain how the living conditions of an organism affect the way it develops. Students will learn about the different methods of controlled breeding and apply the concept of probability to dog breeding.



Unit 7: Natural Selection

15
Days

Students will define evolution, explain how organisms change because of adaptations and mutations, and learn how different kinds of fossils are formed. Students will describe the evidence that is used to support the theory of evolution, explain Darwin's theory of natural selection, and define the ways in which the environment affects natural selection. Students will describe ways that humans have changed over time and recognize periods of the geologic time scale.



Unit 8: Classification

15
Days

Students will explain classification and its levels, describe how binomial nomenclature is used to name organisms. Students will recognize characteristics unique to each kingdom of life and use those characteristics to classify organisms accordingly. Students will know the seven levels of biological classification. Students will be able to identify some Latin and Greek word parts used to name organisms and relate the meanings of the words to the organisms' characteristics. Students will be able to use a dichotomous key to determine the classification of an organism.



Unit 9: Ecosystems

15
Days

Students will describe how organisms interact with their environments and the parts of an ecosystem, explain how organisms may have the same habitat but not the same niche, and discuss what affects population size. Students will understand the key features of an ecosystem, distinguish between primary and secondary succession, and describe different biomes. Students will explore how insulation regulates the temperature of water, describe how communities of organisms develop and distinguish between renewable and nonrenewable natural resources, and identify negative effects of deforestation.



Unit 10: Populations

15
Days

Students will identify producers and different feeding levels of consumers in an ecosystem, explain and construct food chains, food webs, and energy pyramid. Students will model the rate of decomposition and describe the three types of symbiotic relationships and some adaptations of organisms.



Unit 11: Life Cycles

10
Days

Students will explain the water cycle, the carbon cycle, and the nitrogen cycle, recognize the effect of changes in environment, and recognize ways in which life supports Earth.