



Course Name: Biology
School Year: 2021 - 2022

Course Purpose and Relevance:

In Biology, students conduct laboratory and field investigations, use scientific practices during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Biology study a variety of topics that include: structures and functions of cells and viruses; growth and development of organisms; cells, tissues, and organs; nucleic acids and genetics; biological evolution; taxonomy; metabolism and energy transfers in living organisms; living systems; homeostasis; and ecosystems and the environment.

Overview of Student Outcomes:

- The student, for at least 40% of instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices
- The student uses scientific practices to solve investigative questions.
- The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom.
- The student knows that cells are the basic structures of all living things with specialized parts that perform specific functions and that viruses are different from cells.
- The student knows how an organism grows and the importance of cell differentiation.
- The student knows the mechanisms of genetics such as the role of nucleic acids and the principles of Mendelian and non-Mendelian genetics.
- The student knows evolutionary theory is a scientific explanation for the unity and diversity of life.
- The student knows that taxonomy is a branching classification based on the shared characteristics of organisms and can change as new discoveries are made.
- The student knows the significance of various molecules involved in metabolic processes and energy conversions that occur in living organisms.
- The student knows that biological systems are composed of multiple levels.
- The student knows that biological systems work to achieve and maintain balance.
- The student knows that interdependence and interactions occur within an environmental system.

Available Support for Student Learning:

Refer to the teacher's Course Syllabus for resources and course specific opportunities.
Student textbook and/or digital version are available through the CCISD Student Portal.

Link to Course TEKS on State website:

<http://ritter.tea.state.tx.us/rules/tac/chapter112/ch112c.html#112.33>

Year-At-A-Glance 2021-2022	Department	Science	PEIMS Code	
	Subject Area	Biology	Grade Level	9-12

	1st Nine Weeks	2nd Nine Weeks
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	August	September	October	November	December
Week 1		Biomolecules B.9A Function	Cell Structure and Function B.4A, B.4B, B.10C Review Homeostasis & Processes 9 Weeks Exam End of 1 st 9 Weeks	Protein Synthesis (Gene Expression) B6C Transcription & Translation <i>Spiraling Concepts for Protein Synthesis</i> <i>Nucleic Acids, Proteins, Enzymes, Nucleus, Ribosomes, ER, Golgi</i>	Cell Cycle B.5A Disruptions to the Cell Cycle Semester Exam Review
Week 2		Biomolecules B.6A, B.6B, B9C Nucleic Acids: Importance and Structure Enzymes	Cellular Energy Conversions B.4B, B.9A, B.9B Respiration and Photosynthesis <i>Spiraling Concepts for Energy</i> <i>Carbohydrate, Chloroplast vs Mitochondria</i>	Protein Synthesis B.6E, B.5B, B.6A, B.6D Mutation Differentiation & Gene Expression	<u>14</u> Semester Exams
Week 3	Safety and Scientific Skills B1 – B4 Safety	Biomolecules B.6A, B.6B, B9C Enzymes	Cellular Transport B.4B, B.9A Cell Membrane Cell Transport <i>Spiraling Concepts for Transport</i> <i>Lipids, Proteins, Membranes</i>	Cell Cycle B.5A Cell Cycle, Replication <i>Spiraling Concepts for Cell Cycle</i> <i>Nucleic Acids, Nucleus,</i>	<u>21</u> Winter Holidays
Week 4	Safety and Scientific Skills B1 – B4 Observations and Data	Cell Structure and Function B.4A, B.4B, B.10C Levels of Organization Prokaryote vs Eukaryote and Structure and Function Review Homeostasis & Processes	Cellular Transport B.4B, B.9A Cell Transport	Thanksgiving Break	<u>28</u> Winter Holidays
Week 5	Safety and Scientific Skills B1 – B4 Conclusions, Inference Experimental Design			Cell Cycle B.5A Mitosis	

Week is based on the month that the first day of the week occurs.

Year-At-A-Glance	Department	Science	PEIMS Code	03060800
	Subject Area	Biology	Grade Level	9-12

3 rd Nine Weeks			4 th Nine Weeks		
	January	February	March	April	May
Week 1	Semester Exam Data Analysis	Natural Selection B.7E Drift, Flow, Recombination	Plant Systems B.12D Cycles 9 Weeks Exam End of 3 rd Nine Weeks	Matter and Energy Flow B.12A Relationships Environmental Changes B.12E Changes and Stability	STAAR Exam Bridge to Chemistry
Week 2	Genetics B.6G Meiosis, Mendelian Genetics <i>Spiraling Concepts for Genetics</i> <i>Gene Expression/Protein Synthesis</i> <i>Cell Cycle with Meiosis (comparing)</i> <i>DNA Structure and Mutations</i>	Taxonomy B.4C, B.8A, B.8B, B.8C, B.10C Taxonomy, Domains and Kingdoms Non-cellular Viruses	Spring Break	Environmental Changes B.11B, B.12B Succession, Variation/Adaptation <i>Spiraling Concepts for Env. Changes</i> <i>Adaptations/Nat. Selection, Homeostasis</i>	Bridge to Chemistry
Week 3	Genetics B.6F Mendelian Genetics	Taxonomy B.4C Non-cellular Viruses Plant Systems B.10B Transport	Animal Systems B.10A, B.10C, B.11A Interactions of Systems Microorganisms and the Body <i>Spiraling Concepts for Animal Sys</i> <i>Respiration, Cell Transport, Gene Expression, Levels of Organization</i> <i>Biomolecules - Enzymes</i>	STAAR Review	Bridge to Chemistry
Week 4	Genetics B.6F Non-Mendelian Genetics	Plant Systems B.10B, B.10C Reproduction, Response <i>Spiraling Concepts for Plant Sys.</i> <i>Photosynthesis/ Respiration, Cell Transport, Levels of Organization, Cell growth (tropisms), Cell differentiation (xylem and phloem)</i>	Matter and Energy Flow B.10C, B.11A, B.12C Ecology, Biotic/Abiotic Energy and Matter	STAAR Review	Semester Exams
Week 5	Natural Selection B.7A, B.7B, B.7C, B.7D Adaptations and Nat. Selection Evidence of Evolution <i>Spiraling Concepts for Nat. Sel.</i> <i>Mutations, Gene Expression</i> <i>Prokaryote/Eukaryote</i>				