

# Year at a Glance Biology I 2020-2021

## Readiness, Supporting, Process TEKS



1 <sup>st</sup> Grading Period	2 <sup>nd</sup> Grading Period
<p>Classroom Procedures, Introductions, Get to Know You Activities, Safety Protocols, Capturing Kids Hearts Activities</p> <p><b>Review 8<sup>th</sup> Grade TEKS related to Ecology</b></p> <ul style="list-style-type: none"> <li>Abiotic and biotic factors needed by organism and populations in an ecosystem (TEKS 8.11A)</li> <li>Ways organisms and populations compete for the abiotic and biotic factors (TEKS 8.11 A)</li> <li>Effects of short-term and long-term environmental changes affect organisms and traits in populations (TEKS 8.11B)</li> </ul> <p><b>Energy Transformation in the Ecosystem</b></p> <ul style="list-style-type: none"> <li>Energy and matter flow in food chains, webs, pyramid levels (TEKS B.12C)</li> <li>Effects on ecosystem stability based on changes in food webs (TEKS B.12E)</li> <li>Matter and energy of reactants and products of photosynthesis and cell respiration in terms of energy, energy conversion, and matter (TEKS B.9B)</li> <li>Functions of biomolecules (TEKS B.9A)</li> <li>Carbon cycle (TEKS B.12D)</li> <li>Pollution/Natural causes of environmental change (TEKS B.12E)</li> <li>Ecological Succession (TEKS B.11B)</li> <li>Symbiotic relationships, predation, competition (TEKS B.12A)</li> </ul> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>Transportation within plants, including vascular tissues (TEKS B.10B)</li> <li>Plant Tropisms (TEKS B.10B)</li> <li>Plant Hormones (TEKS B.10B)</li> <li>Functions of lipids and proteins as related to plants (Application of TEKS B.9A)</li> <li>Plant Reproduction - Pollination (TEKS B.10B)</li> </ul>	<p><b>Homeostasis in The Cell</b></p> <ul style="list-style-type: none"> <li>Cell theory/ Scientists- Schleiden, Schwann, Virchow, Hooke, Leeuwenhoek, Janssen (TEKS B.3F)</li> <li>Prokaryotic vs Eukaryotic (organelles and functions, mode of reproduction, unicellular/multicellular, autotrophic/heterotrophic, etc.) (TEKS B.4A)</li> <li>Endosymbiotic Theory (TEKS B.4A)</li> <li>Homeostasis - Movement of Materials in cells passive and active transport mechanisms in animals and plant cells (TEKS B.4B) <ul style="list-style-type: none"> <li>Functions of lipids and proteins as it relates to movement of materials in cells (Application of TEKS B.9A)</li> </ul> </li> <li>Levels of organization: molecules → organelles → cells (TEKS B.10C)</li> </ul> <p><b>Homeostasis in the Ecosystem: Effects of Bacteria/Viruses</b></p> <ul style="list-style-type: none"> <li>Quick Review of structure of prokaryotic cell (TEKS B.4A)</li> <li>Structure of viruses (TEKS B.4C)</li> <li>Role of Viruses (TEKS B.4C)</li> <li>Viral reproduction (lytic and lysogenic) (TEKS B.4C)</li> <li>Role of bacteria in both maintaining and disrupting the health of organisms and ecosystems, including the nitrogen cycle (TEKS B.11A, B.12D)</li> <li>Immune response to viruses and bacteria (TEKS B.10A)</li> <li>Integumentary system role in defense of injury and infection (TEKS B.10A)</li> </ul> <p><b>Homeostasis in the Body</b></p> <ul style="list-style-type: none"> <li>Levels of organization: cells → tissues → organs → systems → organism (TEKS B.10C)</li> <li>Compare biomolecule functions: lipids, proteins, and carbohydrates (TEKS B.9A)</li> <li>Food labels and advertisements in respect to biomolecule functions and energy conversion (TEKS B.9A)</li> <li>Investigate role of enzymes (TEKS B.9C)</li> <li>Interactions among systems to perform the following functions: <ul style="list-style-type: none"> <li>Homeostasis/regulation: Passive &amp; active transport in the circulatory, respiratory, and excretory systems (TEKS B.4B , B.10A)</li> <li>Human response to stimuli – nervous, endocrine, and muscular systems (TEKS B.10A)</li> <li>Nutrient absorption – digestive, muscular, and circulatory systems (TEKS B.10A)</li> </ul> </li> </ul>
<b>Formative Assessment (Covers ecology and plants)</b>	<b>District Semester Exam</b>

3 <sup>rd</sup> Grading Period	4 <sup>th</sup> Grading Period
<p><b>Growth and Development in a Cell: DNA / Cell Cycle</b></p> <ul style="list-style-type: none"> <li>• Function of nucleic acids (Review of TEKS B.9A)</li> <li>• DNA Structure (TEKS B.6A) – use model (TEKS B.3E)</li> <li>• Examine explanations for origins of DNA (TEKS B.6A)</li> <li>• Commonality of genetic code (TEKS B.6B)</li> <li>• DNA replication (TEKS B.5A)</li> <li>• Review the role of enzymes related to DNA replication (TEKS B.9C)</li> <li>• Stages and importance of cell cycle: G<sub>1</sub>, S, G<sub>2</sub>, Mitosis (TEKS B.5A)</li> <li>• Disruptions to cell cycle: one example is cancer (TEKS B.5C)</li> <li>• Scientists- Watson, Crick, Franklin, (TEKS B.3F)</li> </ul> <p><b>Growth and Development in the Body:</b></p> <p><b>Meiosis/Reproduction</b></p> <ul style="list-style-type: none"> <li>• Significance of Meiosis (TEKS B.6G)</li> <li>• Cell differentiation (TEKS B.5B)</li> <li>• Human Reproduction - Specialized tissues &amp; functions (TEKS B.10A)</li> <li>• Interactions among systems to perform the following functions: Reproduction: Reproductive, endocrine, nervous, muscular, and circulatory systems (TEKS B.4B, B.10A)</li> </ul> <p><b>Heredity in the Cell: Protein Synthesis, Mutations &amp; Genetics</b></p> <ul style="list-style-type: none"> <li>• Purpose and process of transcription and translation (TEKS B.6C)</li> <li>• Review function of proteins (Review of TEKS B.9A)</li> <li>• Review the role of enzymes related to transcription and translation (TEKS B.9C)</li> <li>• Mutations (TEKS B.6E)</li> <li>• DNA and environmental factors that affect cell differentiation (TEKS B.5B)</li> <li>• Gene expression (TEKS B.6D)</li> <li>• Monohybrid/dihybrid Mendelian crosses and non-Mendelian crosses including sex-linked traits, co-dominance, incomplete dominance (TEKS B.6F)</li> <li>• Scientists- Avery, Hershey/Chase, Mendel (TEKS B.3F)</li> </ul> <p><b>Formative Assessment in last week of grading period</b></p>	<p><b>Classification</b></p> <ul style="list-style-type: none"> <li>• Define taxonomy and why it is important (TEKS B.8A)</li> <li>• Categorize organisms based on similarities and differences. (TEKS B.8B) <ul style="list-style-type: none"> <li>• Use cladograms</li> </ul> </li> <li>• Characteristics of each kingdom (TEKS B.8C)</li> <li>• Compare the functions of 4 biomolecules and how all of them are needed for living things (TEKS B.9A )</li> <li>• Adaptations and variations of organisms w/in ecosystems (TEKS B.12B)</li> <li>• Electrophoresis – use equipment to determine ancestry/relationships (TEKS B.2F)</li> </ul> <p><b>Evolution</b></p> <ul style="list-style-type: none"> <li>• Common ancestry by fossil record, biogeography, homologies: anatomical, structural, developmental (TEKS B.7A)</li> <li>• Cladogram: stasis, gradualism, punctuated equilibrium (TEKS B.7B)</li> <li>• Elements of Natural Selection (TEKS B.7D)</li> <li>• Natural Selection causes change in populations (TEKS B.7C)</li> <li>• How adaptations and diversity affect Natural Selection (TEKS B.7E)</li> <li>• Effects of Evolutionary mechanisms: genetic drift, genetic flow, mutations, recombination (TEKS B.7F)</li> <li>• Scientists – Darwin, Lamarck, Wallace (TEKS B.3F)</li> </ul> <p><b>STAAR EOC Review</b></p> <p><b>STAAR EOC testing</b></p> <p><b>Teacher Choice – Project, dissection, etc.</b></p> <p><b>Review/Semester Exam/Final Project</b></p>

Process standards are taught throughout the year.