



**Course Description**  
**Biology**  
**Streamlined TEKS**

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## Biology Course Description

### Unit: Comparing Prokaryotic and Eukaryotic Cells

Concepts *TEKS: 4A*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students study the similarities and differences between prokaryotic and eukaryotic cells. They learn that one of the main differences between prokaryotic and eukaryotic cells is that eukaryotic cells have a nucleus and membrane bound organelles.
<b>Interactivity</b>	<b>Identify and Classify:</b> In this interactivity, students observe various cells and sort them into prokaryotic and eukaryotic cells based on their characteristics. <i>TEKS- 4A, 2E, 2F, 2G</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Prokaryotic and Eukaryotic Cells unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to know when comparing and contrasting prokaryotic and eukaryotic cells. When complete, students can use this guide as a study guide, and teachers can use it as an assessment piece.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Comparing Prokaryotic and Eukaryotic Cells - <i>TEKS 2E, 2F, 4A</i>
<b>Offline Activity</b>	Comparing Prokaryotic and Eukaryotic Cells Venn Diagram Activity – <i>TEKS 2F, 2H, 3A, 4A</i> <i>Students compare and contrast the characteristics of prokaryotic and eukaryotic cells as they apply acquired knowledge to complete a Venn diagram.</i>

## Unit: Cellular Processes

### Concepts TEKS: 4B

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students learn about the different cellular processes such as energy conversions, synthesis, and transport of molecules, and maintaining homeostasis. They learn about the different mechanisms by which molecules are transported into and out of a cell such as diffusion, osmosis, facilitated diffusion, active transport, and vesicle mediated transport such as endocytosis and exocytosis.
<b>Interactivity</b>	<b>The Cell It!:</b> In this Interactivity, students complete a Venn diagram to compare and contrast active and passive cellular transport mechanisms. They also apply their understanding of the cellular transport mechanisms to identify different transport mechanism. <i>TEKS- 2F, 2G, 2H, 4B</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as a checks-for-understanding of the concepts presented in the Cellular Processes unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to explain cellular processes, including homeostasis, energy conversions, transport of molecules, and synthesis of new molecules. When complete, students can use this guide as a study guide, and teachers can use it as an assessment piece.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Cellular Processes - <i>TEKS 2G, 3A, 4B</i> Journal 2 - Cellular Processes – <i>TEKS 4B</i>
<b>Offline Activity</b>	Cellular Processes: Homeostasis- <i>TEKS 1A, 1B, 2E, 2F, 2G, 2H, 4B</i> <i>In this activity, students investigate osmosis as a process that helps cells maintain homeostasis internally despite changing external conditions.</i>

## Unit: Viruses

### Concepts *TEKS: 4C*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students learn why viruses are considered nonliving. They compare and contrast viruses to prokaryotic and eukaryotic cells. They also learn about the two types of viral reproductive cycles—the lytic and the lysogenic cycles. They understand how viruses cause diseases such as influenza and AIDS and the beneficial uses of viruses in gene therapy.
<b>Interactivity</b>	<b>The Virus Attack:</b> In this interactivity, students complete a schematic representing the lytic reproductive cycle of a virus to test their understanding of the different stages of the lytic cycle. <i>TEKS- 2F, 4C</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Viruses unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students’ attention on information that is essential when comparing the structures of viruses to cells, when describing viral reproduction, when describing the role of viruses in causing certain diseases and in understanding that the characteristics that make viruses unique can be used to our benefit in gene therapy. When complete, students can use this guide as a study guide, and teachers can use it as an assessment piece.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Viruses - <i>TEKS 2G, 3F, 4C</i>  Journal 2 – Viruses - <i>TEKS 4C</i>

## Offline Activity

Viruses Making News- *TEKS 2F, 2G, 2H, 3B, 3D, 4C*  
*In this activity, students use their knowledge and understanding of viruses and scientific evidence to evaluate the use of antiviral medications used to prevent an influenza outbreak.*

## Unit: Cell Cycle

### Concepts *TEKS: 5A*

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students are introduced to the different phases of the cell cycle including the G1, S, and G2 phases of interphase and the four stages of mitosis—prophase, metaphase, anaphase, and telophase.
Simulation	<b>Onion Cry'sis:</b> In this Simulation, students perform a virtual microscopy lab activity. They follow the scientific process to observe and identify onion root tip cells in different stages of the cell cycle. <i>TEKS- 2E, 2F, 2G, 2H, 5A</i>
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Cell Cycle unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to know when describing the stages of the cell cycle, including DNA replication, mitosis, and the importance of the cell cycle to the growth of organisms. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal - Cell Cycle - <i>TEKS 5A</i> Journal – Evaluating Models - <i>TEKS 2G, 3E, 5A</i>

## Offline Activity

Describing Stages in the Cell Cycle – *TEKS 2F, 2G, 5A*  
*In this activity, students apply knowledge of the cell cycle as they sequence and describe the different phases of the cell cycle, including the S phase where DNA replication occurs.*

## Unit: Cell Differentiation

### Concepts *TEKS: 5B*

Lesson Components	Descriptions
Instruction Module	In this IM, students are introduced to the role of gene expression in cellular diversity and complexity in multicellular organisms. Students also learn about the effects of environmental factors such as temperature, light, radiation, and exposure to chemicals on cell differentiation.
Simulation	<b>Nile River Crocodiles:</b> In this simulation, students observe the effect of the environmental factor, temperature, on the sex determination in crocodiles. They hypothesize, observe, collect data, and arrive at a conclusion. <i>TEKS 2E, 2F, 2G, 2H, 5B</i>
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Cell Differentiation unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to understand how environmental factors can affect cell differentiation. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – miRNA and Cell Differentiation - <i>TEKS 2F, 2G, 2H, 3B, 5B</i>

## Offline Activity

Cell Differentiation and lincRNA – *TEKS 2F, 2G, 2H, 3B, 3D, 3F, 5B*  
*In this activity, students research lincRNA using online resources to briefly summarize the history of the discovery of lincRNAs and the role they play in cell differentiation.*

## Unit: Disruption in the Cell Cycle

### Concepts TEKS: 5C

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students learn about the importance of the different phases of the cell cycle of eukaryotic cells. They are introduced to the major checkpoints and proteins that regulate the cell cycle. They also identify the consequences of defects in the cell cycle.
Interactivity	<b>Disruptions in the Cell Cycle:</b> In this interactivity, students sequence the different steps that lead to the development of cancer. <i>TEKS 2F, 2G, 5C</i>
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Disruptions in the Cell Cycle unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential for recognizing that disruptions of the cell cycle can lead to certain diseases such as cancer. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.

<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Disruptions in the Cell Cycle – <i>TEKS 2G, 2H, 5C</i></p>
<p><b>Offline Activity</b></p>	<p>Selecting the Best Sunscreen – <i>TEKS 2F, 2G, 2H, 3C, 5C</i>  <i>In this activity, students will apply knowledge of how disruptions in the cell cycle can lead to diseases, such as skin cancer. Students will use information about the risks associated with UV exposure and the information provided about ingredients and directions for application found on sunscreen product labels to infer, evaluate and record a list of essential criteria to consider when choosing a sunscreen product.</i></p>

## Unit: Molecules of Heredity - DNA

### Concepts TEKS: 6A

Lesson Components	Descriptions
<p><b>Instruction Module</b></p>	<p><b>Molecules of Heredity:</b> In this Instruction Module, students learn to describe the structure of a DNA molecule. They identify the components of a DNA nucleotide. They compare and contrast the structure of an RNA molecule with that of a DNA molecule. They learn about the different experiments that established DNA as the molecule of heredity.</p> <p><b>DNA Replication:</b> In this Instruction Module, students learn that segments of DNA, called genes, store all the information that controls the different traits of an organism. They learn how DNA is replicated and recognize the different steps of DNA replication. They also learn that DNA replication is semiconservative and that each daughter DNA molecule consists of one old strand from the parent DNA and one newly synthesized strand.</p>
<p><b>Interactivity</b></p>	<p><b>Nucleic Acids:</b> In this interactivity, students assume the role of genetic engineer as they apply knowledge of the components of DNA and RNA to construct DNA and RNA molecules.  <i>TEKS 2F, 2G, 6A</i></p> <p><b>DNA Replication:</b> In this interactivity, students assume the role of genetic engineer as they apply knowledge of the components of DNA and RNA to construct DNA and RNA molecules.  <i>TEKS 2G, 6A</i></p>

<p><b>Quiz</b></p>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Molecules of Heredity - DNA unit.</p>
<p><b>Glossary</b></p>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<p><b>Note-taking Guide</b></p>	<p>The Note-taking Guides are used with the Instruction Module to focus student’s attention on information that is essential to identifying the components of DNA and RNA molecules and to describe the process of DNA replication. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Molecules of Heredity- <i>TEKS 2B, 6A</i></p> <p>Journal 2 – Molecules of Heredity- <i>TEKS 6A</i></p> <p>Journal – DNA Replication – <i>TEKS 2G, 2H, 3A, 6A</i></p> <p>Journal 2 – DNA Replication – <i>TEKS 6A</i></p>
<p><b>Offline Activity</b></p>	<p><i>DNA Research Timeline – TEKS 2F, 2H, 3B, 3D, 3F, 6A</i></p> <p><i>In this activity, students research and describe the contributions of various scientists in the discovery of DNA and its role in the study of genetics. Students use the information from their research to create a DNA Timeline. Once complete, students will use their timelines to evaluate the impact of this line of scientific research on society and the environment.</i></p>

## Unit: Universal Genetic Code

### Concepts TEKS: 6B

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students learn that the genetic code is nearly universal in the biological world. They also learn how this universality can be used for agricultural, industrial, and medical benefits.
Simulation	<b>Help the Hospital!</b> : This simulation guides students through the key steps in recombinant DNA technology. It emphasizes the universality of the genetic code and how it can be exploited to manufacture insulin for diabetic patients. TEKS 2E, 2G, 6B
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in The Universal Genetic Code unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to recognize that the components that make up the genetic code are common to all organisms. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Universal Genetic Code – TEKS 2F, 2G, 6B  Journal – Universal Genetic Code Lab Simulation – TEKS 2G, 6B
Offline Activity	Drawing Inferences from Promotional Materials for Services – TEKS 2A, 2F, 2G, 2H, 3B, 3C, 6B <i>Students use critical thinking and draw inferences based on data related to promotional materials for services.</i>

## Unit: Protein Synthesis

### Concepts TEKS: 6C

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students learn how information stored in a gene is used to make the corresponding protein. They learn that a gene is expressed when its information is transcribed onto a messenger RNA molecule. They learn that transcription and translation are the two stages in the synthesis of a polypeptide chain that is then packaged into the respective protein. They recognize the process and the purpose of transcription and translation.
Interactivity	<b>Transcription and Translation:</b> Students learn how information stored in a gene is used to synthesize a protein. <i>TEKS 2F, 2G, 6C</i>
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Protein Synthesis unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus student's attention on information that is essential to explain the purpose and process of transcription and translation. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Protein Synthesis – <i>TEKS 2.G, 6C</i>  Journal 2 - Protein Synthesis – <i>TEKS 6C</i>
Offline Activity	Protein Synthesis Concept Map – <i>TEKS 2F, 2H, 6C</i> <i>In this activity, students use key terms to complete a concept map of the process of protein synthesis.</i>

## Unit: Gene Expression

### Concepts *TEKS: 6D*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students are introduced to the concept of gene expression in which genetic information is used to synthesize proteins and recognize that gene expression is a regulated process. They also learn how genes are expressed in prokaryotic and eukaryotic cells.
<b>Simulation</b>	<b>Switch On, Switch Off:</b> In this simulation, students add different types of nutrient solutions, representing different types of food, to E.coli bacterial cultures and predict how this change in the bacteria's environment will affect expression of the lactose and typtophan operons in the bacterial cells. <i>TEKS 2E, 2F, 2G, 2H, 6D</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Gene Expression unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to recognize that gene expression is a regulated process. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Gene Expression – <i>TEKS 2G, 6D</i>

## Unit: Mutations

### Concepts *TEKS: 6E*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students learn that mutations are nucleotide base sequence errors that can affect single or several genes. They learn that mutations can either be gene mutations or chromosomal mutations. They learn to identify and describe the different kinds of gene and chromosomal mutations. They also learn about the beneficial and harmful effects of different mutations.
<b>Interactivity</b>	<b>Mutations:</b> In this Interactivity, students apply their understanding of the different types of mutations to identify the type of mutation shown. TEKS 2G, 6E
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Mutations unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to identify changes in DNA and evaluate the significance of these changes. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Offline Activity</b>	Letter Mutations – <i>TEKS 6E</i> <i>In this activity, students apply their knowledge of nitrogenous base codes by using an RNA code chart to construct words instead of amino acids.</i>

## Unit: Mendelian Crosses

Concepts *TEKS: 6F*

Lesson Components	Descriptions
Instruction Module	<p><b>Mendelian Monohybrid Crosses:</b> In this Instruction Module, students understand that traits are heritable features. They study monohybrid crosses, first performed by Gregor Mendel to study the pattern of inheritance of a single trait. They also learn how to predict possible outcomes of different monohybrid crosses using Punnett squares.</p> <p><b>Mendelian Dihybrid Crosses:</b> In this Instruction Module, students study Mendelian dihybrid crosses or crosses performed by Gregor Mendel to study the simultaneous inheritance patterns of two traits. They also learn to predict the possible outcomes of different dihybrid crosses using Punnett squares.</p> <p><b>Non-Mendelian Genetics:</b> In this instruction module, students learn that there are many traits that do not follow Mendel’s laws of inheritance. They understand how and why non-Mendelian inheritance is different from Mendelian inheritance. They learn the concepts of incomplete dominance, codominance, multiple allele inheritance, gene linkage, polygenic inheritance and sex-linked inheritance.</p>
Interactivity	<p><b>Going Batty Over Punnett Squares:</b> In this interactivity, students determine the genotype of a given bat specimen using the principles of Mendelian monohybrid crosses. <i>TEKS 2F, 2B, 2H, 6F</i></p> <p><b>Punnett Squares:</b> In this interactivity, students perform dihybrid crosses to investigate the pattern of inheritance of two different traits, simultaneously. <i>TEKS 2F, 2G, 2H, 6F</i></p> <p><b>Crossing Over:</b> In this interactivity, students observe the process of crossing over that occurs during meiosis and study its effects on linked genes. <i>TEKS 2.F, 2G, 6F</i></p>
Quiz	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Mendelian Crosses unit.</p>
Glossary	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>

<b>Note-taking Guide</b>	The Note-taking Guides are used with the Instruction Module to focus students' attention on information that is essential to predict possible outcomes of various genetic combinations, including monohybrid crosses and dihybrid crosses, and to explain non-Mendelian inheritance. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Mendelian Monohybrid Crosses – TEKS 2F, 2G, 2H, 6E</p> <p>Journal – Mendelian Dihybrid Crosses – TEKS 2F, 2G, 2H, 6E</p> <p>Journal – Non-Mendelian Genetics – TEKS 2G, 2H, 6F</p>
<b>Offline Activity</b>	<p>Mendelian Monohybrid and Dihybrid Crosses – TEKS 2F, 2G, 2H, 6E  <i>In this activity, students complete monohybrid crosses using Punnett squares to predict possible outcomes.</i></p> <p>Non-Mendelian Crosses – TEKS 2F, 2G, 2H, 6F  <i>This activity requires students to apply knowledge of predicting possible outcomes of various gene combinations using Non-mendelian crosses to make the predictions.</i></p>

## Unit: Meiosis

### Concepts TEKS: 6G

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students learn that meiosis results in the formation of sex cells or gametes, involved in sexual reproduction. They learn to describe the different stages of meiosis and recognize the significance of meiosis and sexual reproduction in increasing genetic variation.
<b>Interactivity</b>	<b>Phase Off!:</b> In this interactivity, students apply their understanding of meiosis to identify the different stages of meiosis. TEKS 2F, 2G, 6G
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the unit.

<b>Glossary</b>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<b>Note-taking Guide</b>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to recognize and explain the significance of meiosis in sexual reproduction. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Meiosis – <i>TEKS 2G, 2H, 6G</i></p> <p>Journal 2 – Meiosis – <i>TEKS 6G</i></p>

## Unit: Evidence of Common Ancestry

### Concepts *TEKS: 7A*

Lesson Components	Descriptions
<b>Instruction Module</b>	<p>In this Instruction Module, students learn that the evolutionary theory can be used to explain the relationships between organisms. They analyze and evaluate anatomical, biogeographical, embryological, and molecular evidence for common ancestry.</p>
<b>Interactivity</b>	<p><b>Create a Cladogram:</b> In this interactivity, students compare the amino acid sequences in a section of the cytochrome-C protein, of four different organisms with that of a human and construct a cladogram.</p> <p><i>TEKS 2F, 2G, 2H, 7A</i></p>
<b>Quiz</b>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Evidence of Common Ancestry unit.</p>

<p><b>Glossary</b></p>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<p><b>Note-taking Guide</b></p>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to analyze and evaluate how evidence of common ancestry among groups is provided by the use of the fossil record, biogeography, comparative anatomy, embryology, and molecular biology. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Evidence of Common Ancestry – TEKS 2G, 7A</p> <p>Journal - Evidence of Common Ancestry and Biogeography – TEKS 7A</p>
<p><b>Offline Activity</b></p>	<p>Evidence of Common Ancestry- Homologous Structures Activity – TEKS 2F, 2G, 2H, 3F, 7A  <i>Students observe, analyze, and evaluate drawings of homologous structures of 3 different mammals for evidence of common ancestry.</i></p> <p>Hypotheses vs. Theories – TEKS 2B, 2C, 2D, 2F  <i>Students compare and contrast hypotheses and theories and use information that distinguishes hypotheses from theories to complete a Venn diagram.</i></p>

## Unit: Fossils and Evolution

### Concepts TEKS: 7B

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students understand that all the fossils, along with the information about the rock layers they are found in, make up the fossil record. They analyze different scientific explanations for sudden appearance, stasis, and sequential nature of groups in existing fossil records.
<b>Interactivity</b>	<b>Layer 'n Record:</b> In this interactivity, students observe and predict how different geological factors affect fossilization. TEKS 2F, 2G, 2H, 7B
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Fossils and Evolution unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is essential to know when analyzing and evaluating scientific explanations concerning any data of sudden appearance, stasis, and sequential nature of groups in the fossil record. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Fossils and Evolution – <i>TEKS 2G, 2H, 7B</i>  Journal – The Fossil Record: Gradualism vs. Punctuated Equilibrium – <i>TEKS 2G, 2H, 3A, 3B, 3D, 3F, 7B</i>

## Unit: Organisms and Natural Selection

### Concepts TEKS: 7C

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students understand the process of natural selection. They identify traits in individuals and compare variants within a population. They observe and analyze how natural selection can bring about change in a population over time.
<b>Simulation</b>	<b>Modeling Bacterial Drug Resistance:</b> In this simulation, students model the effect of natural selection in the development of penicillin resistance in a sample bacterial population. <i>TEKS 2E, 2F, 2G, 2H, 7C</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Organisms and Natural Selection unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that needed in order to analyze and evaluate how natural selection produces changes in populations and not individuals. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Organisms and Natural Selection – <i>TEKS 2G, 2H, 7C</i>
<b>Offline Activity</b>	Drug Resistant Bacteria – <i>TEKS 2G, 2H, 3A, 7C</i> <i>Students analyze and evaluate how natural selection produces change in populations, not individuals.</i>

## Unit: Factors Leading to Natural Selection

### Concepts *TEKS: 7D*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students understand that natural selection is a process. They identify and describe the factors that can lead to natural selection such as genetic variation in a population, finite supply of resources, and the potential of a population to produce more offspring than can survive. They also learn to describe the effects of natural selection on reproductive success.
<b>Simulation</b>	<p><b>Food for Finches:</b> In this Simulation, students investigate how environmental factors such as availability of different food sources can cause natural selection to act on traits "such as beak size and shape" and change the predominant phenotypes in a population over time.</p> <p>TEKS 2E, 2F, 2G, 2H, 7D</p>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Factors Leading to Natural Selection unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is needed in order to analyze and evaluate how the elements of natural selection, including genetic variation, potential to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success. When complete, this can be used as a study guide and an assessment tool.
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Factors Leading to Natural Selection – <i>TEKS 2G, 2H</i></p> <p>Journal – Natural Selection and Reproductive Success – <i>TEKS 2G, 2H, 3A, 3B, 7D</i></p>

## Unit: Natural Selection and Biological Diversity

### Concepts *TEKS: 7E*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students understand the relationship between natural selection and adaptation. They explain how natural selection, over time, can lead to the formation of new species. They recognize that speciation can occur as a result of reproductive isolation of different populations.
<b>Interactivity</b>	<b>Reproductive Isolation and Speciation:</b> In this interactivity, students observe the different mechanisms of reproductive isolation and identify them. They identify the mode of speciation that occurs as a result of reproductive isolation. <i>TEKS 2G, 2H, 7E</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Natural Selection and Biodiversity unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is needed in order to analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species. When complete, this can be used as a study guide and an assessment tool.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Natural Selection and Biological Diversity – <i>TEKS 2G, 2H, 7E</i>  Journal – Adaptive Radiation and Biodiversity – <i>TEKS 2G, 2H, 3B, 7E</i>

## Unit: Evolutionary Mechanisms

Concepts *TEKS: 7F*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students analyze and evaluate the effects of evolutionary mechanisms other than natural selection such as genetic drift, gene flow, mutation, recombination and nonrandom mating.
<b>Interactivity</b>	<b>What's the Mechanism?:</b> In this interactivity, students observe pictures representing different evolutionary mechanisms and identify the relevant evolutionary mechanism associated with each image. They identify the evolutionary processes of gene flow, mutation, and genetic drift. <i>TEKS 2G, 2H, 7F</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Evolutionary Mechanisms unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information needed in order to analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Evolutionary Mechanisms – <i>TEKS 2G, 2H, 7F</i>  Journal 2 – Evolutionary Mechanisms – <i>TEKS 2G, 2H, 7F</i>

## Offline Activities

1) Analyzing and Evaluating the Effects of Genetic Drift and Recombination – *TEKS 2G, 3A, 3B, 7F*  
 After viewing the instruction module Evolutionary Mechanisms, students will research and then analyze and evaluate the effects of the evolutionary mechanisms of genetic drift and recombination.

2) Analyzing and Evaluating the Effects of Genetic Drift - *TEKS 2G, 2H, 3A, 7F*  
 In this activity, students analyze and evaluate the effect of genetic drift as an evolutionary mechanism on a population of beetles.

3) Analyzing and Evaluating the Effects of Recombination – *TEKS 2G, 2H, 6G, 7F*  
 In this activity, students will analyze and evaluate the effects of recombination as an evolutionary mechanism in the variation of traits between siblings who have the same parents.

## Unit: Biological Classification

### Concepts *TEKS: 8A*

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students are introduced to the concept of taxonomy. They compare old and current taxonomic systems, and explain why a globally standardized system is necessary and important to the scientific community.
Interactivity	<b>Sort the Aliens:</b> In this interactivity, students apply hierarchical classification to choose the best physical characteristics to use to sort the newly discovered organisms into groups. <i>TEKS 2F, 2G, 2H, 8A</i>
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Biological Classification unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.

## Note-taking Guide

The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to compare old and current taxonomic systems and recognize the importance of a standardized taxonomic system to the scientific community. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.

## Journal Entry

The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.

Journal – Biological Classification – *TEKS 2G, 2H, 8A*

Journal – Importance of a Standardized Taxonomic System – *TEKS 2G, 2H, 8A*

## Offline Activities

El Chupacabra: A New Species or Just An Urban Legend? – *TEKS 2A, 2B, 2F, 2G, 2H, 3A, 3B, 8A*

*Students examine scientific evidence to determine whether a new species has been discovered.*

## Unit: Classifying Organisms

Concepts *TEKS: 8B*

### Lesson Components

### Descriptions

## Instruction Module

In this Instruction Module, students learn that the hierarchical system of classification groups organisms into smaller and smaller categories based on increasing similarities in their physical characteristics. They learn that the hierarchical classification also helps to understand the evolutionary relationships between organisms. They also learn that scientists use tools called dichotomous keys to identify and classify organisms at different levels.

## Interactivity

**Classifi-key-tion of Organisms:** In this interactivity, students use hierarchical classification to sort organisms into smaller and smaller groups. Students also use a dichotomous key to identify the order to which four different mammals belong.  
*TEKS 2F, 2G, 2H, 8B*

<p><b>Quiz</b></p>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Classifying Organisms unit.</p>
<p><b>Glossary</b></p>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<p><b>Note-taking Guide</b></p>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to categorize organisms using a hierarchical classification system based on similarities and differences shared among groups. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Classifying Organisms – <i>TEKS 2G, 2H, 8B</i></p> <p>Journal 2 - Classifying Organisms – <i>TEKS 8B</i></p>
<p><b>Offline Activities</b></p>	<p>Design a Dichotomous Key – <i>TEKS 2F, 2G, 2H, 8B</i>  <i>Students design a dichotomous key to classify eight different organisms.</i></p>

## Unit: The Six Kingdom Classification System

### Concepts *TEKS: 8C*

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students learn that all organisms on Earth can be sorted into three domains and further into six kingdoms, namely Eubacteria, Archaeobacteria, Protista, Fungi, Plantae, and Animalia. They learn to compare and contrast the characteristics of organisms in these six kingdoms and also learn about the evolutionary relationships between them.
<b>Interactivity</b>	<b>Tree of Life:</b> In this interactivity, students demonstrate understanding of the organization of the three domains and six kingdoms to complete a phylogenetic tree. <i>TEKS 2F, 2G, 2H, 8C</i>
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in The Six Kingdom Classification System unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to compare characteristics of taxonomic groups, including archaeobacteria, protists, fungi, plants, and animals. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  <i>Journal – The Six Kingdoms – TEKS 2G, 2H, 8C</i>

## Offline Activities

What's in the Water? – TEKS 1A, 1B, 2E, 2F, 2G, 2H, 8C

*Students work in collaborative groups to design a descriptive investigation that involves identifying protists present in samples of water collected from a designated field site.*

## Unit: Biomolecules

### Concepts TEKS: 9A

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students learn that biomolecules are large molecules synthesized by living things. They learn that there are four classes of biomolecules, namely proteins, carbohydrates, lipids, and nucleic acids. They learn about the structure and functions of these biomolecules and learn to compare and contrast their structures and functions.
Interactivity	<b>Biomolecules on My Table:</b> In this Interactivity, students apply their understanding of biomolecules to identify the kinds of biomolecules present in different foods. TEKS 2F, 2G, 9A
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Biomolecules unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to compare characteristics of taxonomic groups, including archaeobacteria, protists, fungi, plants, and animals. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.

<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal 1– Biomolecules – TEKS 2G, 2H, 9A</p> <p>Journal 2- Biomolecules – TEKS 2G, 2H, 9A</p>
<p><b>Offline Activities</b></p>	<p>BioMatch – TEKS 2F, 2G, 2H, 9A</p> <p><i>In this activity, students apply their knowledge of the structure and function of biomolecules to identify images of biomolecules and match them to their descriptions.</i></p>

## Unit: Photosynthesis and Cellular Respiration

### Concepts TEKS: 9B

Lesson Components	Descriptions
<p><b>Instruction Module</b></p>	<p>In this Instruction Module, students learn that photosynthesis and cellular respiration are complex and important life processes. They learn about the different steps in these processes and compare them in terms of their reactants, products, and energy usage.</p>
<p><b>Interactivity</b></p>	<p><b>Photosynthesis and Cellular Respiration:</b> In this interactivity, students label a schematic diagram to show the relationship between the processes of photosynthesis and cellular respiration. TEKS 2F, 2G, 2H, 9B</p>
<p><b>Quiz</b></p>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Photosynthesis and Cellular Respiration unit.</p>
<p><b>Glossary</b></p>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>

## Note-taking Guide

The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to compare the reactants and products of photosynthesis and cellular respiration in terms of energy and matter. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.

## Journal Entry

The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.

Journal – Photosynthesis and Cellular Respiration – *TEKS 2G, 2H, 9B*  
 Journal 2 - Photosynthesis and Cellular Respiration – *TEKS 2G, 2H, 9B*

## Unit: Enzymes

### Concepts *TEKS: 9C*

#### Lesson Components

#### Descriptions

#### Instruction Module

In this Instruction Module, students learn that enzymes are biological catalysts that speed up biochemical reactions. They learn how enzymes work to speed up reactions. They also learn to analyze and evaluate the effects of different environmental factors such as temperature and pH, and of chemicals such as cofactors and inhibitors, on enzyme activity.

#### Interactivity

**EnzyMatix:** In this Interactivity, students apply their understanding of how enzymes work to identify components of different enzyme catalyzed reactions.  
 . *TEKS 2F, 2G, 2H, 9C*

#### Quiz

This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Enzymes unit.

#### Glossary

The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.

<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to identify and describe the role of enzymes. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal 1 – Enzymes – TEKS 2F, 2G, 2H, 9C</p> <p>Journal 2 – Enzymes - TEKS 2F, 2G, 2H, 9C</p>
<b>Offline Activity</b>	<p>Temperature's Effect on Enzyme-Catalyzed Reactions – TEKS 1A, B, 2E, 2F, 2G, 2H, 9C</p> <p><i>Students work in collaborative groups to plan and implement an experimental investigation to determine the effect of temperature change on the rate of an enzyme-catalyzed reaction.</i></p>

## Unit: Biological Systems

Concepts TEKS: 10A, B, C

Lesson Components	Descriptions
<b>Instruction Module</b>	<b>Structural Hierarchy in Biological Systems:</b> In this Instruction Module, students are introduced to the various levels of organization in living systems including cell, tissue, organ, organ system, and organism. They identify and describe the interactions between the systems involved in regulation, nutrient absorption, reproduction, and defense in animals. They identify and describe the interactions between the systems involved in transport, reproduction, and response in plants.
<b>Interactivity</b>	<b>Organ Systems:</b> In this interactivity, students identify the different organ systems that interact to perform a specific function. TEKS 2F, 2G, 2H, 10A, B, C
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Structural Hierarchy in Biological Systems unit.

<p><b>Glossary</b></p>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<p><b>Note-taking Guide</b></p>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary to describe interactions that occur among systems that perform the functions of regulation, nutrient absorption, reproduction, and defense from injury or illness in animals, and functions of transport, reproduction, and response in plants; and to information that is necessary to analyze the levels of organization in biological systems, to relate the levels to each other and to the whole system. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<p><b>Journal Entry</b></p>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Structural Hierarchy in Biological Systems – <i>TEKS 2G, 2H, 10A, B, C</i></p>
<p><b>Offline Activity</b></p>	<p>Interaction of Transport and Response Systems in Plants – <i>TEKS 1A, B, 2A, 2B, 2E, 2F, 2G, 2H, 10A, B, C</i>          Students plan and implement a comparative investigation to determine how plant systems interact when exposed to certain stimuli.</p> <p>Organ System Interactions in Animal Reproduction – <i>TEKS 2F, 2G, 2H, 10A, B, C</i>          In this student activity, students use information from the Instruction Module to describe the interactions that occur among organ systems in animals that aid reproduction.</p> <p>Full Body Medical Scans – <i>TEKS 2F, 2G, 2H, 3A, 3B, 3C, 3D, 10A, B, C</i>          In this activity, students conduct basic research the pros and con of the promotion of full body CT scans as a preventative medical service.</p> <p>Organ System Interactions Research Project – <i>TEKS 2F, 2G, 2H, 3B, 10A, B, C</i>  <i>Students research an animal that is oviparous and use the information gained to describe how the interactions of systems involved in animal reproduction in egg-laying animals differ from those in animals that give birth to live young ones.</i></p>

## Unit: Microorganisms and the Environment

### Concepts TEKS: 11A

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students recognize the role of microorganisms in maintaining ecosystem stability. They learn about decomposition, nutrient cycling, and symbiosis. They describe how microorganisms can cause disruptive changes in both individual organisms and ecosystems.
<b>Interactivity</b>	<b>Microbial Colonies in You!:</b> In this Interactivity, students identify the different parts of the human body that are normally inhabited by microorganisms. TEKS 2G, 2H, 11A
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Microorganisms and the Environment unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to summarize the role of microorganisms in maintaining and disrupting the health of organisms and ecosystems. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Microorganisms and the Environment – TEKS 2G, 2H, 3A, 11A
<b>Offline Activity</b>	Water Purification Systems– TEKS 2F, 2G, 2H, 3A, 3C, 11A Students will draw inferences based on data related to promotional materials for products.

## Unit: Ecological Succession

### Concepts TEKS: 11B

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students are introduced to the concepts of ecological succession, primary succession, secondary succession, and climax community. They understand and describe how primary and secondary succession can alter ecosystems.
<b>Interactivity</b>	<b>What Came First?:</b> In this interactivity, students choose different species in sequence to illustrate the correct order of succession following an ecological disaster. TEKS 2F, 2G, 2H, 11B
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Ecological Succession unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to describe how events that occur during ecological succession can change populations. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Ecological Succession – TEKS 2F, 2G, 2H, 11B

## Unit: Interdependence Among Organisms

### Concepts TEKS: 12A

Lesson Components	Descriptions
<b>Instruction Module</b>	<p>In this Instruction Module, students learn that organisms interact with one another for various resources. They learn that interactions between two organisms in an ecosystem can either be competitive or symbiotic. They learn that symbiotic interactions include commensalism, mutualism and parasitism. They also learn to identify which organism is benefited, harmed, or remains unaffected in each type of interaction.</p>
<b>Interactivity</b>	<p><b>Interactions:</b> In this interactivity, students identify different types of interactions between organisms and how the interaction affects each organism. TEKS 2F, 2G, 2H, 12A</p>
<b>Quiz</b>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Interdependence Among Organisms unit.</p>
<b>Glossary</b>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<b>Note-taking Guide</b>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to interpret and describe relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Interdependence Among Organisms – TEKS 2F, 2G, 2H, 12A</p> <p>Journal 2 - Interdependence among Organisms – TEKS 12A</p>

## Unit: Biological Adaptations and Survival

### Concepts TEKS: 12B

Lesson Components	Descriptions
<b>Instruction Module</b>	In this Instruction Module, students understand that adaptations are traits that help organisms survive in their environments and that adaptations can be structural, physiological, or behavioral. They describe the adaptations of organisms living in different kinds of environments.
<b>Simulation</b>	<b>Effects of Fur Color on Marmot Survival:</b> In this Simulation, students explore the effects of fur color on marmot survival. TEKS 2B, 2E, 2F, 2G, 2H, 12B
<b>Quiz</b>	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Biological Adaptations and Survival unit.
<b>Glossary</b>	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
<b>Note-taking Guide</b>	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to compare variations and adaptations of organisms in different ecosystems. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
<b>Journal Entry</b>	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Biological Adaptations and Survival – TEKS 2G, 2H, 12B

## Unit: Energy Flow in the Living World

### Concepts TEKS: 12C

Lesson Components	Descriptions
<b>Instruction Module</b>	<p>In this Instruction Module, students learn that organisms in an ecosystem depend on each other for nutrients and energy. They analyze and evaluate the energy relationships between different organisms in an ecosystem using food chains, food webs, and energy pyramids. They also learn that although matter can be recycled between the different components of an ecosystem, the flow of energy is unidirectional.</p>
<b>Interactivity</b>	<p><b>Marine Energy Pyramid:</b> In this Interactivity, students identify the different levels of an energy pyramid for a marine ecosystem. They also identify the organisms that occupy each level in the energy pyramid, from a given list of organisms. TEKS 2E, 2G, 2H, 12C</p>
<b>Quiz</b>	<p>This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Energy Flow in the Living World unit.</p>
<b>Glossary</b>	<p>The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.</p>
<b>Note-taking Guide</b>	<p>The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to analyze and explain the flow of matter and energy through trophic levels using various models, including food chains, food webs, and ecological pyramids. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.</p>
<b>Journal Entry</b>	<p>The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.</p> <p>Journal – Energy Flow in the Living World – TEKS 2F, 2G, 2H, 12C Journal 2 - Energy Flow in the Living World – TEKS 12C</p>

## Offline Activity

Energy Pyramid – TEKS 2F, 2G, 2H, 3B, 3D, 3E, 3F, 12C

*In this activity, students use the terms provided to complete a graphic of an energy pyramid model while analyzing the flow of energy through the different tropic levels of an ecological pyramid.*

## Unit: Nutrient Cycling in the Environment

### Concepts TEKS: 12D

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students understand the importance of nutrient cycling. They learn about the nitrogen and carbon cycles, which describe how nutrients such as nitrogen and carbon are cycled through the environment. They explain the consequences of disrupting these cycles.
Interactivity	<b>Nitrogen Cycle:</b> In this interactivity, students identify the factors and organisms responsible for each stage of the nitrogen cycle.
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Nutrient Cycling in the Environment unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to describe the flow of matter through the carbon and nitrogen cycles and to explain the consequences of disrupting these cycles. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Nutrient Cycling in the Environment – 2G, 2H, 12D

## Offline Activity

Nutrient Cycling and the Environment Experimental Investigation –  
TEKS 1A, 1B, 2E, 2F, 2G, 2H, 12D

*Students apply process skills and knowledge of the nutrient cycles to plan and implement an experimental investigation. Students investigate how to best prevent the consequences from excess nutrients entering water ecosystems when artificial fertilizer is added to soil for growing crops.*

## Unit: Ecological Balance

### Concepts TEKS: 12E

Lesson Components	Descriptions
Instruction Module	In this Instruction Module, students understand how the interactions between biotic and abiotic components can lead to within an ecosystem. They describe how environmental changes can affect ecosystem stability.
Interactivity	<b>The Water Works!</b> In this Interactivity, students identify the ecological outcomes caused by different types of water resource facilities. TEKS 2G, 2H, 12E
Quiz	This formative assessment is aligned to the content presented in the unit. It provides a set of multiple choice questions to use as checks-for-understanding of the concepts presented in the Ecological Balance unit.
Glossary	The Glossary contains terms and definitions essential for mastery of the concepts presented in the Instruction Module. The integration of text, audio, and still and animated graphics provides both linguistic and non-linguistic representations of essential terms to help build vocabulary comprehension for better retention.
Note-taking Guide	The Note-taking Guide is used with the Instruction Module to focus students' attention on information that is necessary in order to describe how environmental change can impact ecosystem stability. When complete, this can be used as a study guide by the students and as an assessment instrument by teachers.
Journal Entry	The journal activity requires students to apply what they've learned and to justify their reasoning as they respond to targeted, open-ended questions and prompts.  Journal – Ecological Balance – TEKS 2G, 2H, 12E

Gaia Hypothesis: Impact of Scientific Research – TEKS 2B, 2F, 2G, 2H, 3A, 3B, 3D, 3F, 12E

**Offline Activity**

*In this activity, students research the Gaia Hypothesis and evaluate the impact of this scientific research on society and the environment.*

\*\* Scientific Investigation and Reasoning or Scientific Processes are addressed in context through the concepts TEKS content.