Los Fresnos C.I.S.D.

What We Do Here Shapes the World

Science Curriculum 4th Grade

Created: 2021

TABLE OF CONTENTS

TABLE OF CONTENTS

DISTRICT MISSION AND GOALS

District Mission:

Our mission is to provide a quality educational experience that results in the development of socially responsible life-long learners.

District Goals:

Goal 1: Environment and Culture

The District will maintain a safe and positive school environment where students, parents, employees, and community members feel welcomed and engaged.

Goal 2: Academics

The District's academic programs will take the learning experience beyond state and federal standards in an effort to provide college and career readiness for all students.

Goal 3: Professional Learning

The District will provide professional learning opportunities that allow staff to achieve a higher level of proficiency.

Goal 4: Resources and Operations

The District will effectively manage its resources and operations to maximize the learning potential for all students.

PROFILE OF A GRADUATE

LOS FRESNOS CONSOLIDATED INDEPENDENT SCHOOL DISTRICT

PROFILE of a GRADUATE

Future-ready innovative thinkers and leaders

- Evaluate various sources of information and use sound reasoning when making decisions.
- Solve problems using logic, critical thinking, and deductive reasoning.
- Collaborate with others to build consensus and solve problems.
- Demonstrate perseverance and resilience.
- Embrace technology and creative solutions to everyday problems.

Effective communicators

- Listen and respond respectfully and empathetically.
- Confidently adapt their communication style to the audience.
- Use various medias to engage in productive and positive dialogue.
- Collaborate with others to engage in courageous conversations.

Conscientious citizens

- Exhibit self-discipline, honesty, kindness, and integrity.
- Serve the community as role models and through volunteerism.
- Embrace diversity and cultural awareness.
- Value and participate in the democratic process.

Life-long learners

- Commit to continuous improvement.
- Demonstrate mastery of required curriculum and skills.
- Prepare for college and workforce opportunities.
- Develop personal and professional goals that lead to a healthy, balanced lifestyle.

CONTENT VISION AND CHARACTERISTICS

Content Vision:

Our LFCISD science curriculum will spark curiosity, encourage higher level thinking, and foster problem solving skills. Our curriculum will allow learners the opportunity to gain an appreciation and understanding of science while learning about real world scenarios and applying their science knowledge to the local and global community. Our students will conduct a variety of labs and experiments, both qualitative (observed) and quantitative (measured), in order to predict patterns or trends, collect and analyze data, draw conclusions, and present their findings through a variety of ways. Through these diverse, challenging, and interdisciplinary learning experiences our students will explore and discover the world around them. We hope to prepare these young scientists to be successful in the future while igniting and fostering their natural curiosity and love of science.

Content Characteristics:

Teacher Behaviors: Teachers are lifelong learners and will strive to better their craft in various dimensions including planning, instruction, and professional responsibilities. Teachers will be expected to:

- Establish, communicate, and maintain clear expectations for student behavior and academic success with all stakeholders
- Get to know their students' strengths and weaknesses to build strong, healthy relationships throughout the school year in order to better advocate for their students
- Plan clear, well-organized, and sequential lessons that reflect best practices, are aligned to state standards, and keep students engaged
- Integrate various forms of technology and media regularly into their lessons
- Provide differentiated and challenging lessons for both struggling and advanced students with opportunities for all students to achieve academic success
- Continuously provide consistency, support, and guidance throughout the student's learning journey through scaffolding techniques and probing questions
- Emphasize the scientific method and lab safety during hands-on lab experiences

CONTENT VISION AND CHARACTERISTICS

- Create collaborative opportunities for students to learn through problem/project-based learning and/or interdisciplinary units where students research and evaluate various sources of information to make informed decisions
- Regularly measure student progress both informally and formally and use the data to adjust and provided scaffolded instruction
- Provide students with various opportunities to show evidence of their learning in both written and oral forms through individual and cooperative grouping
- Take ownership of their own learning by actively seeking new research-based strategies, searching for new learning opportunities, collaborating with peers and colleagues, and reflecting on their own practice

Student Behaviors: Students are active participants in their learning of science. Students will learn science content, vocabulary, and process skills through engaging, practical, hands-on experiences that encourage curiosity, questioning, higher-level thinking, and problem solving. Students will be expected to:

- Use scientific practices to conduct laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices
- Safely and effectively use a variety of tools and science equipment
- Collect data, analyze their findings, make inferences, and form conclusions about their lab investigations
- Communicate science information and lab results effectively as they apply socioemotional skills
- Collaborate thoughtfully with peers in pairs, small groups, and large groups
- Actively broaden their scientific knowledge through exploration and discovery
- Unite with the teacher in shared learning experiences
- Solve problems using logic, critical thinking, and deductive reasoning
- Ask questions when a topic is unclear
- Develop personal goals that lead to a healthy, balanced lifestyle

Environment: The science classroom environment should foster a welcoming space where students feel safe to exercise their curiosity and take risks while asking questions that lead to a pursuit of answers and thoughts about what has been discovered. The science classroom environment will be expected to:

- Emphasize safety first

CONTENT VISION AND CHARACTERISTICS

- Be dynamic and engaging for all learners
- Involve student-centered hands-on activities, labs, project-based learning, and stations
- Stress vocabulary through a variety of instructional strategies including word walls, interactive notebooks, visuals, prefixes/suffixes, cognates
- Embrace equity and be inclusive of all learners
- Be organized
- Incorporate digital technology
- Welcome flexible seating as students work both cooperatively with others and individually
- Include cross-curricular connections through investigations and assignments that give students deep conceptual understandings

COURSE OVERVIEW DOCUMENTS

Course Overview: In Grade 4, scientific investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations and that methods, models, and conclusions built from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the natural world. Within the physical environment, students know about the physical properties of matter including mass, volume, states of matter, temperature, magnetism, and the ability to sink or float. Students will differentiate among forms of energy including mechanical, light, sound, and thermal energy. Students will explore electrical circuits and design descriptive investigations to explore the effect of force on objects. Within the natural environment, students know that earth materials have properties that are constantly changing due to Earth's forces. The students learn that the natural world consists of resources, including renewable and nonrenewable, and their responsibility to conserve our natural resources for future generations. They will also explore Sun, Earth, and Moon relationships. The students will recognize that our major source of energy is the Sun. Within the living environment, students know and understand that living organisms within an ecosystem interact with one another and with their environment. The students will recognize that plants and animals have basic needs, and they are met through a flow of energy known as food webs. Students will explore how all living organisms go through a life cycle and have structures that enable organisms to survive in their ecosystem. The study of elementary science includes planning and safely implementing classroom and outdoor investigations using scientific processes, including inquiry methods, analyzing information, making informed decisions, and using tools to collect and record information, while addressing the major concepts and vocabulary, in the context of physical, earth, and life sciences. The district encourages the facilitation of classroom and outdoor investigations for at least 50% of instructional time.

TEA Documents:

- **TEA Texas Essential Knowledge and Skills (TEKS)**: This TEA webpage provides information on the state standards for what students should know and be able to do for this course.

Lead4ward Documents:

- **Lead4ward TEKS Snapshot**: This is a PDF file that color coordinates and divides the readiness, supporting, and process standards for each grade level and content area. (Click on grade level/content under Snapshot)

COURSE OVERVIEW DOCUMENTS

- **Lead4ward Academic Vocabulary**: This document shows important vocabulary for concept development, including new and previously introduced words. (Click on grade level/content under Academic Vocab)

- **Lead4ward Instructional Strategies Playlist**: This document provides descriptions of instructional strategies to engage learners, provide practice without penalty, encourage interaction among students, and see and hear students' thinking across contents. (Located on the Instructional Tools tab)

- **Lead4ward Field Guides:** The Field Guides for Teachers succinctly organizes the information teachers and PLCs need to effectively plan meaningful instruction for students. These are purchased for every campus by the district and require login information. Please do not print, as documents are frequently updated.

- **Lead4ward Learning Videos:** These are short videos that explain how to use the resources listed above. (Click on the Learning Videos tab)

YEAR-AT-A-GLANCE (YAG)

The YAG informs all stakeholders of the learning concepts presented throughout this course. Teachers use this overview to create daily lessons that meet the unique needs of their students.

Units	Modules
1 Organisms & Environments	**1** Lab Safety and Tools
	2 Producers & Consumers
	3 Food Webs
	4 Life Cycles
	5 Structural Adaptations
	6 Inherited Traits & Learned Behaviors
	7 Organisms & Environments Unit Review
	8 PLTW-Input/Output: Human Brain
2 Earth & Space	**1** Natural Resources
	2 Slow Changes to Earth's Surface
	3 Soil
	4 Water Cycle
	5 Weather
	6 Patterns of Change
	7 Earth & Space Unit Review
3 Force, Motion, & Energy	**1** PLTW-Energy: Conversion
	2 Conductors & Insulators
	3 Electricity
	4 Forces
	5 Force, Motion, & Energy Unit Review
4 Matter & Energy	**1** Physical Properties
	2 Mixtures
	3 Matter & Energy Unit Review
5 Anchoring Our Learning	**1** Spiral Review
	2 Areas of Focus

SCOPE AND SEQUENCE

The recommended duration of lessons is less than the number of days in the school year in order to accommodate differentiated instruction, extended learning time, and assessment days. Complete instructional planning information and support are in the LFCISD Curriculum documents. *One day is equivalent to the number of minutes [on the LFCISD Instructional Schedule].*

Units	Modules	TEKS	Duration
1 Organisms & Environments	**1** Lab Safety and Tools	4.1A, 4.4A	5 days
	2 Producers & Consumers	4.9A	5 days
	3 Food Webs	4.9B	10 days
	4 Life Cycles	4.10C	5 days
	5 Structural Adaptations	4.10A	5 days
	6 Inherited Traits & Learned Behaviors	4.10B	5 days
	7 Organisms & Environments Unit Review	Spiral	5 days
	8 PLTW-Input/Output: Human Brain	Process	10 days
2 Earth & Space	**1** Natural Resources	4.7C	5 days
	2 Slow Changes to Earth's Surface	4.7B	10 days
	3 Soil	4.7A	10 days
	4 Water Cycle	4.8B	5 days
	5 Weather	4.8A	5 days
	6 Patterns of Change	4.8C	10 days
	7 Earth & Space Unit Review	Spiral	5 days
3 Force, Motion, & Energy	**1** PLTW-Energy: Conversion	4.6A	10 days
	2 Conductors & Insulators	4.6B	5 days
	3 Electricity	4.6C	10 days
	4 Forces	4.6D	5 days
	5 Force, Motion, & Energy Unit Review	Spiral	5 days
4 Matter & Energy	**1** Physical Properties	4.5A	10 days
	2 Mixtures	4.5B	5 days
	3 Matter & Energy Unit Review	Spiral	5 days
5 Anchoring Our Learning	**1** Spiral Review	Spiral	10 days
	2 Areas of Focus	Spiral	15 days

INSTRUCTIONAL UNITS

Unit I: Organisms & Environments
(10 Weeks)

Unit Description:

In Unit I, students will learn about organisms and environments. Students will learn that plants and animals have specific requirements for the food in order to survive. Students will learn that food webs are visual representations that illustrate the flow of energy transfer from one organism to another within an ecosystem. Students continue to explore the unique life cycles of plants and insects. In previous grades, students explored the physical appearance of plants and animals and learned about their basic needs. Students will be formally introduced to the idea of adaptations. Students will learn about how plants and animals have traits that are inherited from parent to offspring.

Mastery Learning Objectives:

- **Understand** that living organisms within an ecosystem interact with one another and with their environment
- **Understand** that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments
- ELPS: The students will develop their receptive and expressive skills. (reading, writing, speaking, and listening)

Essential Questions:

- How do organisms obtain and use food?
- What are food chains?
- What are food webs?
- How can we model a food web?
- How do plants reproduce?
- How can we explore a plant's life cycle?
- How do animals reproduce?
- How are living things adapted to their environment?
- Why do bird beaks differ?
- What are heredity, instincts, and learned behaviors?

Real World/Cross-Curricular Connections:

- **Writing Connection Science Fusion U:10 TE p.468A Fact Cards**
  - Have students select a food web that they would like to learn more about. Have them make fact cards for each organism in the food web. Each fact card should contain at least two facts about the organism. Encourage students to illustrate their cards. Students can use a hole punch and string to arrange cards into a food web.
- **Math Connection Science Fusion U:11TE p.496A Graph Plant Growth**
  - Have students grow a young plant from a seed, such as a bean plant or a radish plant. Each day after the seed germinates, students should measure the plant's height. After two weeks, direct students to use the height data to construct a bar graph.

INSTRUCTIONAL UNITS

- **Art Connection Science Fusion U:11TE p.546A Draw a Family Tree**
  - Ask students to make a family tree using photographs or drawings of grandparents, parents, and children. Have students examine the family trees made by their classmates. Can classmates tell which traits have been passed down from generation to the next.
- **StemScopes Writing Connection Google Slides**
  - Students will write about the pumpkin's place in the food chain. Where did the pumpkin plant get its energy to grow? How might this pumpkin be used for energy now?

INSTRUCTIONAL UNITS

Module 1 of 8 (5 Days): Lab Safety and Tools	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.1A **demonstrate** safe practices and the use of safety equipment as described in the Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate (P) 4.4A **collect, record**, and **analyze** information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, notebooks; timing devices, and materials to support observation of habitats of organisms such as terrariums and aquariums (P) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **identify** different tools that scientists use to study objects and properties • **communicate** that data gathered are based on measurement and observation, not inferences • **record** data in appropriate tables and charts based on the purpose of the data • **describe** that measurements and recording methods need to be accurate because data are used as evidence for scientific explanation • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may not understand how to design an investigation. • Students may not recognize the need to collect a variety of data (numbers, images, and written text). • Students may create questions that cannot be answered by the investigation. • Students may use science tools inappropriately, unsafely, or inaccurately. • Students may not understand the difference between data and evidence.

INSTRUCTIONAL UNITS

Content Connections	**Key Concepts** • Read all directions carefully. • Always follow teacher directions. • Follow safety procedures at all times. • Dress appropriately for investigations. • Dispose of waste carefully. • Report spills or accidents immediately to teacher. • Keep your work area clean. • Wash hands after completing investigations. • Our senses of sight, smell, touch, hearing, and taste allow us to observe the world around us. **Instructional Implications** • Focus on how to design investigations, scaffolding previous learning and use of evidence to create explanations for natural phenomena. • Present a variety of investigation opportunities where students are active participants. • Minimize teacher demonstrations. • Move beyond "recipe" labs. • Have students collaborate to generate questions, determine a method to investigate and make observations, collect data, and analyze results. • Provide access to grade-appropriate scientific tools. • Provide regular opportunities for students to choose science tools to collect data. • Use instructional strategies that help students understand content. • Model thinking for students. • Encourage wonder. • Provide daily opportunities for student-to-student discourse to process new learning.
Materials/Resources	• TX Fusion* • STEMscopes* • Interactive notebook • Lead4Ward

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level	• Aquariums • Balances (pan and triple beam) • Beaker • Cameras • Celsius thermometers • Collecting net • Computers • Gloves • Graduated cylinders • Hand lenses • Hot plates • Magnets • Meter stick • Metric rulers • Microscopes • Notebooks • Rain gauge • Safety • Safety goggles • Spring scales • Stopwatches • Terrariums • Timing devices

INSTRUCTIONAL UNITS

Instruction and Student Engagement	• TX Fusion Safety in Science o Teacher will read pp. xxiii-xxiv and review both indoor and outdoor safety rules. Teacher will read pp. 34-35 for Science Tools, 36-37 for Measurement Tools, 38-39 for More Science Tools, 40-41 for Recording and Displaying Data, and 42-43 for Using Data. o Teacher can refer to discussion points noted on the sidebars of the TE. • STEMscopes Tool Cards o Teacher will show students pictures of tools and give short descriptions of uses. o Teacher can create one or two anchor chart(s) with the pictures and descriptions as students are led through different examples. o EB-Pictures and titles are available in Spanish for those students who need support. Linguistic Accommodations • Interactive Notebook on Tools o Teacher will guide students in creating interactive notebook page on tools. o Students will write descriptions of each tool's job/purpose with teacher guidance. • STEMscopes Process Skills Primer-Safe Practices o Students will create a puppet show of safe and unsafe practices. o Students will create drawings of safe and unsafe practices. • Lead4Ward Instructional Strategies-Pick Up the Slip Up and Who Am I? o Students use ABC cards to determine which statements are true and false based on teacher descriptions. (Pick Up the Slip Up) o Students communicate clues about science tools and take turns guessing the tool described. (Who Am I?)

Evidence of Learning	

Checking for Understanding

1. What information can be collected with a thermometer?
   (A thermometer can collect…)
2. How do safety goggles keep us safe during science investigations?
   (Safety goggles keep us safe by…)
3. Why should you wash your hands during science investigations?
   (You should wash your hands because…)
4. How are an aquarium and terrarium different?
   (An aquarium is different than a terrarium because…)
5. What science tool would help us observe an object closely?
   (I could use a _____ to observe an object closely.)
6. What is the most important safety rule?
   (I think the most important safety rule is _____ because…)
7. What should you do if you observe someone not being safe in science?
   (If I observed someone not being safe in science, I would…)

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- TX Fusion Inquiry Flipcharts 6-9
  - Students will practice using different science tools.
  - TX Fusion TE 46B-46E provides teacher support in how to make use of inquiry flip charts.
  - Students can be divided into 6 groups and rotate between flip charts.

INSTRUCTIONAL UNITS

Module 2 of 8 (5 Days): Producers & Consumers	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.9A **investigate** that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food (S) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **recognize** that food is a source of energy, which living things use to grow and perform life functions • **understand** that producers need sunlight, water, and carbon dioxide to make their own food through photosynthesis • **understand** that consumers are dependent on other organisms for food • **understand** that both producers and consumers break down food to obtain energy • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may think that producers and consumers do not rely on each other. • Students may think that the size of a consumer depends on what it eats (e.g., only carnivores are large animals because they eat other living organisms).
Content Connections	**Key Concepts** • Producers need sunlight, water, and carbon dioxide to produce their own food. • Consumers depend on plants or other organisms for food. **Instructional Implications** • Plan/choose activities where students can observe and investigate a variety of producers and consumers. • Plan/choose activities that emphasize the roles consumers and producers play in food webs. • Vary visuals during instruction to provide opportunities for students to analyze and interpret data and justify their thinking.

INSTRUCTIONAL UNITS

Materials/Resources	• TX Fusion* • STEMscopes* • Carson Dellosa • Seesaw • Quizizz • Kahoot • Nearpod
Academic Vocabulary *new to grade level	• Basic Needs • Carbon Dioxide* • Carnivore* • Consumer • Depend • Ecosystem • Energy • Environments • Glucose/Sugar* • Herbivore* • Interact • Living Component • Nonliving Component • Nutrients • Omnivore* • Organism • Photosynthesis* • Produce • Producer • Sunlight • Thrive

INSTRUCTIONAL UNITS

Instruction and Student Engagement	• **TX Fusion Science Textbook** Unit 10 Lesson 1 Student Edition pp.439-450: (Requires Clever Login, go to Science Tx Fusion> 4th Grade>Student Edition>Unit 10,Lesson 1 **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (2 instructional days.) o The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (pp. 26-28 nutrients, energy, producers, consumers, photosynthesis, and decomposers and will have students write definitions in their science notebook. Go over all vocabulary terms, but the main focus for this lesson should be the terms producers, consumers, and photosynthesis. o The teacher will read Student Edition pp.439-450: "How Do Organisms Obtain and Use Energy?" Use TE sidebar notes to help you guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their textbook. Discuss the captions and photograph for every page you read. o Read pp.440-441, "A Bite of Energy" and have students make connections by answering the question on p.441.The main focus is to understand that plants and animals are living organisms and meet their basic needs in different ways. o Read pp.442-443, "The Food-Makers" help students understand in detail that producers(plants) need sunlight, water, and carbon dioxide in order to make their own food. The teacher will guide students to look at the diagram provided on p.443 and will explain the photosynthesis process. Once you discuss the diagram, have students complete the fill in the blank to show what happens during photosynthesis. o Read pp.444-445, "The Food Eaters" help students understand in detail that consumers(animals) rely on other organisms for their food. Consumers can be classified into three categories based on what they eat: herbivores, carnivores, or omnivores. The following concepts will help students understand TEKS 4.9B Food Chains/Webs. The teacher will help the students label the elk as a herbivore, heron as a carnivore, frog an omnivore, and snake a carnivore. o Read pp. 446-447, "The Clean Up Crew" help students understand that scavengers and decomposers consume dead organisms. Teachers should mainly focus on how decomposers consume decayed/dead organisms. The teacher can guide students using the photograph of the mushroom and the worms as examples of decomposers. The teacher will reinforce decomposers more in the following lesson about food webs or in 5th grade. Use the blank space to draw: What would the world look like without decomposers? Give the students the opportunity to share. o Have students complete pp: 448-450 to review concepts learned. Allow them to go back and locate their answers. Guide students with Venn Diagram refer to TE p.448 for information about Venn Diagrams.

- To close the lesson the teacher can guide students by adding Photosynthesis/Consumers Anchor Charts to their science notebooks. The teacher may also guide students to cut out any photographs in the lesson to create their own anchor chart or notes.
- Review any misconceptions and answer any questions that students still may have. Students misconceptions may be thinking that producers and consumers do not rely on each other. That the size of a consumer depends on what it eats (ex: only carnivores are large animals because they eat other living organisms

- **Tx Fusion Science Go Digital Lesson** (Requires Clever Login, go to Science Tx Fusion>4th Grade>Student Resources>Unit 10, Lesson 1 Digital Lesson) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teacher may assign the following digital lesson to students or may guide the lesson. Interactive lesson has questions and is divided into 8 slides. If guiding the lesson, you may use a Bluetooth/Cordless mouse and have students drag to complete following activities in class.
  - Once students have completed the slides they may work with a partner or group to complete Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amongst peers or groups. Teacher may also assign Companion Questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Remind students to use complete sentences and to use academic vocabulary.
  - Optional Tx. Fusion Go Digital Virtual Lab! Unit 10: Lesson 2: What Do Plants Need to Make Food? (requires log-in) Assign Lesson to students (13 slides). Students will complete an interactive lesson and will be able to understand why plants need sunlight to make their own food. (sugar)

- **STEMscopes-**CLOZE-ing into Science (Requires Clever login, go to the Scopes Tab> Fourth Grade-Streamlined> 4.9AB Producers, Consumers, and Food Webs>Interactive Tab> CLOZE-ing into Science.)
  - Complete CLOZE-ing Into Science Key Concept 1 Activity. Students will fill-in the blanks using Word Bank provided and will illustrate an example of a producer and a consumer. (Teachers may print Student Handout only Key Concept 1 or assign them to students.)

- **Carson Dellosa Science Interactive Notebook: Making Energy**
  - The teacher will guide students to write the TEKS 4.9A and objective on the left side of their Science Journal for extra support. (Examples provided after pg. 21)

	o The Teacher will introduce the Interactive Notebook Lesson by having students list their meals from the past week in their science journal under objectives. (Further Instructions on p. 20.) o Guide students in creating their interactive page on the right-hand side of their journal by following the steps on p.20. Give students enough time to cut all pieces. (Tip: you may cut each piece as you need it, so students won't lose parts) o Students will reflect on their learning on the left-hand side of their journal. Reflect on the following question: Why is the balance between plants and animals so important? **SPED-** TX Fusion Go Digital! Unit 10(go to Clever > Think Central > Student Level Resources Grade 4> Unit 10 Lesson 1>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)This may be used as additional notes to review or preview the lesson and may be glued to the students science notebook. **EB-**Use Science Tx-Fusion TE pp.440 and 442 English Language Learner: Use these pages to help students understand idioms and suffix -er. Write words on the board for extra support. Linguistic Accommodations **GT**- Use Science Tx Fusion TE p.445 Writing Connection: Students will need to write a one page story in which a producer is eaten by another consumer who in turn is eaten by another consumer. Stories should include a setting and lines of dialogue from each organism. (Use TE p.445 for further instructions.)

Evidence of Learning

Checking for Understanding

1. What do plants need to make their own food?
   (Plants need the following _____to make their own food.)
2. What is the process that allows plants to make their own food?
   (The process that allows plants to make their own food is_____.)
3. Why are plants called producers?
   (Plants are called producers because_____.)
4. Why are animals called consumers?
   (Animals are called consumers because_____.)
5. Where do organisms get energy from?
   (Organisms get energy from or by _____?
6. Why do living things need energy?
   (Living things need energy to_____.)
7. What are the 3 types of consumers called?
   (The 3 types of consumers are called_____?

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Google Slide Activity**: Photosynthesis/Producers and Consumers
  - The teacher can assign activity in Google Classroom or print out.
  - The teacher may print-out slide 1 and 2.
  - Students will cut out words/pictures and label Organism.
  - Slide 3 is optional to print. Students will need to label with sticky notes or can create a chart on the back of the paper to identify Producers, Consumers, and Decomposers.
- **Seesaw**- Photosynthesis / Producer, Consumer, and Decomposers
- **Texas Fusion Take it Home!** TE p.450: Google Slides Menu
  - The teacher can assign activity in Google Classroom Platform or print out.
  - Encourage students to design their menus in the style of restaurants.
  - Students should list appetizers, soups, and salads first, then the entrees, followed by side dishes and beverages. Dessert comes last. Students can illustrate their menus with drawings or download photos. Once they have completed their menu, have them label if their food came from a producer or consumer.

INSTRUCTIONAL UNITS

Module 3 of 8 (10 Days): Food Webs	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.9B **describe** the flow of energy through food webs, beginning with the Sun, and **predict** how changes in the ecosystem affect the food web (R) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **describe** the flow of energy through food webs, beginning with the sun • **know** that a food chain shows how energy moves from producers to consumers • **distinguish** between herbivores, carnivores, and omnivores • **predict** how changes in the ecosystem affect the food web • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may think that energy in food chains begins with producers rather than with the Sun. • Students may not understand the balance between prey and predators. (e.g., if there are too few predators, this can negatively impact the balance within an ecosystem). • Students may not understand that people are consumers and that there are different types of consumers.

INSTRUCTIONAL UNITS

Content Connections	**Key Concepts** • The Sun provides energy that flows through food chains and webs. Energy that moves through a food web originally comes from the Sun. • We can predict how changes in an ecosystem can affect the flow of energy in a food web. Changes to an ecosystem can cause animals to leave and some animals and plants to perish, which can have an impact on the flow of energy in a food web. **Instructional Implications** • Provide opportunities for students to build their own food chains and webs to understand the specific roles and how they depend on one another. • Provide a variety of food webs through multimedia sources so students can make real-world connections. • Plan scenarios or activities where a part of the food web is removed and students must predict what happens within the ecosystem.
Materials/Resources	• TX Fusion* • STEMscopes* • Carson Dellosa • YouTube • Study Jams • Seesaw • Quizizz • Kahoot • Nearpod

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level	• Carnivore* • Community • Consumer • Decomposer • Energy • Environmental Changes • Flow of Energy* • Food Chain • Food Web* • Habitat • Herbivore* • Omnivore* • Organism • Perish • Predator* • Prey* • Producer • Sun (main source of energy) • Thrive • Transfer of Energy (TOE or GEB-gets eaten by)

INSTRUCTIONAL UNITS

Instruction and Student Engagement	• **Tx Fusion Science Textbook:** Unit 10 Lesson 3 Student Edition pp. 453-468 (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Edition>Unit 10,Lesson 3) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (3 instructional days.) o The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (pp. 26-28 food chain, herbivore, carnivore, omnivore, and food web.) Have students write definitions in their science notebook. Go over all vocabulary terms, but deeply explain the difference between food chains and food webs. You may want to add sun as a vocabulary term and explain how it is the main source of energy. o The teacher will begin to read lesson 3 and may use TE sidebar notes to help guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their textbook. Discuss captions and photographs for every page you read. (Tip: Lesson is just a review of 3rd grade you may want to briefly review and move on to the main focus Food Webs pp.460-461) o Read pp.453-455, "Food Chains" help students understand that a food chain is a transfer of energy in sequence beginning with the sun. Use the food chain photographs to explain that the arrows represent the flow of energy. Label arrows with acronyms TOE/GEB (Transfer of energy/Gets eaten by) You may want to draw a sun in front of the producers(algae) to enforce how the sun is the main source and the beginning of the food chain. o Students will complete Make a food chain drawing on p.455. Give the students the opportunity to share their illustrations. o Read pp 456-457, "You Are What You Eat" help students understand that consumers are categorized into different groups for example herbivores, carnivores, and omnivores. In the previous lesson we discussed the different teeth by drawing an anchor chart. For this lesson explain how carnivores and herbivores are picky eaters and how omnivores are lucky eaters, because they can eat plants and animals. Omnivores will have the biggest chance to survive in their ecosystem. Have students complete p.457: What Does it Eat? by matching what each organism consumes. Discuss answers and give students the opportunity to provide the teacher or peers with different examples for extra practice. o Read pp.458-459, "Hunt or be Hunted" help students understand the difference between predator or prey. Use textbook or science notebook to add notes of the following rhyming words: For predator: Eyes in the front I hunt. For prey: Eyes on the side I hide. (Tip: some animals may not follow this rule.) o Students will complete p.459: Who's the Hunter? Who's Hunted? Chart. Give students the opportunity to share.

- Read pp. 460-461, "Food Webs" (Tip: Read and explain with detail because it is the main focus of the 4.9B TEKS.) help students understand that food webs are interconnected food chains. That the sun is also the main source of energy in food webs. Use the photographs to explain and label organisms as producers and consumers. The students may label arrows with their TOE/GEB strategy and draw the sun in the correct location.
- Have students complete pp.464-467 to review concepts learned. Allow them to go back and locate their answers.
- To close the lesson: The teacher can guide students by adding a Food Web Anchor Chart to their science notebook.
- Review any misconceptions and answer any questions students still may have. Students misconceptions may be misunderstanding what the arrow represents. For example, clam eating a lobster because of the arrow's direction p.461.They need to understand that it refers to the flow of energy; that the clam is transferring the energy to the lobster because the lobster eats the clam for energy.

- **Tx Fusion Science Go Digital Lesson Unit 10 Lesson 3** (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Resources>Unit 10, Lesson 3 Digital Lesson)**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teacher may assign the following digital lesson to students or may guide the lesson. Lesson has interactive questions and is divided into 9 slides. If guiding a lesson, you may use a Bluetooth/Cordless mouse and have students drag to complete activities in class.
  - Once students have completed the slides they may work with a partner or group to complete the Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amongst peers or groups. The teacher may also assign Companion Questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Remind students to use complete sentences and to use academic vocabulary
  - Optional- Tx. Fusion Go Digital Virtual Lab! Unit 10: Lesson 4: How Can We Model a Food Web?
  - (Requires Log-in) Assign lesson to students (16 Slides). Students will complete an interactive lesson and will be able to understand the drastic changes in an ecosystem, such as drought or fire, can cause major changes in an ecosystem's food web.

INSTRUCTIONAL UNITS

- **StemScopes-**StemScopedia (Requires Clever login, go to the Scopes Tab>Fourth Grade-Streamlined> 4.9AB Producers, Consumers, Food Webs>Explain Tab>StemScopedia.)
  - Prior to StemScopedia Lesson, the teacher may read information provided under the Essentials Tab titled: Teacher Background to review materials that vertically align with the lesson.
  - Use Explain Tab to go over Picture Vocabulary Words that align to the lesson and direct students to add definitions onto their science notebook. The teacher may print words and add them to their word wall.
  - Use Explain Tab and complete StemScopedia Lesson: Teachers may assign directly on StemScopes or may print PDF documents under students handouts on the right side of the page. Read, discuss, and complete the following questions with a group or teacher. As you are reading, encourage the students to write notes if you printed the document. The section, "Try Now p.3" can be used as a class or home extension.
  - Optional: The StemScopedia can also be found interactively under the Explain Tab labeled e-Scopedia. This activity may be assigned to students and can also be used for homework review.

- **StemScopes-**Content Connections Video-Food Webs.(Requires Clever login, go to the Scopes Tab>Fourth Grade-Streamlined> 4.9AB Producers, Consumers, Food Webs> Explain Tab>Content Connections Video-Food Webs.)
  - The teacher will show the video to the class in order to understand the transfer of energy through a food web and will review producers and consumers. The teacher may pause the video to have a class discussion and can assign or print a student handout (key) about the video.

- **StemScopes-** CLOZE-ing Into Science (Requires Clever login, go to the Scopes Tab> Fourth Grade-Streamlined> 4.9AB Producers, Consumers, and Food Webs>Interactive Tab> CLOZE-ing into Science.)
  - Complete CLOZE-ing In On Science Key Concept 2 & 3 Activity. Students will fill-in the blanks using Word Bank provided and will illustrate examples of food chains and the effects of environmental changes in the food chain/web. (teacher may print Student Handout only Key Concept 2 &3 or assign them to students.)To extend the lesson have students illustrate a food web on the back of their concept 2 worksheet.

INSTRUCTIONAL UNITS

- **Carson Dellosa Science Interactive Notebook: Food Chains and Food Webs**
  - The teacher will guide students to write the TEKS 4.9B and objective on the left side of their Science Journal for extra support. (Examples provided after p.21.)
  - The teacher will introduce the Interactive Notebook Lesson by discussing how all living things get energy from food by creating a food chain. (Further Instructions on p. 20.)
  - Guide students in creating their interactive page on the right-hand side of their journal by following the steps on p.20. Give students enough time to cut all pieces. (Tip: you may cut each piece as you need it, so students won't lose parts) For extra practice help students label producers and consumers you may ask for specific labelling like herbivore, carnivore, and omnivore.)
  - Students will reflect on their learning on the left-hand side of their journal. Complete Food web activity and have students select a different ecosystem. They may research to complete reflection activity.
  - Optional/Additional Activity: I will create a terrarium to demonstrate a simple food chain/web.

- ***Student Manipulatives-Word Cards Template***
  - Option 1: The teacher will provide copies of the word cards and students may cut and sort the cards by word, definition, and illustration. After their work has been analyzed and checked they can glue them to their science notebook. Option 2: The teacher can also print and laminate word cards and have students match to check for understanding. Option 3: Have students complete Google Slides Word Cards Match.

- **Video Links-**Food Webs
  - The following video links will describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web.
  - Food Webs: Crash Course Kids #21.2 3:52 minutes
  - Food Web: 3:52
  - Food Webs Study Jams 3:19 (Use Test Yourself for extra practice.)

SPED-TX Fusion Go Digital! Unit 10(go to Clever Think Central>Student Resources Grade 4> Unit 10 Lesson 3>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)This may be used as additional notes to review or preview the lesson and may be glued to the students science notebook.

INSTRUCTIONAL UNITS

	EB-Use Science Tx-Fusion TE p.454 English Language Learner: Use this page to help students understand Irregular Plurals by explaining that larva is a young insect that has no wings yet. The plural of larva is larvae. Continue to review by writing words on the board for extra support. **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) Linguistic Accommodations **GT-**Use the StemScopes Acceleration Tab: Science Art PDF : Students will complete a Pegboard model to represent a food web.

Evidence of Learning

Checking for Understanding

1. What is a food web?
   (A food web is a _____.)
2. What source can all energy be traced back to
   (The source of energy can be traced back to the _____.)
3. Describe how the Sun's energy flows through a food web.
   (The sun's energy flows by_____.)
4. What is the difference between a food chain and a food web?
   (The difference between a food chain and food web is_____.)
5. How do we fit into the food web?
   (We fit in the food web because_____.)
6. Why do living things need energy?
   (Living things need energy in order to_____.)
7. How do humans affect the food webs?
   (Humans affect the food web by_____.)
8. What would happen to the number of mice if the number of owls decreases?
   (The number of mice will_____.)
9. What would happen to the number of owls if the number of mice would decrease?
   (The number of owls will_____.)

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Seesaw**- Food web Activity
  - In this activity students will need to draw an arrow to show the flow of energy from one organism to another. Some organisms will have more than one arrow.
- **Google Slides**- Food Web Interactive
  - In this activity students will create a food web by dragging organisms to the correct location.
- **StemScopes**-Reading Passage: "Thanks to The Sun!" (Elaborate Tab)
  - In this activity students will read and analyze the importance of the sun and will answer student printed handouts or teacher can assign in StemScopes.
- **Texas Fusion Take it Home!** TE p.468 **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - In the activity students will make a food chain showing the links involved in one of the foods they ate for dinner. Students can use magazine cutouts to demonstrate their food chain.

INSTRUCTIONAL UNITS

Module 4 of 8 (5 Days): Life Cycles	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.10C **explore**, **illustrate**, and **compare** life cycles in living organisms such as beetles, crickets, radishes, or lima beans (S) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **explore, illustrate,** and **compare** life cycles in plants • **explore, illustrate,** and **compare** life cycles in animals • **describe** ways plants are pollinated • **describe** reproduction in seedless plants • **understand** that some animals are born live, whereas other animals hatch from eggs • **understand** that some animals go through metamorphosis as part of their life cycle • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may think all insects undergo the same number of stages in their life cycles. • Students may think that there are different organisms in each stage because of the contrast in their appearance and not realizing it is the same organism throughout the stages of the life cycle.

INSTRUCTIONAL UNITS

Content Connections	**Key Concepts** • Organisms undergo observable changes during their life cycles including birth, growth, development, reproduction, and death. • We can illustrate and compare the life cycles of various plants and animals. • Some animals, such as crickets and beetles, pass through distinctly different life stages during their life cycles. Some plants, such as radishes and lima beans, develop from seeds into small plants that resemble their adult forms. **Instructional Implications** • Plan/choose investigations where students can compare and contrast the stages of life in a variety of plants and insects. • Select a variety of visuals to support learning (e.g., life cycle diagrams, illustrations, and charts/tables). • Plan for students to illustrate and label the stages of life cycles.
Materials/Resources	• TX Fusion* • STEMscopes* • Seesaw • Carson Dellosa • Quizizz • Kahoot • Nearpod

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level	• Adult • Beetles • Changes • Complete/Incomplete • Cotyledon (first leaves) • Crickets • Egg • Embryo • Fertilization • Germinate* • Insect Life Cycles • Larva • Life Cycles • Lima Beans • Mature plant • Metamorphosis • Nymph • Plant Life Cycles • Pollination • Pupa • Radish* • Seed • Seed coat • Seedling • Spore • Termites

INSTRUCTIONAL UNITS

Instruction and Student Engagement	• **TX Fusion Science Textbook:** Unit 11 Lesson1 Student Edition pp. 481-496 (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Edition>Unit 11: Lesson 1) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (2 instructional days.) o The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (pp.28-30 germinate, maturity, fertilization, pollination, and spore) Have students write definitions in science notebook. Go over all vocabulary terms, but deeply explain the word maturity. They need to understand that an adult plant can also be referred as a mature plant and will be able to reproduce. o The teacher will read Student Edition pp.481-496, "How Do Plants Reproduce?" Use TE sidebar notes to help you guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their science textbook. Discuss the captions and photographs for every page you read. o Read pp.481-483, "How Does a Garden Grow?" Help students deeply understand the Radish Life Cycle and the Lima Bean Life Cycle. They should be able to compare the similarities and differences of both plants. Students should also comprehend that the life cycles would have a particular sequence. guide students by completing Lima Bean Cycle diagram on p.483 o Read pp.484-485, "Flowers and Cones!" Help students understand flowers and cones make reproductive cells. Students should be able to distinguish the different parts of the flower and the life cycle stages from seeds to adult/mature plants. o Read pp.486-487, "The Power of Pollen!" Help students understand that pollination will happen when moving from male to female plant parts and can be self-pollinated (plant has both male and female parts) or cross pollinated (wind, water, or animals can carry pollen to pollinate female parts). o Read pp.488-489, "Seeds on the Move!" Help students understand that water, wind, and animals can carry seeds from place to place. Complete question on p.489 to answer how strawberries, burs, and pine seeds are moved. o Read pp. 490-491, "Other Way Plants Grow!" Help students understand that plants can grow in different ways. For example, ferns will grow from spores if they land in the correct location and will begin their life cycle stages. Guide students to complete chart on p.491 for extra compare and contrast practice. o Have students complete pp.492-497 to review concepts learned. Focus on p.487 Apply concept and o guide students to practice the life cycle of a radish or lima plant. Allow them to go back and locate their answers. o To close the lesson: The teacher can guide students by adding Plant Life Cycle Anchor Chart to their science notebook.

- Review any misconceptions and answer any questions students still may have. Students' misconceptions may be that lima beans are vegetables. However, beans along with other foods we label as vegetables (tomatoes, peppers, cucumbers) are actually fruits because fruits develop flowers and contain seeds.

- **Tx Fusion Science Textbook:** Unit 11 Lesson 3 Student Edition pp. 501-514 (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11: Lesson 3)(Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (2 instructional days.)
  - The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (p.30 complete metamorphosis, incomplete metamorphosis, and nymph.) Have students write definitions in science notebook. Go over all vocabulary terms, but deeply explain the word metamorphosis and nymph. 5th grade will enforce complete and incomplete. They need to understand that metamorphosis is a change that some organisms go through and that some animals are born alive, whereas others hatch from eggs. Students should be able to compare and contrast the life cycles of different organisms.
  - The teacher will begin to read Student Edition pp.501-514, "How Do Animals Reproduce?", and may use TE sidebar notes to guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their textbook. Discuss captions and photographs for every page you read.
  - The teacher will read Read pp.502-503, "Life in a Full Circle!" Help students understand that animals also have life cycles and will grow and reproduce. Animal's life cycles also follow a sequence of stages that help them develop. Complete Matching game on p.503 and use work bank on the top corner of the page (adult, newborn, and youth)
  - Read pp.504-505, "Bringing up Baby!' Help students understand that baby animals develop and are born in different ways.
  - Read pp. 506-507, "Growing Up!" Help students understand the life cycle of humans. Go over captions and photographs in detail. Have students make connections about their family. Students will need to be able to compare life cycles of a plant and animals including human's life cycle. For example how a seed and a baby are the beginning of the life cycle stage.
  - Read pp. 508-509, My, How You've Changed!" Help students understand the lifecycle of a butterfly versus the life cycle of a grasshopper. Go over in detail the different stages and how some organisms will have 3 or 4 stages. Use ENA acronym (egg, nymph, adult) to help students recall 3 stages. Use ELPA acronym (egg, larva, pupa, adult) to help students recall 4 stages. The students should be able to understand the difference between a nymph and an adult.

Metamorphosis will be an important word for the explanation of the lesson. 5th grade will enforce complete and incomplete metamorphosis.

- Read pp. 510-511, "Saving the Sea Turtles!" Help students understand that some organisms are endangered and that if they become extinct their life cycle is over. Make connections and ask students how they can help sea turtles, so they can grow and develop.
- Have students complete pp.512-514 to review concepts learned. The teacher may need to guide students and continue to help with metamorphosis concepts. Allow them to go back and locate their answers.
- To close the lesson: The teacher can guide students by adding Cricket and Beetle Anchor Charts to their science notebook.(Closely go over the anchor chart because it is part of their learning standard.) Review any misconceptions and answer any questions students still may have. Students misconceptions may be thinking all insects undergo the same number of stages in their life cycles. They may also think that there are different organisms in each stage because of the contrast in their appearance and not realizing it is the same organism throughout the stages of the life cycle.

- **Tx Fusion Science Go Digital Lesson Unit 11 Lesson 1** (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11: Lesson 1 Digital Lesson) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teacher may assign the following digital lesson to students or may guide the lesson. Lesson has interactive questions and is divided into 15 slides. If guiding the lesson, you may use a Bluetooth/Cordless mouse and have students drag to complete activities in class.
  - Once students have completed the slides they may work with a partner or group to complete the Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amounts peers or groups. The teacher may also assign Companion questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Remind students to use complete sentences and to use academic vocabulary

- **Tx Fusion Science Go Digital Lesson Unit 11 Lesson 3** (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11: Lesson 3 Digital Lesson) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teachers may assign the following digital lesson to students or may complete the lesson guided. Lesson has interactive questions and is divided into

10 slides. If completing lesson guided you may use a Bluetooth/Cordless mouse and have students drag to complete activities in class.
  - Once students have completed the slides they may work with a partner or group to complete the Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amongst peers or groups. The teacher may also assign Companion questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Remind students to use complete sentences and to use academic vocabulary.

- **StemScopes-**StemScopedia (Requires Clever login, go to the Scopes Tab>Fourth Grade-Streamlined> 4.10C Life Cycles>Explain Tab>StemScopedia.)
  - Prior to StemScopedia Lesson, the teacher may read information provided under the Essentials Tab titled: Teacher Background to review materials that vertically align with the lesson.
  - Use Explain Tab to go over Picture Vocabulary Words that align to the lesson and direct students to add definitions onto their science notebook. Teachers may print words and add them to their word wall.
  - Use Explain Tab and complete StemScopedia Lesson: Teachers may assign directly on StemScopes or may print PDF documents under students handouts on the right side of the page. Read, discuss, and complete the following questions with a group or teacher. As you are reading, encourage the students to write notes if you printed the document. The section, "Try Now p.5" can be used as a class or home extension.
  - Optional: The StemScopedia can also be found interactively under the Explain Tab labeled e-Scopedia. This activity may be assigned to students and can also be used for homework review.

SPED-TX Fusion Go Digital! Unit 11 Lesson 1 (go to Clever Think Central>Student Resources Grade 4> Unit 11 Lesson 1>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)TX Fusion Go Digital! Unit 11 Lesson 3 (go Clever Think Central >Student Resources Grade 4> Unit 11 Lesson 3>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)This may be used as additional notes to review or preview the lesson and may be glued to the students science notebook.

EB-Use Science Tx-Fusion TE p.489 English Language Learner: Use this page to help students understand how apostrophes show possession for example plant's stem(the stem belongs to the plant), animal's fur (the fur belongs to the animal) Show the placement of the apostrophe when added to plural nouns: Plants' stems or animals' fur. Continue to review by writing words on the board for extra support.

	(Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) Linguistic Accommodations **GT-**Use Science Tx-Fusion TE p.496A Challenge Writing Connection: Students will write a poem about their favorite plant. They may use what free verse style or poem form they choose. The poem should include information about the life cycle of the selected plant. **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)

Evidence of Learning

Checking for Understanding

1. What are the stages in a beetle's life cycle?
   (The stages of a beetle's life cycle are_____.)
2. What are the stages in a plant's life cycle?
   (The stages of a plant's life cycle are_____.)
3. What is the difference between a seed and a seedling?
   (The difference between a seed and a seedling is_____.)
4. Compare a beetle larva(mealworm) to an adult beetle.
   (The larva and an adult beetle are different because_____.
5. How are an egg and seed alike?
   (The eggs and the seed are alike because_____.)
6. What would happen to the population of beetles if their food supply decreased?
   (If the beetles' supply food would decrease the beetles will_____.)
7. What is the advantage to hatching as a larva and changing into an adult insect later?
   (The advantage would be _____.)

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Seesaw**-Radish and Human Venn Diagram
  - In this activity students will use Science Tx Fusion p.482 and p.506 to Label Venn Diagram comparing Radish and Human Life Cycle.(Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
- **Google Form: 4.10 C Life Cycle Assessment**
  - This assessment is based on 5 multiple choice, 3 multi-select, and an open-ended question.
- **StemScopes**-Reading Passage:
  - In this activity students will read and analyze the importance of the sun and will answer student printed handouts or assign in StemScopes.

INSTRUCTIONAL UNITS

Module 5 of 8 (5 Days): Structural Adaptations	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.10A **explore** how structures and functions enable organisms to survive in their environment (R) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **define** and **explain** the terms environment and adaptation • **define** and **explain** physical and behavioral adaptations • **explore** how adaptations enable plants and animals to survive in their environments • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may not understand the direct relationship between a living organism's adaptations and the environment in which it lives. • Students may think organisms can quickly adapt to any changes within an environment.

INSTRUCTIONAL UNITS

Content Connections	**Key Concepts** • Different structures help organisms meet their basic needs and survive in their environments. • Adaptations of plants and animals include both internal and external structures and functions. • Bird beaks are structures that have adapted in size and shape for eating different foods. Plant leaves are adapted in size and shape, and their function is to enable survival in different environments. • Some organisms have external structures that function to blend into their environments. **Instructional Implications** • When facilitating conversations about adaptations, discuss the unique characteristics of that living organism. • Have students explore a variety of plants within their environments and justify thinking on how adaptations help in survival. • Plan/choose learning opportunities with a variety of animals that have specific adaptations that help them survive in their environment. Have students justify their thinking on how these adaptations help in survival. • Plan activities where students can explain why an animal cannot survive in a certain environment (e.g., a polar bear in a desert).
Materials/Resources	• TX Fusion* • STEMscopes* • Carson Dellosa • Seesaw • Quizizz • Kahoot • Nearpod

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level	• Adaptation* • Behavioral Adaptation* • Camouflage* • Defense* • Environment • Function • Instinct* • Mimicry* • Organism • Physical Adaptation* • Predator* • Prey* • Protection* • Structure • Survive
Instruction and Student Engagement	• **TX Fusion Science Textbook:** Unit 11 Lesson 4 Student Edition pp. 517-530 (Requires Clever Login, go to Science Tx Fusion> 4th Grade Student Edition>Unit 11: Lesson 4)**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (2 instructional days.) o The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (pp. 30-31 environment, adaptation, physical adaptation, behavioral adaptation, and instinct.) Have students write definitions in their science notebook. Go over all vocabulary terms, but deeply explain the word adaptation. They need to understand that animals and plants have characteristics that help them survive in their environment. o Teacher will read Student Edition pp.517-530, "How Are Living Things Adapted to Their Environment?" and may use TE sidebar notes to guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their textbook. Discuss captions and photographs for every page you read. o Read pp.518-519, "Life on the Blue Planet!" Help students understand that the environment consists of all living things and nonliving things and depend on each other. Because there are many different types of environments on Earth, there are also many types of organisms. Use the background photograph to label living and nonliving things. For example, a zebra is living and water is nonliving.

- Read pp. 520-521, "Who Is out on a Limb!" Help students understand that animals live in a specific environment because they need to have specific adaptations that help them thrive. Go over captions and photographs and label structures (body part) and function (what the body part does). Complete the question on p.521 for extra practice.
- Read pp.522-523, "Who Can Go with the Flow?" Help students understand that animals and plants have specific adaptations to live in a water environment. Their adaptations will help them survive. Go over captions and photographs and complete the question on p.523 for extra practice.
- Read pp.524-525, "Who can Take the Heat?" Help students understand physical adaptations(appearance) for example a cactus plant has waxy coatings to minimize water loss.
- Go over behavioral adaptations (how an organism acts) for example how many animals are active in the night to avoid the heat of the desert. Go over instinct as an inherited behavior(born). Complete question on p.525 for extra practice.
- Read pp.526-527, "Who can Take the Cold?" Help students understand that organisms have adaptations to survive in different temperatures. Go over captions and photographs and complete the question on p.527 to compare a desert Jackrabbit and an Arctic Hare.
- Have students complete pp.528-529 to review concepts learned. Focus on p.529 Apply Concept and guide students to understand adaptations of plants. Allow them to go back and locate their answers.
- To close the lesson: The teacher can guide students by adding Animal Adaptation, Animal Structure and Functions, and Plants Anchor Charts to their science notebook.
- Review any misconceptions and answer any questions students still may have. Students' misconceptions may be that they think that a lily pad just floats in the water but they need to know that it does have a root attached to the ground. (Tip: students tend to grasp animal adaptations faster than plant adaptations.)

- **Tx Fusion Science Go Digital Lesson Unit 11 Lesson 4** (Requires Clever Login to Think Central, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11 Lesson 4 Digital Lesson)**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teacher may assign the following digital lesson to students or guide the lesson. Lesson has interactive questions and is divided into 15 slides. If guiding the lesson, you may use a Bluetooth/Cordless mouse and have students drag to complete activities in class.

- Once students have completed the slides they may work with a partner or group to complete the Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amounts peers or groups. The teacher may also assign Companion questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Remind students to use complete sentences and to use academic vocabulary.

- **StemScopes-**StemScopedia (Requires Clever login STEMScopes, go to the Scopes Tab>Fourth Grade-Streamlined> 4.10A Structures and Functions>Explain Tab>StemScopedia.)
  - Prior to StemScopedia Lesson, the teacher may read information provided under the Essentials Tab titled: Teacher Background to review materials that vertically align with the lesson.
  - Use Explain Tab to go over Picture Vocabulary Words that align to the lesson and direct students to add definitions onto their science notebook. Teachers may print words and add them to their word wall.
  - Use Explain Tab and complete StemScopedia Lesson: Teachers may assign directly on StemScopes or may print PDF documents under students handouts on the right side of the page. Read, discuss, and complete the following questions with a group or teacher. As you are reading, encourage the students to write notes if you printed the document. The section, "Try Now p. 2" can be used as a class or home extension.

- **Carson Dellosa Science Interactive Notebook: Adaptations**
  - The teacher will guide students to write the TEKS 4.10A and objective on the left side of their Science notebook for extra support. (Examples provided after p.25.)
  - Teachers will introduce the Interactive Notebook Lesson by comparing an arctic fox and a desert fox. (Further Instructions on p 24.)
  - Guide students in creating their interactive page on the right-hand side of their journal by following the steps on p.24. Give students enough time to cut all pieces.(Tip: you may cut each piece as you need it, so students won't lose parts)Students will reflect on their learning on the left-hand side of their notebook. The student will choose a plant or animal from two different environments and will compare adaptations.

SPED-TX Fusion Go Digital! Unit 11 Lesson 4 (go to Clever Think Central>Student Resources Grade 4> Unit 11 Lesson 1>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)This may be used as additional notes to review or preview the lesson and may be glued to the students science notebook.

INSTRUCTIONAL UNITS

	EB-Use Science Tx-Fusion TE p.520. English Language Learner: Use this page to help students understand compound words. Write grassland on the board and explain that compound words are made of two smaller words. Continue to review by writing words on the board for extra support. **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) Linguistic Accommodations **GT-**Use Science Tx-Fusion TE p.532A Challenge: Which Habitat? Students will complete Google Slides Investigation about birds.**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)

Evidence of Learning

Checking for Understanding

1. What are structures?
   (A structure is _____.)
2. What is a function?
   (A function is_____.)
3. What is an example of a structure and its function?
   (An example of a structure is and an example of a function is_____.)
4. How does beak shape determine the type of food a bird eats?
   (A bird's beak helps determine their food source because_____.)
5. How are animal's teeth related to bird beaks?
   (Animal's teeth are related to birds because_____.)
6. What does the beak of a meat-eating bird look like?
   (The beak of a meat-eating bird looks like_____.)
7. Compare and contrast a carnivorous beak with teeth of a carnivorous animal.
   (A carnivorous beak is different and similar to a carnivorous animal because_____.)
8. How does having a leaf that floats on water benefit a lily pad that lives underwater?
   (The leaf benefits the lily pad because it helps the plant by_____.)
9. What is the benefit of having flexible leaves?
   (The benefit of having flexible leaves is that_____.)
10. How does the structure of cactus thorns (spines) function to help the plant survive?
    (The structure of the cactus's thorn helps the plant survive because_____.

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Seesaw**: Ecosystems and Adaptations Quiz
  - In this activity students will be able to review concepts learned in the lesson about adaptations. Students may only focus on Adaptation slides (1-6) or can complete review slides (7-12) from previews lessons.
- **Google Slides Virtual Field Trip**-Structures and Functions
  - In this activity students will go on a Zoo Virtual Field Trip and analyze the physical adaptations of animals by identifying structures and functions.
- **StemScopes**-Reading Passage: Plant Adaptations
  - In this activity students will read and analyze the importance of plant adaptations and will answer student printed handouts or assign in StemScopes.

INSTRUCTIONAL UNITS

Module 6 of 8 (5 Days): Inherited Traits & Learned Behaviors	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.10B **explore** and **describe** examples of traits that are inherited from parents to offspring, such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively (S) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **understand** some likenesses between parents and offspring are inherited and passed from generation to generation • **understand** some behaviors are learned as an organism grows and develops • **understand** many behaviors are a combination of learning and instinct • **understand** some traits are influenced by environmental conditions • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Students may have difficulty differentiating between learned behaviors and inherited traits. • Students may not understand that plants have inherited traits.

INSTRUCTIONAL UNITS

Content Connections	**Key Concepts** • Some characteristics are inherited from parent to offspring, while other characteristics are acquired. • Inherited characteristics include eye color in humans and shapes of leaves in plants. • Learned behaviors include having table manners, reading a book, and a wolf pack teaching pups to hunt. **Instructional Implications** • Plan/choose a variety of instructional activities where students can observe, investigate, and communicate the ways plants, animals, and humans have inherited traits. • Plan/choose a variety of instructional activities where students can observe, investigate, and communicate the ways animals and humans have learned behaviors. • Provide examples for students to be able to determine whether it is a learned behavior or an inherited trait and justify their thinking. • Present a variety of visuals and other media that show real-world examples of learned behaviors and inherited traits for students to make real-world connections.
Materials/Resources	• TX Fusion* • STEMscopes* • Carson Dellosa • Seesaw • YouTube • Quizizz • Kahoot • Nearpod
Academic Vocabulary *new to grade level	• Acquired* • Behavior • Heredity* • Inherited Trait • Instinct* • Learned Behavior* • Offspring • Parent

INSTRUCTIONAL UNITS

Instruction and Student Engagement	• **Tx Fusion Science Textbook:** Unit 11 Lesson 6 Student Edition pp. 533-543 (Requires Clever Login to Think Central, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11:Lesson 6)**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab) (2 instructional days.) o The teacher may introduce the lesson by reviewing Tx Fusion Vocabulary Cards (p.32 heredity, learned behavior, and instinct) Have students write definitions in their science notebook. Go over all vocabulary terms, but deeply explain the word heredity which refers to the term inherited traits. They need to understand that heredity/inherited traits are passed from parent to offspring. o The teacher will read the Student Edition pp.533-543, "What Are Heredity, Instincts, and Learned Behaviors?" and may use TE sidebar notes to guide instruction throughout the pages. The teacher will encourage students to actively annotate new information in their textbook. Discuss captions and photographs for every page you read. o Read pp.533-534, "Like Mother, Like Daughter!" Help students understand that children will resemble their parents because parents passed their traits to their offspring(baby). Living organisms like animals or plants will inherit traits from their parents. Guide students to complete inherited traits activity on p. 534 and analyze information on p.535. o Have students draw their complete family in their science notebook to extend the lesson by labeling the traits of each individual. o Read pp.540-541, "Learning Your Lesson!" Help students understand that living organisms have learned behaviors (the behavior of how a living organism acts) because it will help them survive. Guide students to complete bullets on p.540 and go over captions and photographs. This lesson provides class discussion by making real world connections and students may share ideas with a partner. o Read pp.542-543, "Insight into Instinct!" Help students understand that a behavior that an organism is born with is called an instinct. Have students make connections and discuss how a baby acts when it is just born for example blinking, swallowing, or breathing. Guide students and complete chart on p.543. o Have students complete p.544 Sum It Up! to review concepts learned and they may also complete p.546 Apply Concept questions 2 and 4. Allow them to go back and locate their answers. o To close the lesson: The teacher can guide students by adding Inherited Traits and Learned Behaviors Anchor Chart to their science notebook. Consider adding photographs from the books or magazines to the anchor chart.

- Review any misconceptions and answer any questions students still may have. Students' misconceptions may be that they think that instincts are also learned behaviors and may not understand that plants also have inherited traits.

- **Tx Fusion Science Go Digital Lesson Unit 11 Lesson 6** (Requires Clever Login to Think Central, go to Science Tx Fusion> 4th Grade Student Resources>Unit 11 Lesson 6 Digital Lesson) **(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)
  - The teacher may assign the following digital lesson to students or may guide the lesson. Lesson has interactive questions and is divided into 9 slides. When completing lesson, you may want to skip slide 3,4, and 5 because it is talking about genes or you may want to briefly expose the kids. If guiding the lesson, you may use a Bluetooth/Cordless mouse and have students drag to complete activities in class.
  - Once students have completed the slides they may work with a partner or group to complete the Digital Lesson Companion open-ended questions. The teacher will need to print files and divide the work amounts peers or groups. Teacher may also assign Companion questions in Google Docs using their Google Classroom Platform. They may be assigned independently or as a shared document with peers. Students will need to skip some questions from screens 3 and 4. Remind students to use complete sentences and to use academic vocabulary.

- **StemScopes-**StemScopedia (Requires Clever login STEMScopes, go to the Scopes Tab>Fourth Grade-Streamlined> 4.10B >Explain Tab>StemScopedia.)
  - Prior to StemScopedia Lesson, the teacher may read information provided under the Essentials Tab titled: Teacher Background to review materials that vertically align with the lesson.
  - Use Explain Tab to go over Picture Vocabulary Words that align to the lesson and direct students to add definitions in their science notebook. Teachers may print words and add them to their word wall.
  - Use Explain Tab and complete StemScopedia Lesson: Teachers may assign directly on StemScopes or may print PDF documents under students handouts on the right side of the page. Read, discuss, and complete the following questions with a group or teacher. As you are reading, encourage the students to write notes if you printed the document. The section, “Try Now p.3” can be used as a class or home extension.

INSTRUCTIONAL UNITS

- **Carson Dellosa Science Interactive Notebook:** Traits and Heredity
  - The teacher will guide students to write the TEKS 4.10B and objective on the left side of their science notebook for extra support. (Examples provided after p.23.)
  - The teacher will introduce the Interactive Notebook Lesson by providing pictures of baby and adult animals. Students will compare them in class. If you do not have pictures ask students to draw them and then complete the activity. (Further Instructions on p. 22.)
  - Guide students in creating their interactive page on the right-hand side of their journal by following the steps on p.22. Give students enough time to cut all pieces. (Tip: you may cut each piece as you need it, so students won't lose parts)
  - Students will reflect on their learning on the left-hand side of their notebook. The student will answer: How is learned behavior in an animal different from a behavior that the animal is born with? or they may write 5 facts about inherited traits and learned behaviors. (Further instructions after p.22)

SPED-TX Fusion Go Digital! Unit 11 Lesson 6 (go to Clever Think Central>Student Resources Grade 4> Unit 11 Lesson 6>Lesson Level Resources> Extra Support for Vocabulary and Concepts.)This may be used as additional notes to review or preview the lesson and may be glued to the students science notebook.

EB-Use Science Tx-Fusion TE p.537 English Language Learner: Use this page to help students understand Homophones .Write the following word pairs ant/aunt on the board and explain that homophones are words that sound alike, but have a different spelling and different meaning. Continue to review by writing words on the board for extra support.**(**Must be logged into Think Central to access TE pages>click on link> select copy link icon> paste on a new tab)

Linguistic Accommodations

GT-Use the StemScopes Acceleration Tab: Science Art PDF: Students will complete a Parental Puppets to show how inherited traits are passed to their offspring.

Evidence of Learning	

Checking for Understanding

1. What is a trait?
   (A trait is_____.)
2. What are some behaviors that humans have learned?
   (Humans have learned behaviors for example_____.)
3. What are some behaviors that baby birds must learn?
   (Baby birds must learn behaviors from their offspring for example_____.)
4. How would you classify brown hair?
   (Brown hair would be classified as_____.)
5. How would you classify the ability to do a cartwheel?
   (The ability to do a cartwheel would be classified as a _____.)
6. What inherited traits and learned behaviors do dogs have?
   (Dogs have inherited traits by_____ and learned behaviors by_____.)
7. Give an example of an instinct.
   (An example of an instinct is_____.)
8. Can plants learn behaviors?
   (Plants _____learn behaviors.)

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Seesaw-** Learned Behaviors and Inherited Traits Sort
  - In this activity students will sort different examples
- **Google Slides-** Inherited Traits, Learned Behavior, and Instincts
  - In this activity students will answer questions about themselves and family.
- **StemScopes-**Reading Passage: Leeny and the Lionfish(Elaborate Tab)
  - In this activity students will read, analyze, and answer questions about how lionfish inherit traits from parents. How their traits help them adapt and reproduce to survive. The teacher may print handouts or assign in StemScopes.

INSTRUCTIONAL UNITS

Module 7 of 8 (5 Days): Organisms & Environments Unit Review	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.9A **investigate** that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food (S) 4.9B **describe** the flow of energy through food webs, beginning with the Sun, and **predict** how changes in the ecosystem affect the food web (R) 4.10C **explore**, **illustrate**, and **compare** life cycles in living organisms such as beetles, crickets, radishes, or lima beans (S) 4.10A **explore** how structures and functions enable organisms to survive in their environment (R) 4.10B **explore** and **describe** examples of traits that are inherited from parents to offspring, such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively (S) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards
Content and Language Objectives	*The Learner Will:* • **understand** that living organisms within an ecosystem interact with one another and with their environment • **understand** that organisms undergo similar life processes and have structures and behaviors that help them survive within their environments • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Refer to previously discussed misconceptions presented for each module.

INSTRUCTIONAL UNITS

Content Connections	**Real-World/Cross-Curricular Connections**
	
	• **Writing Connection Science Fusion U:10 TE p.468A Fact Cards**
	  ○ Have students select a food web that they would like to learn more about. Have them make fact cards for each organism in the food web. Each fact card should contain at least two facts about the organism. Encourage students to illustrate their cards. Students can use a hole punch and string to arrange cards into a food web. (Clever Login)
	• **Math Connection Science Fusion U:11TE p.496A Graph Plant Growth**
	  ○ Have students grow a young plant from a seed, such as a bean plant or a radish plant. Each day after the seed germinates, students should measure the plant's height. After two weeks, direct students to use the height data to construct a bar graph. (Clever Login)
	• **Art Connection Science Fusion U:11TE p.546A Draw a Family Tree**
	  ○ Ask students to make a family tree using photographs or drawings of grandparents, parents, and children. Have students examine the family trees made by their classmates. Can classmates tell which traits have been passed down from generation to the next. (Clever Login)
	• **StemScopes Writing Connection Google Slides**
	  ○ Students will write about the pumpkin's place in the food chain. Where did the pumpkin plant get its energy to grow? How might this pumpkin be used for energy now? (Clever Login)

Materials/Resources	• TX Fusion* • STEMscopes* • Quizizz • Kahoot • Nearpod • Lead4Ward • Seesaw • YouTube

INSTRUCTIONAL UNITS

Academic Vocabulary *new to grade level	• Refer to previously discussed academic vocabulary presented for each module.
Instruction and Student Engagement	**Additional Activities 4.1A/4.4A** • Videos (Video #1 inactive) **Additional Activities 4.9A** • Student Manipulatives 4.9A • StemScopes in the Elaborate Tab: Concept Review Game to review vocabulary words and have students apply throughout their daily communication. (Clever Login) • Videos 4.9A • Lead4ward Strategies 4.9A • Quizizz-4.9A Producers and Consumers Review • Kahoot-Producers, Consumers, and Decomposers • Nearpod: Photosynthesis • 4th Grade Study Guide (4.9A) **Additional Activities 4.9B** • StemScopes in the Elaborate Tab: Concept Review Game to review vocabulary words. (Clever Login) • StemScopes Assessments: 1)Pre 2)Progress 3)Post (Clever Login) • Lead4ward Strategies-4.9B • Quizizz-Food Webs and Food Chains • Kahoot-Food Webs and Food Chains • Seesaw-Can You Make a Food Web? • Nearpod-Tracing Food Chain Pathways in a Food Web • 4th Grade Study Guide (4.9B)

Additional Activities 4.10C

- Carson Dellosa Interactive Notebook-Life Cycle of Butterfly
- Carson Dellosa Interactive Notebook-Plant Life Cycle
- StemScopes in the Elaborate Tab- Concept Review Game to review vocabulary words. (Clever Login)
- StemScopes Assessments: 1)Pre 2)Progress 3)Post (Clever Login)
- Student Manipulative-Puzzle Game
- Video Links-Life Cycles-4.10C
- Lead4ward Strategies-4.10C
- Seesaw-Venn Diagram of beetle and Chicken Life Cycle
- Quizizz-Life Cycles
- Kahoot-Life Cycles
- Nearpod-Comparing Life Cycles
- 4th Grade Study Guide (4.10C)

Additional Activities 4.10A

- Science Tx Fusion Virtual Clever Login Think Central-U:11L5 Digital Lesson: Why Do Bird Beaks Differ?(Under Student Resource Grade 4)
- StemScopes in the Elaborate Tab- Concept Review Game to review vocabulary words. (Clever Login)
- StemScopes Assessments: 1)Pre 2)Progress 3)Post (Clever Login)
- Video Links Adaptations-4.10A
- Lead4ward Strategies-4.10A
- Seesaw-Sorting Adaptations
- Seesaw-Choice Board
- Quizizz-Adaptations
- Kahoot-Adaptations
- Nearpod-Adaptation Flocabulary Song
- 4th Grade Study Guide (4.10A)

Additional Activities 4.10B

- Student Manipulative Puzzle-4.10B
- StemScopes Traits Activity-Reference Sheet Student Handout
- StemScopes in the Elaborate Tab- Concept Review Game to review vocabulary words. (Clever Login)
- StemScopes Assessments: 1)Pre 2)Progress 3)Post (Clever Login)
- Video Links-Traits
- Lead4ward Strategies-4.10B
- Seesaw-Vocabulary Fill-in the Blanks

INSTRUCTIONAL UNITS

	• Quizizz-4.10B • Kahoot-4.10B • Nearpod-4.10B • 4th Grade Study Guide (4.10B) Linguistic Accommodations

Evidence of Learning

Checking for Understanding

- How do organisms obtain and use food?
  (Organisms obtain and use food by…)
- What are food chains?
  (Food chains are…)
- What are food webs?
  (Food webs are…)
- How can we model a food web?
  (We can model a food web by…)
- How do plants reproduce?
  (Plants reproduce by…)
- How can we explore a plant's life cycle?
  (We can explore a plant's life cycle by…)
- How do animals reproduce?
  (Animals reproduce by…)
- How are living things adapted to their environment?
  (Living things are adapted to their environment by…)
- Why do bird beaks differ?
  (Bird beaks differ because…)
- What are heredity, instincts, and learned behaviors?
  (Heredity is… instincts are… learned behaviors are…)

Learning Intentions for Emergent Bilinguals

Sample Assessment Items

- **Organism and Environments Review Assessment**
  - The assessment contains vocabulary, multiple choice, and open-ended questions from the Science Fusion Unit Assessments.
- **Science Fusion Unit 10&11 Performance Task Projects**
  - The Performance task projects will give students the opportunity to work in a group. (Rubric attached)
- **Science Fusion Video Based Projects: Alligators Up Close** (Clever Login)
  - Unit 10-Unit Teacher Support: The video-based projects activity will allow students to research and answer open ended questions that may be completed in a group. **(Student Resource Handout)**

INSTRUCTIONAL UNITS

Module 8 of 8 (10 Days): PLTW-Input/Output: Human Brain	
TEKS (R) Readiness, (S) Supporting, (P) Process	4.1B **make** informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic (P) 4.2A **plan** and **implement** descriptive investigations, including asking well defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions (P) 4.2B **collect** and **record** data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps (P) 4.2C **construct** simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data (P) 4.2D **analyze** data and **interpret** patterns to construct reasonable explanations from data that can be observed and measured (P) 4.2E **perform** repeated investigations to increase the reliability of results (P) 4.2F **communicate** valid oral and written results supported by data (P) 4.3A **analyze, evaluate,** and **critique** scientific explanations by using evidence, logical reasoning, and experimental and observational testing (P) 4.3B **represent** the natural world using models such as the water cycle and stream tables and identify their limitations, including accuracy and size (P) *Process standards will be integrated with content standards, so students develop a deeper understanding of science. English Language Proficiency Standards

INSTRUCTIONAL UNITS

Content and Language Objectives	*The Learner Will:* • **use** scientific reasoning to ask questions, make observations, and investigate ideas to make sense of phenomena and solve problems • **understand** that events have causes that generate observable patterns • **understand** that a system is an organized group of related objects or components and that models can be used to understand and predict the behavior of systems • **understand** how the nervous system receives stimuli from the outside world, interprets this information, and generates an appropriate response • **collaborate** effectively on a diverse and multidisciplinary team • **communicate** effectively for specific purposes using the appropriate platform, tool, format, or digital media • **practice** ethical behavior in all settings • Student linguistic accommodations should reflect listening, speaking, reading, and writing. Learning Intentions for Emergent Bilinguals
Misconceptions	• Refer to "Possible Student Misconceptions" found in the online PLTW teacher guide for each part of the module (Activity 1, Activity 2, Activity 3, Project, & Problem).
Content Connections	• In this module students are introduced to the analogy of the brain as a computer. They explore the various inputs and outputs of the human body. Students discover how signals passing from cell to cell allow us to receive stimuli from the outside world, get this information to the brain for processing, and then send out a signal to generate a response. Students investigate how we take in information through the senses and where the information is processed in the brain. Additionally, students explore how the brain and body react to stimuli. Students work as part of a team to design, plan, and create a video or podcast to raise awareness about concussions and educate children as to how concussions can either be identified early or prevented all together. Students follow a design process, a step by step way to solve problems, to help develop their video or podcast.

INSTRUCTIONAL UNITS

Materials/Resources	• PLTW*
Academic Vocabulary *new to grade level	• Brain* • Brain stem* • Central nervous system* • Cerebellum* • Cerebrum* • Concussion* • Constraint • Criteria • Design process • Evidence • Input* • Memory* • Nerve* • Nervous system* • Neuron* • Output* • Peripheral nervous system* • Senses • Spinal cord*
Instruction and Student Engagement	• Refer to online PLTW teacher guide for complete lessons Linguistic Accommodations

Evidence of Learning	**Checking for Understanding** • How does your body sense input from the outside world and make an appropriate response? (Our body senses input from the outside world by…) • How do medical professionals use cause and effect relationships to diagnose brain injuries? (Medical professional can diagnose brain injuries by…) • How can a step-by-step process help you design or improve a solution to a problem? (A step-by-step process helps…) Learning Intentions for Emergent Bilinguals **Additional Checking for Understanding Activities** • Conclusion Questions at the end of each activity **Sample Subunit Assessment Items** • Check for Understanding at the conclusion of the PLTW module