

CRM 6 Organisms & Environments

Pacing

- 66 days
- Feb.25-June 5
- Weeks 25-38

DESIRED RESULTS

Making Meaning

The study of life sciences looks at patterns, processes, and relationships of living organisms and their environment. Life scientists use observations, experiments, tests, models, theory and technology to investigate life on planet Earth. The study of life science includes investigating the following:

- Organisms interact with each other and with their environment.
- Organisms have basic needs that are met in their environment, or they will not survive.
- Organisms grow, change, and reproduce as adults.
- Individual organisms have structures and behaviors that help them survive.
- Individual organisms inherit traits from generation to generation.

Transfer: Students will use inquiry and work cooperatively to investigate living organisms to build an understanding of basic needs and how organisms interact with other living organisms and non-living elements in their environment. They will communicate and make connections of how inherited traits aid survival and how organisms change over time.

Enduring Understandings:

- All organisms have basic needs that can be satisfied through interactions with living and nonliving things in their environment.
- Over time, energy is transferred from the sun to organisms and repeatedly between organisms and their physical environment.
- Organisms have structures and behaviors that help them survive.
- In every species, organisms are growing; dying, decaying, and new organisms are being produced by the old ones.

Essential Questions:

- How do organisms survive?
- How do organisms compare as they go through their life cycles?

Essential Vocabulary

- adaptation/
- adaptación
- camouflage/camulfaje
- carnivore / carnívoro
- characteristics/características
- consumer/consumidor
- development/ desarrollo
- decomposer/ descomponedor
- ecosystem/
- ecosistema
- energy/energía
- environment/medio ambiente

- food web / red alimenticia
- herbivore / herbívoro
- learned behavior /conducta aprendida
- life cycle/ciclo de vida
- metamorphosis/metamorfosis
- offspring/hijos
- omnivore / omnívoro
- photosynthesis / fotosíntesis
- predator/depredador
- producer/productor
- reproduction/ reproducción
- trait/rasgo

Supporting Vocabulary Link

- [Elementary School Supporting Vocabulary](#)

Student Prerequisite Knowledge

Students should know:

- nonliving parts of an environment, such as the amount of available sunlight and water, temperature range, and the type of soil, have a big influence on what types of plants and animals will be able to live there.
- whatever affects one part of a food chain affects all the organisms in that ecosystem.
- organisms have unique adaptations that allow them to survive in specific habitats.
- organisms undergo observable changes during their life cycle.
- over the Earth, organisms are being born, grow, die, decay, and new organisms are produced from the parent organism.
- some young look like their parents while others undergo radical changes before they look like their parents.

Resources: Scott Foresman, [Science](#), STC: [Ecosystems Investigations](#), AISD Module Kit, [STEMScopes](#), [Scientist’s Notebook Samples and Resources](#), [Pearson Online Readers](#), [Differentiation Strategies & Resources document](#)

ELPS: Mandated by Texas Administrative Code (19 TAC §74.4), click on the link for [English Language Proficiency Standards \(ELPS\)](#) to support English Language Learners.

TEKS Knowledge & Skills	Acquisition	
STAAR: RC = Reporting Category; DC = Dual Coded Skills; Readiness Standard ; Supporting Standard Concepts are addressed in another unit.	Students Will Know	Students Will Be Able To
4.9: Organisms and environments. The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:		
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.	<ul style="list-style-type: none"> • Plants make their own food using sunlight and chlorophyll through the process of photosynthesis. • Because plants make their own food they are called producers. • Consumers obtain energy and materials for body repair and growth by eating other organisms. • Some insects and other organisms depend on dead plant and animal materials for food. 	<ul style="list-style-type: none"> • Observe and record the interactions of organisms with their environment. • Explore what needs different organisms have and how they meet their needs in their habitat. • Describe relationships between non-living things, consumers, producers, and decomposers.
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 such as a fire in a forest.	<ul style="list-style-type: none"> • Energy in food chains and webs begins with the Sun and flows into producers, then consumers. • Changes to an environment can affect whether certain organisms can survive in that ecosystem. • Environmental changes such as floods, droughts, or fires will cause some organisms to thrive, others to move or adapt, or cause other organisms to become extinct. 	<ul style="list-style-type: none"> • Describe simple and more complex food chains and webs. • Draw models with the arrows showing the flow of energy in a food web. • Describe the cause/effect relationships that occur when change occurs within an ecosystem).

<p>4.10: Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:</p>		
<p>4.10A: explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants.</p>	<ul style="list-style-type: none"> • An adaptation is any structure or behavior that helps a living thing meet its needs and survive in its environment. • Nonliving parts of an environment, such as the amount of available sunlight and water, temperature range, and the type of soil, have a big influence on what types of plants and animals will be able to live there. • Animal adaptations occur as environments change in order for organisms to meet their needs, including getting food or air, for protection, for reproduction, etc. • Animals adapt to their environments both structurally and behaviorally. • Structural adaptations may take many generations to occur. A structural adaptation involves a change in some part of an organism's body. • Protective adaptations help to protect an animal. • Many species share a habitat and each species has a specific purpose in the habitat. 	<ul style="list-style-type: none"> • Explore various adaptations to understand how they help that organism survive in a specific habitat. • Identify what characteristics organisms possess that improve their ability to survive in an ecosystem. • Compare the characteristics of organisms in order to see how the characteristic is necessary for survival and reproduction. • Study and compare various adaptations of both plants and animals from different environments.
<p>4.10B: demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses.</p>	<ul style="list-style-type: none"> • Organisms inherit physical characteristics (traits) from their parents or their parent plant. • Behaviors of plants and animals are learned in response to the environment or changes in the environment. 	<ul style="list-style-type: none"> • Discuss and compare the traits and/or behaviors of many different organisms. • Collect and graph data about student inherited traits. • Explain a given characteristic as inherited from the parents or a learned behavior.
<p>4.10C: explore, illustrate, and compare life cycles in living organisms such as butterflies, beetles, radishes, or lima beans.</p>	<ul style="list-style-type: none"> • Organisms undergo observable changes during their life cycle. • All over Earth, organisms are being born, grow, die, decay, and new organisms are produced from the parent organism. • Some young look like their parents while others undergo radical changes before they look like their parents. 	<ul style="list-style-type: none"> • Observe and record the life cycle of live specimens. • Illustrate and label the life cycles of various plants and animals. • Compare the life cycles using academic vocabulary.

The study of science is taught through the lens of [Scientific Processes \(TEKS 4.1-4.4\)](#); therefore, these TEKS should be taught in conjunction with content throughout the year. Suggestions for TEKS to embed in each unit are provided in the Yearly Itinerary; however, the TEKS that can be addressed within a unit depends greatly on the learning activities in which students are engaged. Therefore, teachers must be deliberate in their choice of learning activities to ensure that all Scientific Processes TEKS are appropriately embedded within the course. In 4th grade, districts are encouraged to facilitate laboratory and field investigations for at least 60% of instructional time.

ASSESSMENT EVIDENCE

Student Work Products/Assessment Evidence

Performance Tasks	Other Evidence (i.e. unit tests, open ended exams, quiz, essay, student work samples, observations, etc.)
<p>Students investigate the following with hands-on labs and activities:</p> <ul style="list-style-type: none"> • Terrarium labs with plants and insects • Aquariums labs with plants and animals • Environmental interactions labs • Adaptation labs • Life cycle explorations 	<p>Short Cycle Assessment</p> <ul style="list-style-type: none"> • <i>SCA Testing Window: March 18-22, 2013</i> <i>Tested TEKS: 4.10A, 4.10B</i> • <i>SCA Testing Window: May 6-10, 2013</i> <i>Tested TEKS: 4.9A, 4.9B, 4.10C</i> <p>Additional Suggestions for Assessment</p> <ul style="list-style-type: none"> • Teacher observations and questioning <p>Student Interactive Notebooks and Lab Notes:</p> <ul style="list-style-type: none"> • lab notes • classification of producers, consumers, scavengers, and decomposers of organisms • web or graphic organizer of needs of organisms • food chains and webs drawings with arrows showing the flow of energy • using pictures to explain adaptations on various plants and animals • Bird Adaptations notes/Designs • identifying, polling, collecting data and graphing student inherited traits • identifying and differentiating between inherited traits and learned behaviors in organisms • identifying stages of life cycles • life cycle illustrations • comparing life cycles

LESSON PLANNING TOOLS

In the course of lesson planning, it is the expectation that teachers will include whole child considerations when planning such as differentiation, special education, English language learning, dual language, gifted and talented, social emotional learning, physical activity, and wellness.

Model Lesson- [Adaptations](#)

- Bird Adaptations
- Fish Adaptations
- [Plant Adaptations](#), (Defense, Defense)

Suggested Pacing: (5 days)

TEKS: 4.10A

Model Lesson- [Inherited Traits and Learned Behaviors](#)

- Inherited Traits and Learned Behaviors

Suggested Pacing (5 days)

TEKS: 4.10B

STAAR Writing Camp

Suggested Pacing: (9 days)

STAAR WRITING TEST APRIL 2-3

STAAR READING AND MATH TEST APRIL 23-24

Model Lesson- [Ecosystems](#)

- Ecosystems/Food Chains and Webs
- Terrarium Habitat
- Aquarium Habitat
- Adding Consumers to the Ecosystem
- Joining the Terrarium and Aquarium
- Observing Changes to the Ecosystem

Suggested Pacing: (20 days)

TEKS: 4.9A, 4.9B

Model Lesson- [Life Cycles](#)

- Life Cycles of Plants
- Life Cycles of Animals
- Life Cycle Assessment

Suggested Pacing: (5 days)

TEKS: 4.10C

Model Lesson- [Health Lessons](#)

Suggested Pacing: (5 days)

TEKS: HE4.1F, HE4.4G, HE4.7A-B, HE4.9E-G, HE4.10A, HE4.10C, HE4.11A, HE4.11C

Model Lesson- [Accelerate to STAAR Camp \(Interventions\)](#)

Suggested Pacing: (17 days)

TEKS: 4.7A, 4.7C, 4.8A, 4.8B, 4.8C