

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
- adult/adulto
- carnivore/carnívoro
- carbon dioxide-oxygen cycle/ ciclo dióxido de carbono-oxígeno
- complete metamorphosis / metamorfosis completa
- consumer/consumidor
- decomposer/descomponed or
- egg/huevo
- environment/medio ambiente
- function / función
- heredity/herencia
- incomplete metamorphosis /metamorfosis incompleta
- inherited trait/rasgo heredado
- larva/larva

- learned behavior /conducta aprendida
- life cycle/cicle de vida
- life processes / procesos de la vida
- nymph/ninfa
- offspring/hijos
- omnivore/omnívoro
- overpopulation/superpoblación
- photosynthesis/fotosíntesis
- pollution / contaminación
- predator/depredador
- producer/productor
- pupa/crisálida
- incomplete metamorphosis / metamorfosis incompleta
- reproduction/reproducción
- respiration/ respiración
- species / especie
- structures / estructurar
- survive/ sobrevivir

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.
- consumers obtain energy and materials for body repair and growth by eating other organisms.
- 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.
- 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.
- 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.

Resources: AISD Module Kit, Model Lesson Portfolio, FOSS: [Environments Investigations](#), [STEMscopes](#), eBooks: Envisions Science Levelled Readers, Scott Foresman Text, [Science Notebook Resources](#), [BrainPop Jr](#), [Discovery Education](#), [BBC Online Labs, Quizzes, and Activities](#), [Differentiation Strategies & Resources](#)

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
5.9: Organisms and environments. The student knows that there are relationships, systems, and cycles within environments. The student is expected to:		
<p><u>5.9A: observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements.</u></p>	<ul style="list-style-type: none"> • Organisms live and survive in an ecosystem only if their needs are met. • All the organisms and nonliving things in an environment and how they interact with one another form an ecosystem. • Earth is divided into six areas called biomes defined by climate: tropical rain forest, deciduous forest, taiga, tundra, desert, and grassland. 	<ul style="list-style-type: none"> • Observe organisms in their native habitat. • Describe interactions in an ecosystem. • Observe different ecosystems and biomes, and observe how the organisms in that biome interact to meet their needs.
<p><u>5.9B: describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers.</u></p>	<ul style="list-style-type: none"> • Energy in food chains and webs begins with the Sun and flows into producers, then consumers, then and decomposers. 	<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 food webs from different ecosystem.

<p>5.9C: predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways.</p>	<ul style="list-style-type: none"> • Living organisms can change their environment in both positive and negative ways. • Introduction of non-native species can harm the balance in the ecosystem. • Removal of predators may increase the prey animals in an ecosystem. • Anything in an environment that can harm other organisms or damage natural resources is called pollution. • We can predict how changes might affect the other organisms in the environment. 	<ul style="list-style-type: none"> • Describe the cause/effect relationships that occur when changes caused by living organisms occur within an ecosystem. • Predict short and long term effects to the ecosystem. • Predict changes to the Austin area as a result of population growth and destruction of native species habitats.
<p>5.9D: identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals.</p>	<ul style="list-style-type: none"> • Plants and animals help each other survive in a process called the carbon dioxide-oxygen cycle. • People and animals exhale carbon dioxide during respiration. • Plants use carbon dioxide, water, and sunlight to produce their own food, releasing oxygen as a waste product. • Humans and animals inhale the oxygen released by plants. 	<ul style="list-style-type: none"> • Identify the importance of plants in an ecosystem. • Describe the interdependence of plants and animals. • Describe what will happen if the carbon dioxide-oxygen cycle becomes imbalanced.
<p>5.10: Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</p>		
<p><u>5.10A: compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals.</u></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. • 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. 	<ul style="list-style-type: none"> • Explore various structural 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 structures (and their functions) of organisms in order to understand how that structure is necessary for survival and reproduction. • Study and compare various adaptations of both plants and animals from different environments.

<p><u>5.10B: differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.</u></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 trait. • Classify a given characteristic as inherited from the parents or a learned behavior.
<p><i>5.10C: describe the differences between complete and incomplete metamorphosis of insects</i></p>	<ul style="list-style-type: none"> • Animals that completely change form as they develop into adults go through metamorphosis. • Insects that go through four stages of development: egg, larva, pupa, adult, go through complete metamorphosis. • Insects that go through three stages of development: egg, nymph, adult, go through incomplete complete metamorphosis. 	<ul style="list-style-type: none"> • Describe the difference between complete and incomplete metamorphosis. • Classify illustrations of insect life cycles as complete or incomplete metamorphosis. • Give examples of each form of metamorphosis.
<p>3.9: Organisms and environments. The student knows that organisms have characteristics that help them survive and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:</p>		
<p><i>3.9A: observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem.</i></p>	<ul style="list-style-type: none"> • Environments have unique physical characteristics that provide food, water, air, shelter and/or protection to populations and communities within an ecosystem. • 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. 	<ul style="list-style-type: none"> • Observe various environments and record their populations, communities and the non-living parts of that environment . • Describe how the organisms have their needs met within that environment.
<p>3.10: Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:</p>		
<p><i>3.10C: investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady bugs</i></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 \(TEKS 5.1-5.4\)](#); 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 5th grade, districts are encouraged to facilitate laboratory and field investigations for at least 50% 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"> • FOSS: Environments observations and labs • Food chain/web investigations with owl pellets • Create a model food web • Cause and effect relationships in changing ecosystems graphic organizer/debate • Carbon dioxide-Oxygen Cycle lab • Adaptations labs • Inherited traits/learned behavior survey and graphs • Metamorphosis analysis paper/diagrams 	<p>Short Cycle Assessment</p> <ul style="list-style-type: none"> • <i>SCA Testing Window: Apr. 8-12, 2013</i> <i>Tested TEKS: 5.9A, 5.9B, 5.9C, 5.9D, 5.10A, 5.10B, 5.10C, 3.9A, 3.10C</i> <p>Additional Suggestions for Assessment</p> <ul style="list-style-type: none"> • Teacher observations and questioning • Student science notebooks and lab notes • Adaptations organizational chart • Explanations of adaptations within environments • Plant and insect observations • Plant growth graphs • Food web drawings and explanations. • Interactions observations and notes • Inherited traits/learned behavior data collection • Comparing life cycles data and notes

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](#)

- Life Processes
 - Animal Adaptations
 - Plant Adaptations
- Suggested Pacing: (5 days)
TEKS: 5.10A

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

- Inherited Traits and Learned Behaviors
- Suggested Pacing (5 days)
TEKS: 5.10B

[Ecosystems/Environments](#)

- Interactions
- Energy Flow

Review Lessons

- [STEMscopes:3.9A](#)

Suggested Pacing: (5 days)

TEKS: 5.9A, 5.9B, , 3.9A

[Changes in Ecosystems](#)

- Environmental Changes
- CO₂-O₂ Cycle

Suggested Pacing: (4 days)

TEKS: 5.9C, 5.9D

[Life Cycles](#)

- Life Cycles of Insects: Complete and Incomplete Metamorphosis

Suggested Pacing: (5 days)

TEKS: 5.10C, 3.10C

Interventions

- [STEMscopes](#) or Teacher Designed Lessons

Analyze your data from Moy I, MOY II, and SCAs to determine the needs of your students.

Suggested Pacing: (12 days)

STAAR Science Test Wednesday, April 24, 2013 (1 day)

[Health Lessons](#) (These lessons are to be taught after Interventions and STAAR in Weeks 32-33)

Suggested Pacing: (7 days)

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

Choice Units

- Engineering is Elementary
- Grade 6 Prep: Periodic Table/Elements
- Human Body
- M.A.R.E.
- STEM Units
- Reading and Writing About Science
- Science Fair Project
- Independent Study/Research

Suggested Pacing: (22 days)