

# Oklahoma Science Standards



## Elementary Life Science (Grades 1-3)

Reference	Content Standards	Wetlands (with teacher support)	Rainforest (with teacher support)
<b>XI. Characteristics and Basic Needs of Organisms</b>			
A.	Plants and animals need to take in air, water and food. In addition, plants need light.	Use Organisms and Migration as examples	Use Organisms as examples
B.	Plants and animals have features that help them live in environments such as air, water, or land.	Use Organisms and Migration as examples	Use Organisms as examples
C.	Each plant or animal has different structures that serve different functions in growth and survival	Use Organisms and Migration as examples	Use Organisms as examples
D.	Scientists use the five senses and tools to gather information, such as size and shape, about living things.	None	None
<b>XII. Life Cycles of Organisms</b>			
A.	Plants and animals have life cycles that include developing into adults reproducing, and eventually dying. The details of this life cycle are different for each organism.	Organisms and Migration (life cycle)	Organisms (life cycle)
B.	Generally offspring resemble their parents.	Use Organisms and Migration as examples	Use Organisms as examples
<b>XIII. Organisms and Environments</b>			
A.	All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants	Food Chains, Web Game, Organisms, Migration, Consumers, Producers	Dependency Game, Food, Habitat, Niches
B.	Hibernation, migration and camouflage are ways organisms increase their survival.	Use Organisms and Migration as examples	Organisms, Eyespots, Cryptic Coloration
C.	Plants and animal materials decay and are reused in the environment.	Decomposers, Red-gilled Cortinarius, Swamp Beacon	Productivity

# Oklahoma Science Standards



## Elementary Life Science (Grades 4-5)

Reference	Content Standards	Wetlands	Rainforest
<b>XI. Characteristics of Organisms</b>			
A.	Plants and animals have different structures that enable them to function in their environment	Use Organisms and Migration as examples	Use Organisms as examples
B.	Living organisms can be classified using various characteristics	Use Organisms and Migration (taxonomy)	Use Organisms as examples
C.	Fossils can be compared to one another and to living organisms according to their similarities and differences	None	None
<b>XII. Life Cycles of Organisms</b>			
A.	Plants and animals have different life spans	Organisms and Migration (life cycle)	Organisms (life cycle)
B.	Many characteristics of an organism, such as the color of flowers or the number of limbs on an animal, are inherited from the parents	Use Organisms and Migration as examples	Use Organisms as examples
C.	Some characteristics of an organism are learned through interactions with the environment	Organisms and Migration (behavior)	Organisms (behavior), New Species, Species Change,
<b>XIII. Organisms and Environments</b>			
A.	Some source of energy is needed for all organisms to stay alive and grow. Energy transfer can be followed in food chains and webs	Food Chains, Web Energy, Web Game, Organisms	Dependency Game, Food, Organisms
B.	Changes in environmental conditions can affect the survival of individual organisms and/or entire species	Plant Adaptations, Animal Adaptations, Habitat, Food Web Game	New Species, Species Change
C.	Organisms in a community depend on each other for food, shelter, and reproduction	Web Game, Producers, Consumers, Decomposers, Habitat,	Food, Habitat, Seed Dispersal, Pollination, Niches, Dependency Game
D.	Human interactions, such as building, pollution, and clearing the land impact the environment	Conservation, Pollution	Impact Screens, Global Benefits, Rainforest Riches
<b>XVI. Changes in Earth and Sky</b>			
A.	Objects in the sky have patterns...cycle that last about a month	None	None
B.	The surface of the earth changes. Some changes... are due to rapid processes, such as landslides	Erosion, Productivity, Groundwater, Flooding, Formation	Succession, Soils & Decomposition, Productivity
C.	Weather exhibits daily and seasonal patterns	None	Climate, Seasonality

# Oklahoma Science Standards



## Middle School Life Science (Grades 6-8)

Reference	Content Standards	Wetlands	Rainforest	The Digital Frog 2
<b>XI. Structure and Function in Living Systems</b>				
A.	Cells are the fundamental unit of life	None	None	None
B.	Living systems are organized by levels of complexity	Producers, Consumers, Decomposers, Organisms and Migration (taxonomy)	Organisms as examples	Anatomy Screens (9 body systems)
C.	Specialized structures perform specific functions at all levels of complexity	None	Animal Characteristics, Plant Characteristics	Anatomy Screens (9 body systems), Dissection
<b>XII. Reproduction and Heredity</b>				
A.	Reproduction is essential for species' survival	Organisms and Migration (life cycle)	Organisms (life cycle)	Reproductive system
B.	Characteristics of an organism result from inheritance and from interactions with the environment	Organisms and Migration as examples	Organisms as examples, New Species, Species Change	None
C.	Individual organisms with certain traits are more likely than others to survive and produce offspring	Organisms and Migration as examples, Plant Adaptations, Animal Adaptations	Organisms, New Species, Species Change, Plant and Animal Characteristics	None
<b>XII. Regulation and Behavior</b>				
A.	Living organisms strive to maintain a constant internal environment	Animal Adaptations, Habitat, Organisms and Migration as examples	Organisms as examples	Hibernation, Feeding
B.	Living organisms respond to external stimuli	Animal Adaptations, Habitat, Organisms and Migration as examples	Dependency Web Screens, Plant and Animal Characteristics, New Species, Species Change	Behavior (Hibernation, Feeding, Mating, Vocalization, Jumping)

# Oklahoma Science Standards



## Middle School Life Science (Grades 6-8)

Reference	Content Standards	Wetlands	Rainforest	The Digital Frog 2
<b>XIV. Populations and Ecosystems</b>				
A.	Sunlight is the ultimate source of energy	Food Chains, Web Energy, Photosynthesis	Productivity	None
B.	Population growth and decline are dependent on various factors	None	Species Change, New Species	None
C.	In all environments, organisms with similar needs may compete with one another for resources including food, space, water, air, and shelter. Other relationships may be beneficial	Food Chains, Food Web Game, Plant & Animal Adaptations, Habitat	Dependency Types, Habitat, Food, Seed Dispersal, Pollination, Niches, Dependency Game, Ant Symbiosis	None
D.	Organisms within an ecosystem are dependent on one another and on nonliving components of the environment	Food Chains, Producers, Consumers, Decomposers, Plant and Animal Adaptations, Habitat, Food Web Game	Food, Habitat, Seed Dispersal, Pollination, Niches, Web Game, Ant Symbiosis	None
<b>XV. Diversity and Adaptations of Organisms</b>				
A.	By classifying organisms, biologists consider details of internal and external structure	Producers, Consumers, Decomposers, Organisms and Migration (taxonomy)	Use Organisms as examples	None
B.	Organisms have a great variety of internal and external structures that enable them to survive	Use Organisms and Migration as examples	Use Organisms as examples	Anatomy screens (9 body systems)

## High School Biology (9-12)

Reference	Content Standards	Wetlands	Rainforest	The Digital Frog 2
<b>I. Observing and Measuring</b>				
The student will:				
A.	Identify similar or different characteristics in a given set of objects, organisms, or events	Use Organisms and Migration as examples	Use Organisms as examples	Dissection section
B.	Select qualitative (descriptive) or quantitative (numerical) observations in a given set of objects, organisms, or events	Use Organisms and Migration as examples	Use Organisms as examples	Dissection section
C.	Identify qualitative and quantitative changes given conditions before, during and after an event	None	None	None
D.	Use the appropriate SI units to measure objects, organisms, or events	None	None	None
<b>II. Classifying</b>				
The student will:				
A.	Use observable properties to classify a set of objects, organisms, or events	Use Organisms and Migration as examples	Organisms, Trees, Vines, Epiphytes	None
B.	Identify the properties on which a given classification system is based	Producers, Consumers, Decomposers, use Organisms and Migration as examples	Organisms, Trees, Vines, Epiphytes	None
C.	Place an object, organism or event into a classification system	Producers, Consumers, Decomposers, use Organisms and Migration (taxonomy)	Organisms, Plant Characteristics	None
<b>IX. The Cell</b>				
A.	Cells are the fundamental unit of life, comprised of a variety of structures that perform functions, such as transport information and synthesis of molecules	None	None	None
B.	Cells function according to the information contained in DNA	None	None	None
C.	Cells can differentiate and may develop into complex multicellular organisms	None	None	None

## High School Biology (Grade 9-12)

Reference	Content Standards	Wetlands	Rainforest	Digital Frog 2
<b>X. The Molecular Basis of Heredity</b>				
A.	In all organisms, the instructions for specifying the characteristics of the organism are carried in DNA, and changes in DNA (mutations) occur spontaneously at low rates	None	None	None
B.	A sorting and recombination of genes in reproduction results in a great variety of possible gene combinations from the offspring of any two parents	None	None	None
<b>XI. Biological Diversity</b>				
A.	Different species might look dissimilar, but the unity among organisms becomes apparent from an analysis of internal structures, the similarity of their chemical processes and the evidence of common ancestry	Use Organisms and Migration as examples	Organisms, Plant Characteristics, Animal Characteristics	None
B.	Diversity of species is developed through gradual processes over many generations. Species ... success in a particular environment	Use Organisms and Migration (behavior), Plant Adaptations, Animal Adaptations	Organisms (behavior), Why Tropics Diverse?, Biodiversity Endangered	None
C.	Extinction occurs when the environment changes and the adaptive characteristics of a species are insufficient to its survival	None	New Species, Species Change	None

## High School Biology (Grade 9-12)

Reference	Content Standards	Wetlands	Rainforest	Digital Frog 2
<b>XII. The Interdependence of Organisms</b>				
A.	Matter on the earth cycles among the living and nonliving components of the biosphere	Nutrient Cycles: Carbon, Nitrogen, Phosphorus, Water	Succession, Soils & Decomposition, Seasonality, Water Cycle, Productivity	None
B.	Energy flows through ecosystems in one direction	Food Chains, Web Energy, Photosynthesis, Web Game	Soils & Decomposition, Productivity	None
C.	Organisms both cooperate and compete in ecosystems	Food Chains, Web Game, Organisms, Migration	Organisms, Food, Habitat, Seed Dispersal, Pollination, Ant Symbiosis, Web Game, Niches, Dependency Types	None
D.	Living organisms have the capacity to produce populations of infinite size, but environments and resources limit population size	Animal Adaptations, Habitat	New Species, Species Change	None
<b>XIII. Matter, Energy, and Organization in Living Systems</b>				
A.	The complexity and organization of organisms accommodates the need for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism	Photosynthesis, Food Chains, Web Energy, Web Game	Succession, Soils & Decomposition, Productivity	None
B.	As matter and energy flow through different levels of organization of living systems... Matter and energy are conserved in each change	Photosynthesis, Food Chains, Web Energy, Web Game	Succession, Soils & Decomposition, Productivity, Water Cycle	None
<b>XIV. The Behavior of Organisms</b>				
A.	Organisms have behavioral responses to internal changes and to external stimuli	Plant Adaptations, Animal Adaptations, Organisms & Migration (behavior)	Organisms (behavior), Warning & Mimicry, Startle Displays	Behavior (Mating, Hibernation, Feeding, Vocalization, Jumping)
B.	Broad patterns of behavior exhibited by animals have adapted to ensure reproductive success	Animal Adaptations, Organisms & Migration (behavior)	Organisms (behavior), Warning & Mimicry, Startle Displays	Behavior (Mating, Hibernation, Feeding, Vocalization, Jumping)