

Missouri Science Standards: Life Science

Kindergarten

Scope and Sequence – Plants and Animals

- Observe and compare the structures and behaviors of different kinds of plants and animals

Scope and Sequence – Parent – Offspring Relationships

- Recognize that living things have offspring
- Recognize a parent – offspring relationship based on the organisms' physical similarities and differences

Scope and Sequence –Weather and Seasons

- Describe how the seasons affect the behavior of plants and animals.
 - Describe how the seasons affect the everyday life of humans (e.g., clothing, activities)
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Grade 1

Scope and Sequence – Characteristics of Plants and Animals

- Identify the basic needs of most animals (i.e., air, water, food, shelter)
 - Identify the basic needs of most plants (i.e., air, water, light)
 - Predict and investigate the growth of plants when growing conditions are altered (e.g., dark vs. light, water vs. no water)
 - Identify and compare the physical structures of a variety of plants (e.g., stem, leaves, flowers, seeds, roots)
 - Identify and compare the physical structures of a variety of animals (e.g., sensory organs, beaks, appendages, body covering) (Do NOT assess terms: sensory organs, appendages)
 - Identify the relationships between the physical structures of plants and the function of those structures (e.g., absorption of water, absorption of light energy, support, reproduction)
 - Identify the relationships between the physical structures of animals and the function of those structures (e.g., taking in water, support, movement, obtaining food, reproduction)
 - Distinguish between plants and animals based on observable structures and behaviors
 - Identify ways man depends on plants and animals for food, clothing, and shelter
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Grade 2

Scope and Sequence – Life Cycles of Animals

- Recognize that animals progress through life cycles of birth, growth and development, reproduction, and death
 - Record observations on the life cycle of different animals (e.g., butterfly, frog, chicken)
 - Sequence the stages in the life cycle of animals (i.e., butterfly, frog, chicken)
 - Identify and relate the similarities and differences between animal parents and their offspring
 - Recognize similarities and differences among multiple offspring of an animal parent
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Scope and Sequence – Plants

- Describe the basic needs of most plants (i.e., air, water, light, nutrients, temperature)
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/photosynth/index.html>
- Recognize plants progress through life cycles of seed germination, growth and development, reproduction, and death
<http://arboretum.fullerton.edu/grow/primer/cycle.asp>
- Sequence and describe the stages in the life cycle of a flowering plant
<http://www.teachersdomain.org/resources/tdc02/sci/life/colt/plantsgrow/index.html>

- Identify the major organs (roots, stems, flowers, leaves) and their functions in vascular plants (e.g., absorption, transport, reproduction) (Do NOT assess the term vascular)
<http://urbanext.illinois.edu/gpe/case1/c1brief.html>
- Illustrate and trace the path of water and nutrients as they move through the transport system of a plant
http://www3.nsta.org/main/news/stories/science_and_children.php?news_story_ID=49197
http://www.bbc.co.uk/schools/gcsebitesize/science/add_gateway/greenworld/planttransportrev1.shtml
- Identify and relate the similarities and differences between plants and their offspring (i.e., seedlings)

Scope and Sequence – Food Chains

- Identify sunlight as the primary source of energy plants use to produce their own food
- Classify populations of organisms as producers or consumers by the role they serve in the ecosystem
- Sequence the flow of energy through a food chain beginning with the Sun
<http://www.teachersdomain.org/resources/tdc02/sci/life/oate/energyflow/index.html>
http://www.ecokids.ca/pub/eco_info/topics/frogs/chain_reaction/index.cfm
- Predict the possible effects of removing an organism from a food chain
http://www.ecokids.ca/pub/eco_info/topics/frogs/chain_reaction/index.cfm

Grade 4

Scope and Sequence – Interactions among Organisms and their Environment

- Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism)
<http://www.mbgnet.net/>
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/seedsaway/index.html>
<http://www.teachersdomain.org/resource/tdc02.sci.life.evo.camouflage/>
<http://www.teachersdomain.org/resources/tdc02/sci/life/reg/camouflweb/index.html>
<http://www.teachersdomain.org/resources/tdc02/sci/life/reg/nightvis/index.html>
- Recognize different environments (i.e., pond, forest, prairie) support the life of different types of plants and animals
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/baggiezoom/index.html>
- Identify examples in Missouri where human activity has had a beneficial or harmful effect on other organisms (e.g., feeding birds, littering vs. picking up trash, hunting/conservation of species, paving/restoring greenspace)
<http://mdc.mo.gov/>
- Classify populations of organisms as producers, consumers, or decomposers by the role they serve in the ecosystem
<http://www.teachersdomain.org/resources/tdc02/sci/life/oate/decompose/index.html>
<http://www.teachersdomain.org/resources/hew06/sci/life/reg/foodweb/index.html>
- Differentiate between the three types of consumers (herbivore, carnivore, omnivore)
<http://www.teachersdomain.org/resources/tdc02/sci/life/colt/eat/index.html>

- Categorize organisms as predator or prey in a given ecosystem
<http://www.teachersdomain.org/resources/tdc02/sci/life/eco/coralreefconnections/index.html>
- Identify specialized structures and describe how they help plants survive in their environment (e.g., root, cactus needles, thorns, winged seed, waxy leaves)
<http://www.teachersdomain.org/resources/lps07/sci/life/eco/carnivplants/index.html>
<http://www.mbgnet.net/bioplants/adapt.html>
- Identify specialized structures and senses and describe how they help animals survive in their environment (e.g., antennae, body covering, teeth, beaks, whiskers, appendages)
<http://www.teachersdomain.org/resources/tdc02/sci/life/colt/beaver/index.html>
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/eatingvid/index.html>
- Recognize internal cues (e.g., hunger) and external cues (e.g., changes in the environment) that cause organisms to behave in certain ways (e.g., hunting, migration, hibernation)
<http://www.teachersdomain.org/resources/tdc02/sci/life/req/redknots/index.html>
- Predict which plant or animal will be able to survive in a specific environment based on its special structures or behaviors
<http://www.teachersdomain.org/resources/tdc02/sci/life/colt/defense/index.html>
<http://www.teachersdomain.org/resources/tdc02/sci/life/req/animalhear/index.html>

Scope and Sequence – Changes in the Earth’s Surface

- Compare and contrast common fossils found in Missouri (i.e., trilobites, ferns, crinoids, gastropods, bivalves, fish, mastodons) to organisms present on Earth today
<http://www.teachersdomain.org/resources/ess05/sci/ess/earthsys/fossilintro/index.html>
<http://www.teachersdomain.org/resources/ess05/sci/ess/earthsys/fossiltype/index.html>
<http://www.teachersdomain.org/resources/ess05/sci/ess/earthsys/fossilcollage/index.html>

Scope and Sequence – Classification of Plants and Animals

- Compare structures (e.g., wings vs. fins vs. legs; gills vs. lungs; feathers vs. hair vs. scales) that serve similar functions for animals belonging to different vertebrate classes
<http://www.teachersdomain.org/resources/tdc02/sci/life/cyc/embryo/index.html>
<http://www.pbs.org/wgbh/evolution/change/index.html>
http://www.pbs.org/wnet/nature/fun/xray_flash.html
- Explain how similarities are the basis for classification
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/branchtree/index.html>
- Distinguish between plants (which use sunlight to make their own food) and animals (which must consume energy-rich food)
<http://www.teachersdomain.org/resources/tdc02/sci/life/stru/photosynth/index.html>
<http://www.teachersdomain.org/resources/tdc02/sci/life/colt/traps/index.html>
<http://www.teachersdomain.org/resources/lps07/sci/life/stru/cellenergy/index.html>
- Classify animals as vertebrates or invertebrates
<http://www.teachersdomain.org/resources/lps07/sci/life/oate/animalclass/index.html>

- Classify vertebrate animals into classes (amphibians, birds, reptiles, mammals, fish) based on their characteristics
<http://www.teachersdomain.org/resources/tdc02/sci/life/cyc/embryo/index.html>
- Identify plants or animals using simple dichotomous keys
<http://webworld.freac.fsu.edu/cameras/keys/sa/tree.html>
<http://www.pbs.org/wgbh/nova/orchid/classifying.html>
<http://www.dnr.state.wi.us/org/caer/ce/eek/critter/watercritter/critterindex.htm>
- Recognize the major life processes carried out by the major systems of plants and animals (e.g., support, reproductive, digestive, transport/circulatory, excretory, response)
<http://www.teachersdomain.org/resources/lsp07/sci/life/stru/seedplant/index.html>
<http://www.teachersdomain.org/resources/lsp07/sci/life/eco/treelife/index.html>

Kansas Science Standards: Life Science

Grades K-2

- discusses that *organisms* live only in *environments* in which their needs can be met.
- observes *life cycles* of different living things.
- observes living things in various *environments*.
- examines the *structures*/parts of living things.

Grades 3-4

- observes different organisms and compares and contrasts how similar functions are served by different structural characteristics.
- compares basic needs of different organisms in their environment.
- discusses ways organisms use their senses to survive in their environments.
- compares, contrasts, and asks questions about life cycles of various organisms.