

Kindergarten through 5th Grade Life Sciences

KINDERGARTEN: STANDARD 4

Investigation and Experimentation

Scientific progress is made by asking meaningful questions and conducting careful investigations.

As a basis for understanding this concept:

- Students observe common objects using the five senses: see, hear, smell, touch, and probably not taste
- Students describe properties of common objects: plants and animals: color, shape, texture, size, and weight

GRADE 1: STANDARD 2

Plants and animals meet their needs in different ways.

As a basis for understanding this concept:

- Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places,
- Students know both plants and animals need water and light, animals need food
- Students know animals eat plants or other animals for food and may use plants or even other animals for shelter and nesting.
- Students know roots are associated with the intake of water and soil nutrients and green leaves are associated with making food from sunlight.
- Students know how to infer what animals eat from the shapes of their teeth (e.g. sharp teeth:eats meat; flat teeth:eats plants).

GRADE 2: STANDARD 2

Plants and animals have predictable life cycles.

As a basis for understanding this concept:

1. Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another.
2. Students know the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.
3. Students know that many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.

GRADE 2: STANDARD 2 (CONTINUED)

4. Students know there is a variation among individuals of one kind within a population.
5. Students know light, gravity, touch, or environmental stress can affect the germination, growth, and development of plants.
6. Students know flowers and fruits are associated with production in plants.

GRADE 3: STANDARD 3

Adaptations in physical structure or behavior may improve an organism's chance for survival.

As a basis for understanding this concept:

1. Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.
2. Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forest, grasslands, and wetlands.
3. Students know living things cause changes in the environment in which they live ; some of these changes are detrimental to the organism or other organisms, and some are beneficial.
4. Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.
5. Students know that some kinds of organisms that once lived on Earth have completely disappeared and that some of those resembled others that are alive today.

GRADE 4: STANDARDS 2 AND 3

All organisms need energy and matter to live and grow.

As a basis for under-standing this concept:

1. Students know plants are the primary source of matter and energy entering most food chains.
2. Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
3. Students know decomposers, including many fungi, insects, and micro-organisms, recycle matter from dead plants and animals.

Living organisms depend on one another and on their environment for their survival.

As a basis for understanding this concept:

1. Students know ecosystems can be characterized by their living and nonliving components.
2. Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
3. Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.
4. Students know that most microorganisms do not cause disease and that many are beneficial.



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GRADE 5: STANDARD 2

Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials.

As a basis for understanding this concept:

1. Students know how sugar, water, and minerals are transported in a vascular plant.
2. Students know plants use carbon dioxide and energy from sunlight to build molecules of sugar and release oxygen.
3. Students know plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide and water (respiration).

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