Grade 4 - Structures of Life (Red)

Overview

This module consists of five activities dealing with observable characteristics of organisms. Students observe, compare, organize, and care for a selection of organisms. They learn to identify properties of plants and animals and to sort and group organisms on the basis of observable properties. The module provides a basic introduction to fundamental concepts in life science.

The first three activities address ideas associated with seeds and plant growth.

The first activity guides students to discover and observe seeds found in foods we eat.

The second and third activities are linked and introduce students to seed germination and the growth of plants in a hydroponic setup.

The fourth and fifth activities are also linked and introduce an interesting organism, the crayfish, that has a variety of structures and exhibits a wealth of behaviors.

This FOSS module provides students with new experiences to:

- Develop an attitude of respect for life.
- Gain experience with organisms, both plants and animals.
- Observe and compare properties of seeds and fruits.
- Observe, describe, and record properties of germinated seeds.
- Investigate the effect of water on seeds.
- Compare different kinds of germinated seeds.
- Grow plants hydroponically and observe the life cycle of a bean plant.
- Observe and record crayfish structures and behavior.

Scientific Processes

- Describe, sort and compare seeds in terms of properties.
- Estimate numbers of seeds.
- Compare and record the number and properties of seeds from a variety of fruits.
- Observe changes over time.
- Record information systematically for later analysis.
- Observe, sort and compare germination in different types of seeds.
- Compare and record observations about structures of an organism.
- Observe and compare behavior of an organism.

Curriculum Integration

Language development:

- Write about the importance of fruit.
- Make a list of idioms.
- Keep journals on plant growth.
- Write captions for stages in bean life cycle.
- Prepare reports on crayfish.
- Write crayfish stories.
- Make lists of favorite organisms.
- Read and discuss The Salamander Room.
- Research other territorial animals.
- Write about personal territory.
Mathematics:

- Make a bean seed histogram.
- Estimate seeds in a melon.
- Estimate the weight of multiple seeds and weigh them.
- Compare weights of moist and dry seeds.
- Determine number of potential seeds from a garden of bean plants.
- Graph bean plant growth.
- Measure how much Anacharis crayfish eat per day.
- Compare crayfish weights.

Assessments

FOSS assessment is organized into three categories:

- **Content knowledge:** the facts and scientific concepts of the module
- **Conducting Investigations:** the skills needed for successful inquiry
- **Building Explanations:** the communication of ideas and evidence to support student learning

*Formative* and *summative* assessment strategies help the teacher understand what the students have learned and can do. Throughout the investigations, teachers use formative assessment strategies to inform their instruction, and the end-of-module and portfolio summative assessments provide evaluate information.

The Structures of Life Module is a Full Options Science System (FOSS) module created by the Lawrence Hall of Science at the University of California at Berkeley. It is published and distributed by Delta Education, Inc.