

2nd Grade Life Science Unit

Life Cycles of Plants and Animals

Teacher Background Information – for teacher content knowledge only, NOT student learning goals

An understanding of the life cycles of organisms begins with an understanding of how individual organisms maintain and continue life. A life cycle typically includes fertilization, development of an embryo, birth or emergence, growth and development into adulthood, reproduction, and death. It is a cycle because most adult organisms reproduce and give rise to new offspring. Stages of the life cycle vary among different types of organisms. Some undergo changes during early development (butterflies, frogs, etc...) and others look similar to their parents (mammals). Some life cycles are short and some are long.

Instructional Implications

During the early elementary grades, children build understanding of biological concepts through direct experiences with living things, their life cycles, and their habitat. These experiences emerge from the sense of wonder and natural interests of children who ask questions. Because the child's world is closely associated with the home, school, and immediate environment, the study of organisms should include observations and interactions with the natural world of the child. Students need experience raising plants and animals. By 2nd grade most students know that children resemble their parents and are ready to understand that plant and animal offspring resemble their parents. Students are also ready to differentiate learned from inherited characteristics. Students can be guided to observe change. Emphasis should be on asking questions, as well as developing observations and description skills. Children should talk about and draw what they see and think.

Big Idea

The details of a life cycle are different for different organisms.

Essential Question

How do different plants and animals grow, develop and survive?

AAAS Benchmarks/National and Science Education Standards

- All kinds of living things have offspring; usually two parents are involved.
- Offspring are very much but not exactly like their parents and like one another. (Plants and animals closely resemble their parents.)
- Plants and animals have life cycles that include being born, developing into adults, reproducing and eventually dying.
- Many characteristics of an organism are inherited from parents (color of flower, number of legs on animal), but other characteristics result from interactions with the environment (learning to ride a bicycle.)
- There is variation among individuals of one kind within a population.

Student Difficulties and Misconceptions

- Children may not understand the continuity of life from seed to seedling or larvae to pupae.
- Children sometimes fail to consider death as part of a life cycle.
- Students tend to equate life cycles only with examples they are familiar with and fail to recognize that all organisms have a life cycle.
- Students might hold some naïve thoughts about inheritance, including the belief that traits are inherited from only one parent.

Materials/Resources

- STC: Life Cycle of the Butterfly
- FOSS: Insects & Plants
- Bill Nye Video: All About Animal Life Cycles

Local Connections

- Observations and interactions within the natural world of the child, including pets and plants in the classroom, and the natural environment around the school
- Visits to DIPAC, Forest Service, Fish and Game
- Kristin Romanoff or other local biologist

Alaska GLE's

There are no grade level expectations for K-2. The concepts in this unit provide students with the necessary experiences to develop scientific literacy and an understanding of the concepts in the grades 3-11 grade level expectations.

Process Skills Addressed in 3rd Grade GLE's

The student demonstrates an understanding of the process of science by

[3] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating

[3] SA1.2 observing and describing the student's own world to answer simple questions

The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by

[3] SA2.1 answering "how do you know" questions with reasonable answers

ASSESSMENTS

Uncovering Student Ideas Assessments
Volume 3 Probe 14: Does It Have a Life Cycle?
Volume 2 Probe 13: Needs of Seeds

Related Scientist or Career Path

Biologist
Botanist