
Life in a Pond



Kindergarten Teacher Resource Guide

Table of Contents

Lesson summary	1
Vocabulary.....	1
Activity Page.....	2
Extension Activities.....	3
Education Standards	4-6

Life in a Pond: Lesson Summary and Vocabulary

Lesson Summary: YSI's *Life in a Pond* program allows students to touch and examine aquatic animals and acquire a greater understanding of the pond's unique ecology. The presentation focuses on both instructor-led discussion and hands-on activities. Students will first work as a group to put together a model of a pond. They will discuss the role of each plant, animal, and object in forming an interactive system, and come to understand how the food chain is sustained. Discussion will continue as the instructor presents live examples, touching on the physical adaptations, diets, roles, and growth of different aquatic organisms. Throughout the program, students will be challenged to use their critical thinking skills to answer a wide range of open-ended questions and construct a comprehensive picture of life within our local ponds.

Vocabulary: Below are words and concepts that relate to the *Life in a Pond* program.

Amphibian: a cold-blooded animal that starts its life in water or a very wet environment but when mature can live on land

Consumer: an organism that receives energy to live by consuming other organisms

Decomposer: an animal that feeds on dead matter and breaks it down into simpler compounds

Ecosystem: a community of living things, together with their environment

Fresh Water: inland water that does not contain large quantities of salt like the ocean

Larva (Entomology): the wingless, feeding stage of an insect that undergoes complete metamorphosis

Metamorphosis (Biology): major changes in form from one stage to the next in the life cycle of an organism

Nymph (Entomology): the young of an insect that does not undergo complete metamorphosis, usually differs from the adult in that it is smaller and does not have wings

Pond: a still body of fresh water that is smaller, and shallower than a **lake**. Ponds and lakes form in natural or man-made depressions or from building banks or dams around an area.

Producer: an organism that takes energy from light to produce living compounds

Reptile: a cold-blooded animal with dry scaly skin that typically lays soft-shelled eggs on land

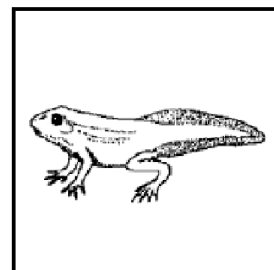
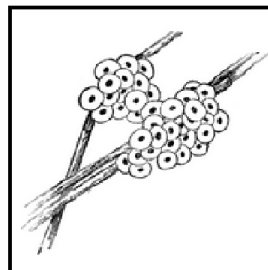
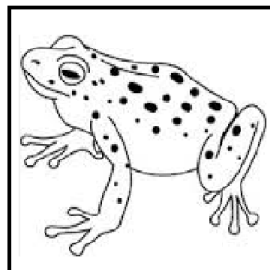
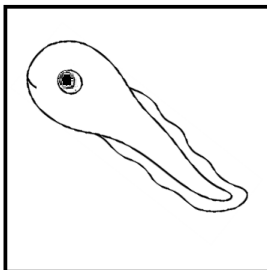
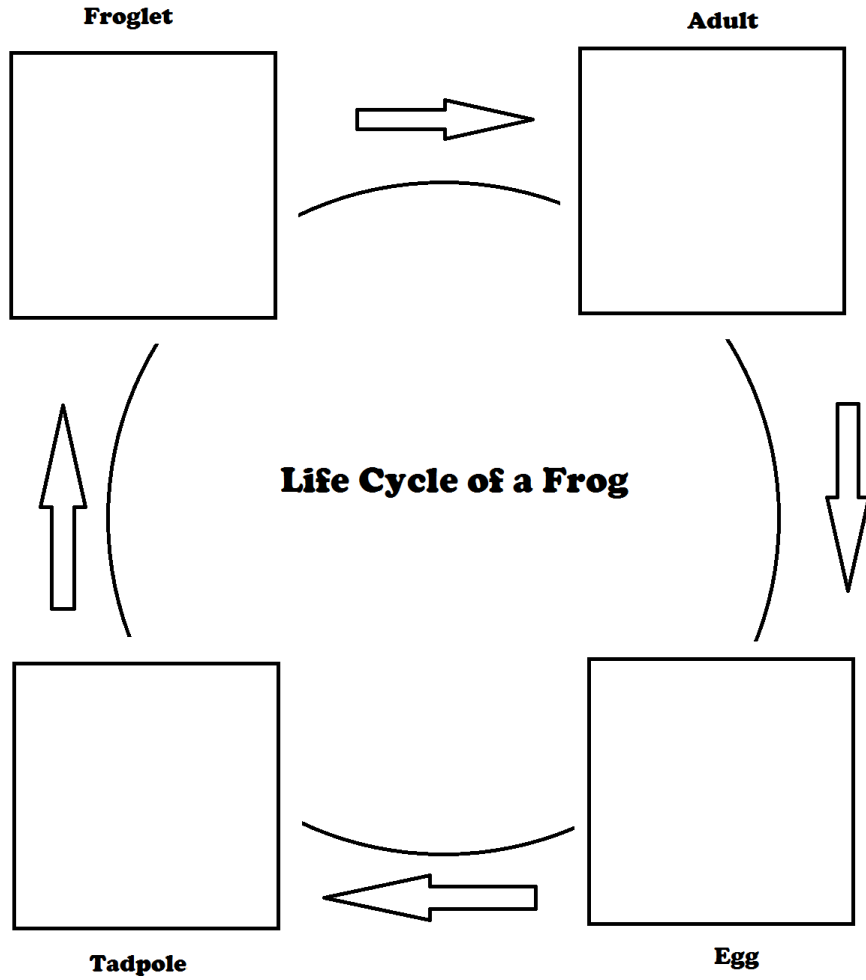
River: a large flowing body of fresh water; smaller flowing bodies of water are called **creeks** or **streams**

Water Cycle: the circulation of the earth's water, in which water **evaporates** from the oceans into the atmosphere, **condenses** to form clouds, falls as **precipitation** (rain, snow, sleet), and returns to the oceans via fresh water bodies on land

Definitions based on www.dictionary.reference.com

Life in a Pond Activity Page

Color, cut and paste each picture into the correct box



Life in a Pond: Extension Activities

The extension activities listed below are from RAFT (Resource Area For Teaching). RAFT educational content is available online (www.raftbayarea.org) at no cost and is aligned to California Science Standards and Next Generation Science Standards. Below is a selection of post-visit activities from RAFT to extend student learning about life in a pond.

[RAFT Idea Ocean in a Box – Resource Area For Teaching – RAFT Bay Area](#)

Grades Covered: K through 6

Subjects Covered: Life Science, Earth/Space Science, Art

Curriculum topics: Oceanography, Environments, Ecology Our oceans have an entire world of aquatic life, and provide a home to thousands of species...

<http://www.raftbayarea.org/ideas/Ocean%20in%20a%20Box.pdf>

[RAFT Idea Land or Water – Resource Area For Teaching – RAFT Bay Area](#)

Grades Covered: Pre-K through 3

Subjects Covered: Life Science

Curriculum topics: Animals, Environments, Sorting and Classifying

Primary learners can sort animals into two categories in this activity: those that live on the land, and those that live in the water...

<http://www.raftbayarea.org/ideas/Land%20or%20Water.pdf>

[RAFT Idea: Bug Pooter - Resource Area For Teaching - RAFT Bay Area](#)

Grades Covered: K through 10.

Subjects Covered: Life Science.

Curriculum topics: Arthropods; Observation; Classification; Insects.

A safe, humane way to collect and observe small creatures...

<http://www.raftbayarea.org/ideas/Bug%20Pooter.pdf>

Life in a Pond: Education Standards

Our Life in a Pond program will contribute to students' ability to meet the California Science Content Standards, Common Core, and Next Generation Science Standards listed on the following pages.

California Science Content Standards Kindergarten:

Physical Sciences: 1. Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:

- a. *Students know* objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).

Life Sciences: 2. Different types of plants and animals inhabit the earth. As a basis for understanding this concept:

- a. *Students know* how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).
- b. *Students know* stories sometimes give plants and animals attributes they do not really have.
- c. *Students know* how to identify major structures of common plants and animals (e.g. stems, leaves, roots, arms, wings, legs).

Earth Sciences: 3. Earth is composed of land, air, and water. As a basis for understanding this concept:

- a. *Students know* characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.
- b. *Students know* changes in weather occur from day to day and across seasons, affecting Earth and its inhabitants.

Investigation and Experimentation: 4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

- a. Observe common objects by using the five senses.
- b. Describe the properties of common objects.
- d. Compare and sort common objects by one physical attribute (e.g. color, shape, texture, size, weight).

Excerpted from CA State Standards: <http://www.cde.ca.gov/>

Common Core Kindergarten:

Speaking and Listening Standards: Students will...

1. Participate in collaborative conversations with diverse partners about kindergarten topics with peers and adults in small and larger groups.

Life in a Pond: Education Standards

- a. Follow agreed-upon rules for discussions.
- b. Continue a conversation through multiple exchanges.
2. Confirm understanding of information presented orally by asking and answering questions and requesting clarifications.
3. Ask and answer questions about what a speaker says in order to seek help, gather additional information, or clarify something that is not understood.

Excerpted from Common Core Standards: <http://www.corestandards.org/>

Next Generation Science Standards Kindergarten:

Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

- **K-LS1-1:** Use observations to describe patterns of what plants and animals need to survive.
 - **Science and Engineering Practices**
 - **Analyzing and Interpreting Data:** builds on prior experiences and progresses to collecting, recording, and sharing observations.
 - Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1)
 - **Scientific Knowledge is Based on Empirical Evidence:** Scientists look for patterns and order when making observations about the world. (K-LS1-1).
 - **Disciplinary Core Ideas**
 - **LS1.C: Organization for Matter and Energy Flow in Organisms:** All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1)
 - **Crosscutting Concepts**
 - **Patterns:** Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1)
- **K-ESS2-2:** Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
 - **Science and Engineering Practices**
 - **Engaging in Argument from Evidence:** Engaging in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s).
 - Construct an argument with evidence to support a claim. (K-ESS2-2)
 - **Disciplinary Core Ideas**
 - **ESS2.E: Biogeology:** Plants and animals can change their environment. (K-ESS2-2)
 - **ESS3.C: Human Impacts on Earth System:** Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (secondary to K-ESS2-2)
 - **Crosscutting Concepts**
 - **Systems and System Models:** Systems in the natural and designed world have parts that work together. (K-ESS2-2)
- **K-ESS3-1:** Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Life in a Pond: Education Standards

- **Science and Engineering Practices**
 - **Developing and Using Models:** Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
 - Use a model to represent relationships in the natural world. (K-ESS3-1)
- **Disciplinary Core Ideas**
 - **ESS3.A: Natural Resources:** Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)
- **Crosscutting Concepts**
 - **Systems and System Models:** Systems in the natural and designed world have parts that work together. (K-ESS3-1)

Excerpted from NGSS: <http://www.nextgenscience.org/>