
Aquatic Habitat Exploration



Kindergarten Teacher Resource Guide

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Aquatic Habitat Exploration: Lesson Summary and Vocabulary

Lesson Summary: YSI's *Aquatic Habitat Exploration* program allows students to examine aquatic animals and acquire a greater understanding of the water-based environments around them. Students will discuss the composition of our local lakes and creeks and the way living and nonliving features combine to form an interactive ecosystem. They will be offered a chance to touch different arthropods, amphibians, and reptiles that live in and around our aquatic habitats. After learning about the creatures that might be found nearby, students will take a short hike. At the creek or lake, they will have the chance to apply their knowledge hands-on by looking for aquatic organisms and attempting to identify them with instructor aid. Throughout the program, students will be challenged to use their critical thinking skills to work through a wide range of open-ended questions and activities about aquatic habitats and the life that inhabits them.

Vocabulary: These are words and concepts that relate to the YSI *Aquatic Habitat Exploration* program.

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

Aquatic: consisting of, relating to, or being in water

Arthropod: an animal with an exoskeleton and jointed legs

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

Creek: a flowing body of water smaller than a river; stream.

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

Environment: the sum of everything that surrounds animals and humans in the natural world, including the air, the water, and the soil

Habitat: the natural environment of a plant or animal

Lake: a stationary body of fresh water surrounded by land.

Metamorphosis: rapid changes in an animal's form after it is born or hatched

Niche: the part of an ecological system occupied by a particular organism, or the functions of that organism in the system

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

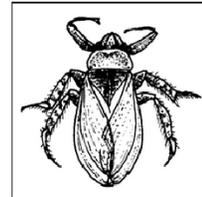
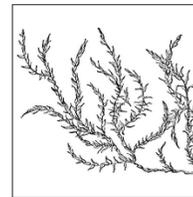
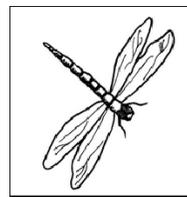
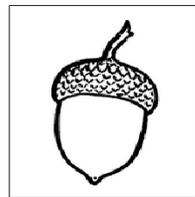
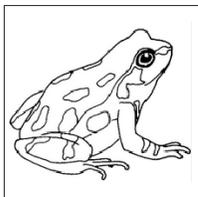
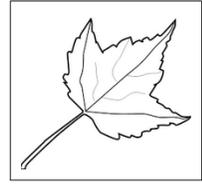
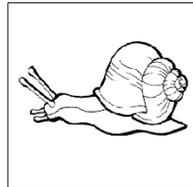
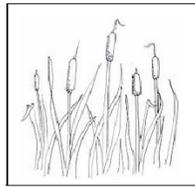
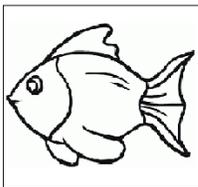
Watershed: the area that all of the rain water in a region drains into

Definitions based on www.dictionary.reference.com

Aquatic Habitat Exploration: Activity Page

Cut out the pictures below and paste them into the correct
box

Plants	Animals



Aquatic Habitat Exploration: 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 aquatic creatures and the habitats they belong to.

[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

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

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

[RAFT Idea: Mini Ice Mountains – Resource Area For Teaching – RAFT Bay Area](#)

Grades Covered: K through 10

Subjects Covered: Physical Science, Earth/Space Science

Curriculum topics: Landforms, Erosion, Patterns in Nature, Phases of Matter

Description: Use “mini mountains” of ice to observe how lakes, rivers, streams, and ice caves are formed...

<http://www.raftbayarea.org/ideas/Mini%20Ice%20Mountains.pdf>

[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

Description: Our oceans have an entire world of aquatic life ...

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

[RAFT Idea: Water Cycle in 3D – Resource Area For Teaching – RAFT Bay Area](#)

Grades Covered: Pre-K through 12

Subjects Covered: Physical Science, Earth/Space Science

Curriculum topics: Water Cycle, Weather, Atmosphere

Description: Students use a circular format to create a realistic model of all phases of the water cycle ...

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

Aquatic Habitat Exploration: Education Standards

The following pages cite California Science Content Standards, Common Core Standards, and Next Generation Science Standards which students will be exposed to during the program.

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.
- c. *Students know* how to identify resources from the Earth that are used in everyday life and understand that many resources can be conserved.

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.
- c. 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.
 - a. Follow agreed-upon rules for discussions.
 - b. Continue a conversation through multiple exchanges

Aquatic Habitat Exploration: Education Standards

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-ESS3-3:** Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.
 - **Science and Engineering Practices**
 - **Obtaining, Evaluating, and Communicating Information:** Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.
 - Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3)
 - **Disciplinary Core Ideas**
 - **ESS3.C: Human Impacts on Earth Systems:** 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.(K-ESS3-3)
 - **ETS1.B: Developing Possible Solutions:** Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (secondary to K-ESS3-3)
 - **Crosscutting Concepts**
 - **Cause and Effect:** Events have causes that generate observable patterns. (K-ESS3-3)

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