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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](http://www.dictionary.reference.com)
Across
1. The part of ecosystem occupied by an organism or how it helps the system.
5. Everything that surrounds animals and humans in the natural world, including the air, the water, and the soil.
9. The natural environment of a plant or animal.
10. An animal that feeds on dead matter and breaks it down into parts of the soil.
11. An organism that uses sunlight, water, and air to make its own food.
13. The area that all of the rain water in a region drains into.
15. A large body of fresh water that stays in one place.

Down
2. A community of living things, together with their environment.
3. An animal that starts its life in the water but later can live on land.
4. Changes in an animal's form from birth to adult.
6. An animal with an exoskeleton and jointed legs.
7. A cold-blooded animal with scales.
8. An organism that receives energy to live by eating other organisms.
12. A flowing body of water smaller than a river, similar to a stream.
14. Made up of, relating to, or being in water.

Definitions based on www.dictionary.reference.com
Across
1. The part of ecosystem occupied by an organism or how it helps the system (niche).
5. Everything that surrounds animals and humans in the natural world, including the air, the water, and the soil (environment).
9. The natural environment of a plant or animal (habitat).
10. An animal that feeds on dead matter and breaks it down into parts of the soil (decomposer).
11. An organism that uses sunlight, water, and air to make its own food (producer).
13. The area that all of the rain water in a region drains into (watershed).
15. A large body of fresh water that stays in one place (lake).

Down
2. A community of living things, together with their environment (ecosystem).
3. An animal that starts its life in the water but later can live on land (amphibian).
4. Changes in an animal's form from birth to adult (metamorphosis).
6. An animal with an exoskeleton and jointed legs (arthropod).
7. A cold-blooded animal with scales (reptile).
8. An organism that receives energy to live by eating other organisms (consumer).
12. A flowing body of water smaller than a river similar to a stream (creek).
14. Made up of, relating to, or being in water (aquatic).

Definitions based on www.dictionary.reference.com
Name: ______________________

Aquatic Habitat Exploration
Language Arts Word Search

Circle the vocabulary in the word search below. Can you find all the animal-related words?

Word Bank

AMPHIBIAN          DECOMPOSER          METAMORPHOSIS
AQUATIC             ECOSYSTEM             Niche
ARTHROPOD           ENVIRONMENT           PRODUCER
CONSUMER            HABITAT              REPTILE
CREEK               LAKE                WATERSHED
Word Bank

AMPHIBIAN  DECOMPOSER  METAMORPHOSIS
AQUATIC  ECOSYSTEM  NICHE
ARTHROPOD  ENVIRONMENT  PRODUCER
CONSUMER  HABITAT  REPTILE
CREEK  LAKE  WATERSHED
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…  

**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](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](http://www.raftbayarea.org/ideas/Ocean%20in%20a%20Box.pdf)
Aquatic Habitat Exploration: Education Standards

The following page cites 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 Second Grade:
Life Sciences: 2. Plants and animals have predictable life cycles. As a basis for understanding this concept:
   a. Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another.
   b. Students know the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.
   c. Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.
   d. Students know there is variation among individuals of one kind within a population.

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

Common Core Second Grade:
Speaking and Listening Standards: Students will…
   1. Participate in collaborative conversations with diverse partners about grade 2 topics with peers and adults in small and larger groups.
      a. Follow agreed-upon rules for discussions.
      b. Build on others’ talk in conversations by linking their topics to the remarks of others.
      c. Ask for clarification and further information as needed about the topics under discussion.
   2. Recount or describe key information from information presented orally.
   3. Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or clarify something that is not understood.

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

Next Generation Science Standards Second Grade:
Interdependent Relationships in Ecosystems
   • 2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.
      o Science and Engineering Practices:
         ▪ Planning and Carrying Out Investigations: Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.
           -Make observations (firsthand or from media) to collect data which can be used to make comparisons. (2-LS4-1)
         ▪ Scientific Knowledge is Based on Empirical Evidence: Scientists look for patterns and order when making observations about the world. (2-LS4-1)
      o Disciplinary core ideas:
         ▪ LS4.D: Biodiversity and Humans: There are many different kinds of living things in any area, and they exist in different places on land and in water. (2-LS4-1)

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