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# Aquatic Habitat Exploration



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## Fourth-Grade 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

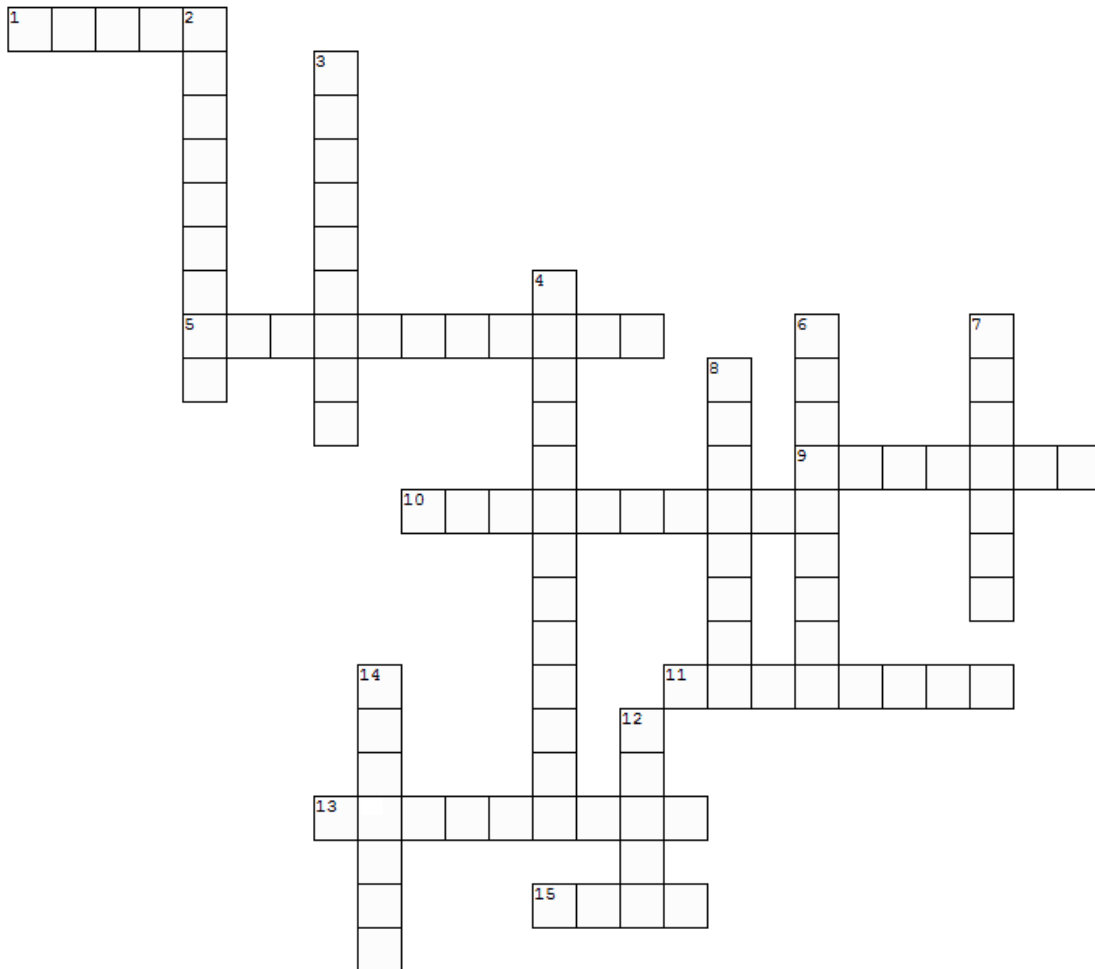
**Producer:** an organism that takes energy from light to produce living compounds

**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](http://www.dictionary.reference.com)

## Aquatic Habitat Exploration Language Arts Crossword Puzzle



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

**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.

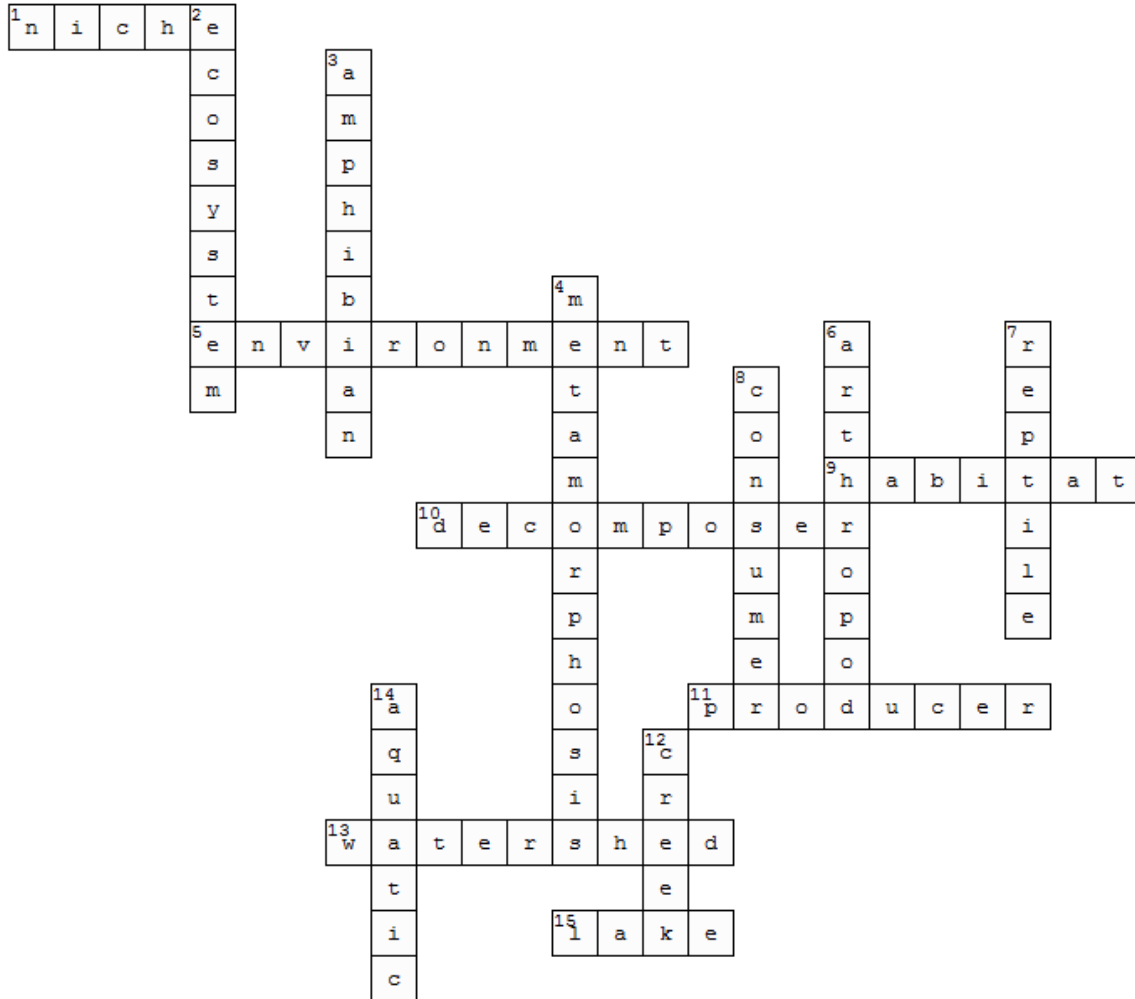
**Down**

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](http://www.dictionary.reference.com)

## Answer Key

### Aquatic Habitat Exploration Language Arts Crossword Puzzle



#### 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**).

## Aquatic Habitat Exploration Language Arts Word Search

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

N	S	S	R	Q	U	R	Z	J	Q	Q	J	O	E	I	J
O	Y	E	X	Z	E	O	A	X	R	N	W	D	C	A	E
R	P	Y	W	P	T	O	M	P	M	I	K	G	O	R	Y
R	C	H	T	Y	S	K	P	S	H	C	T	N	S	T	E
H	U	I	L	G	I	M	H	F	S	H	N	U	Y	H	D
C	L	R	A	Y	S	O	I	L	T	E	E	A	S	R	E
E	E	K	K	G	O	R	B	D	R	H	M	U	T	O	H
I	D	E	E	F	H	Z	I	H	E	A	N	F	E	P	S
A	O	U	V	W	P	H	A	O	C	B	O	D	M	O	R
Q	W	R	G	J	R	O	N	K	U	I	R	B	W	D	E
U	I	W	Q	A	O	Y	R	Q	D	T	I	V	B	I	T
A	Z	Y	V	K	M	C	L	I	O	A	V	N	M	R	A
T	Y	E	E	A	A	U	R	E	R	T	N	S	N	Y	W
I	A	E	V	H	T	Q	R	E	P	X	E	D	P	H	U
C	R	N	V	J	E	R	E	S	O	P	M	O	C	E	D
C	O	N	S	U	M	E	R	Y	Y	S	U	T	T	M	B

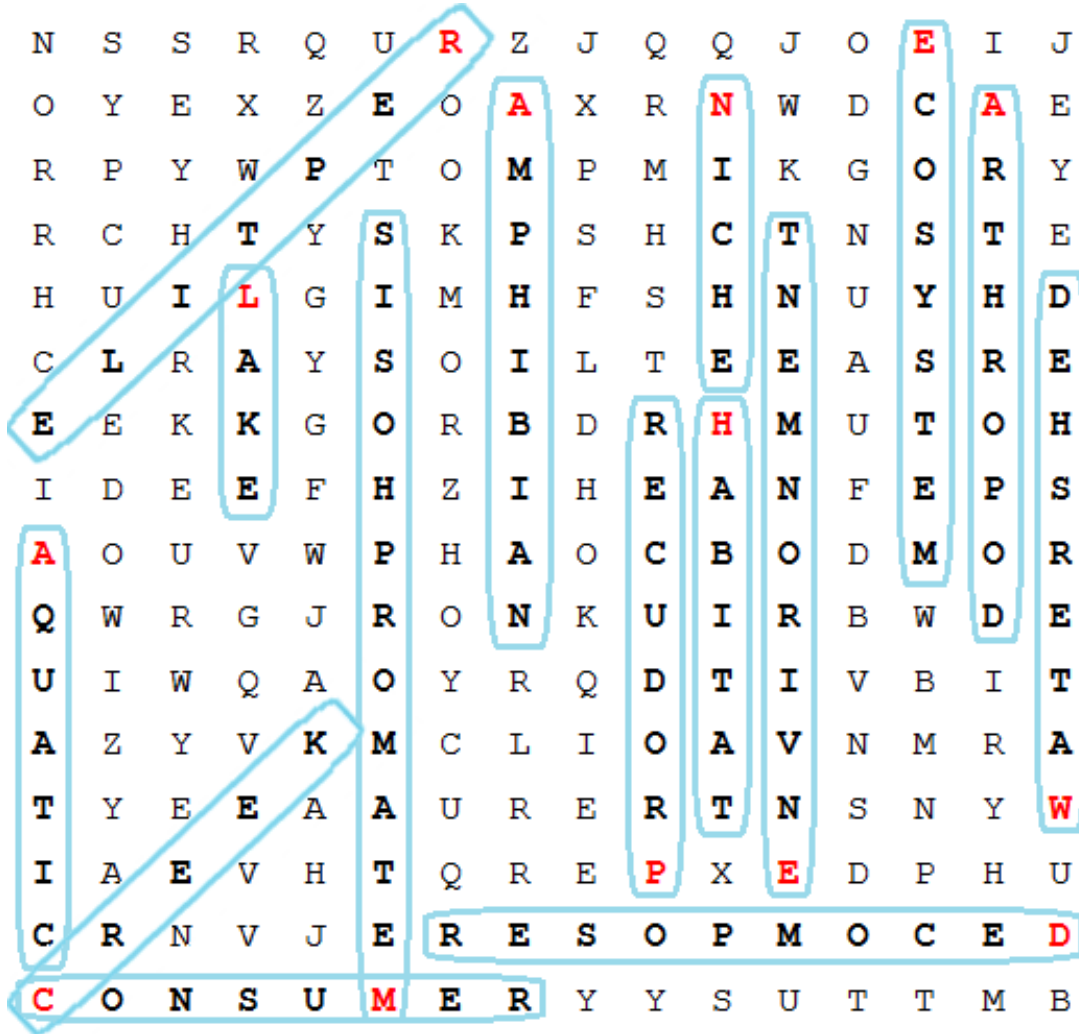
### Word Bank

AMPHIBIAN  
AQUATIC  
ARTHROPOD  
CONSUMER  
CREEK

DECOMPOSER  
ECOSYSTEM  
ENVIRONMENT  
HABITAT  
LAKE

METAMORPHOSIS  
NICHE  
PRODUCER  
REPTILE  
WATERSHED

**Answer Key**  
**Aquatic Habitat Exploration**  
**Language Arts Word Search**



**Word Bank**

AMPHIBIAN  
AQUATIC  
ARTHROPOD  
CONSUMER  
CREEK

DECOMPOSER  
ECOSYSTEM  
ENVIRONMENT  
HABITAT  
LAKE

METAMORPHOSIS  
NICHE  
PRODUCER  
REPTILE  
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](http://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 Fourth Grade:**

**Life Sciences: 2.** All organisms need energy and matter to live and grow. As a basis for understanding this concept:

- a. *Students know* plants are the primary source of matter and energy entering most food chains.
- b. *Students know* producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.
- c. *Students know* decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

**3.** Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:

- a. *Students know* ecosystems can be characterized by their living and nonliving components.
- b. *Students know* that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.
- c. *Students know* many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.

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

### **Common Core Fourth Grade:**

**Speaking and Listening Standards:** Students will...

1. Engage effectively in a range of collaborative discussions with diverse partners on *grade four topics*, building on each others' ideas and expressing their own clearly.
  - a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.
  - b. Follow agreed-upon rules for discussions and carry out assigned roles.
  - c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.
  - d. Review key ideas expressed and explain their own ideas and understanding in light of the discussion.
2. Paraphrase portions of information presented orally.



## Aquatic Habitat Exploration: Education Standards

3. Identify the reasons and evidence a speaker provides to support particular points.

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

### Next Generation Science Standards Fourth Grade: Structure, Function, and Information Processing

- **4-LS1-1:** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
  - **Science and Engineering Practices**
    - **Engaging in Argument from Evidence:** builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed worlds
      - Construct an argument with evidence, data, and/or a model. (4-LS1-1)
  - **Disciplinary Core Ideas**
    - **LS1.A: Structure and Function:** Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)
  - **Crosscutting Concepts**
    - **Systems and System Models:** A system can be described in terms of its components and their interactions. (4-LS1-1)

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