
Life in a Pond



Fifth-Grade Teacher Resource Guide

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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

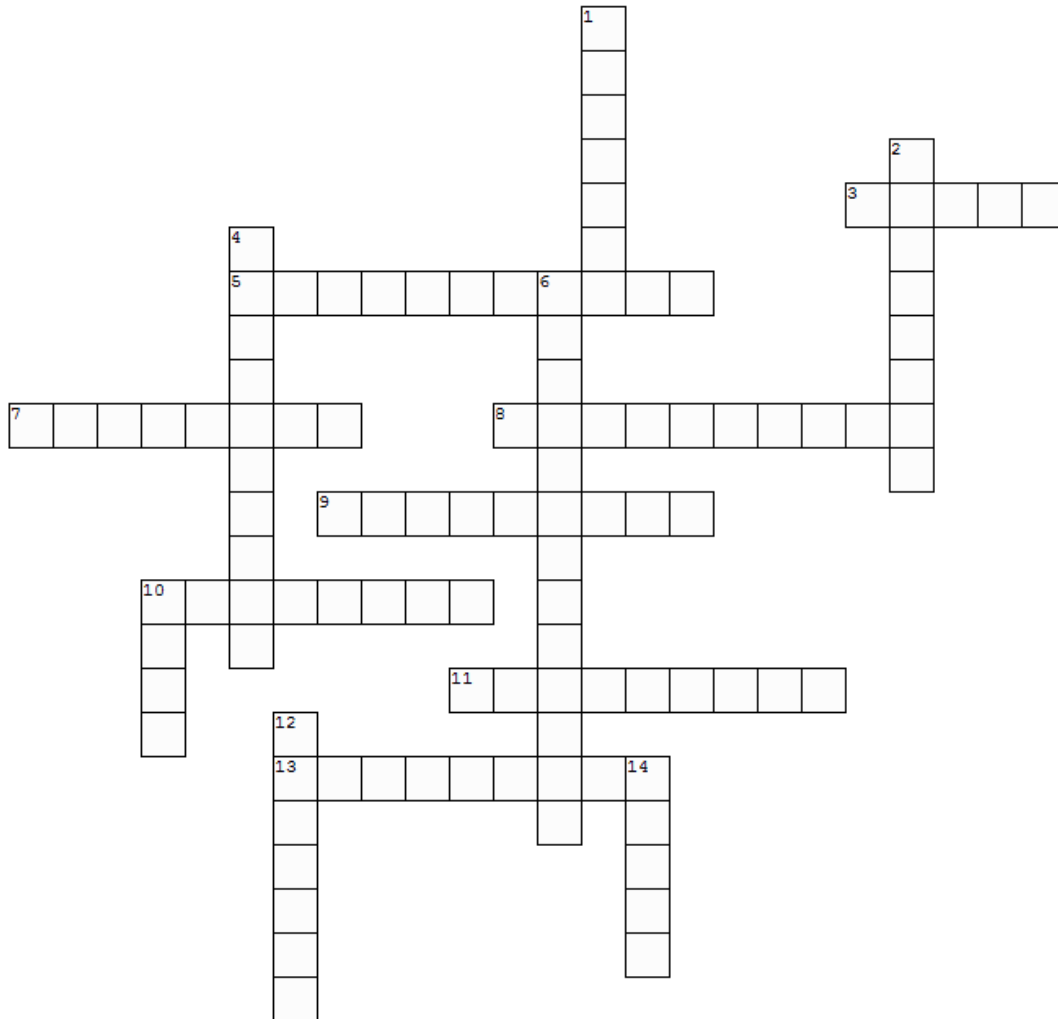
Reptile: a cold-blooded animal with dry scaly skin that typically lays soft-shelled eggs on land

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 Language Arts Crossword Puzzle



- | | | | | | | |
|---------------|----------|-------------|----------|------------|-----------|------------|
| TRAIT | NICHE | ARTHROPOD | HABITAT | AMPHIBIAN | ECOSYSTEM | CAMOUFLAGE |
| ENVIRONMENT | PRODUCER | INHERITANCE | PREDATOR | DECOMPOSER | REPTILE | PREY |
| METAMORPHOSIS | | | CONSUMER | | | |

Down

1. A cold-blooded animal with scales.
2. An organism that converts energy from light..
4. An animal that feeds on dead matter and breaks it down into simpler compounds.
6. Rapid changes in an animal's form after it is born or hatched.
10. The object of a hunt or pursuit, usually one animal caught and eaten by another.
12. The natural environment of a plant or animal.
14. The part of an ecological system occupied by a particular organism, or the functions of that organism in the system.

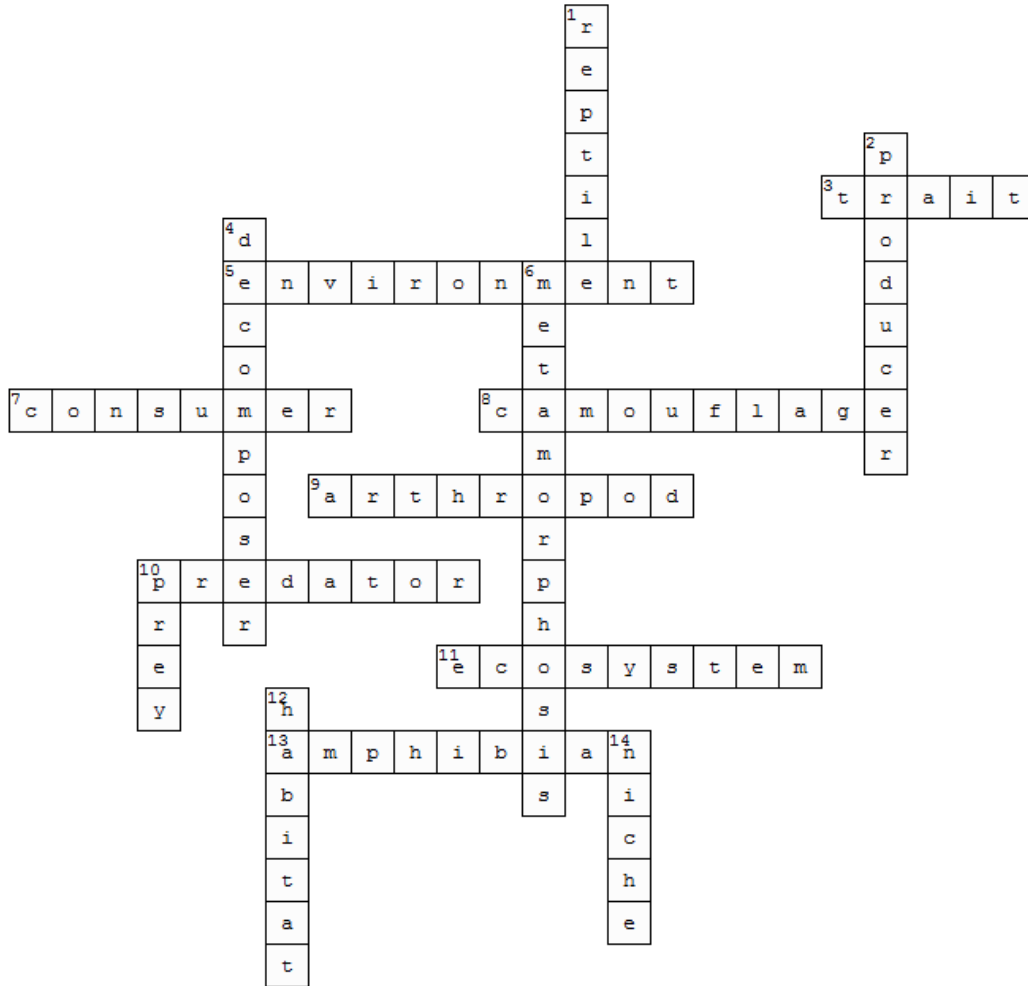
Across

3. A distinguishing feature or characteristic, as of one's appearance, personality, or nature.
5. The sum of everything that surrounds animals and humans in the natural world.
7. An organism that receives energy to live by consuming other organisms.
8. Blending in with an environment.
9. An animal with an exoskeleton and jointed legs.
10. An animal that hunts and eats other animals.
11. A community of living things, together with their environment.
13. An animal that lives both in the water and on land.

Answer Key

Life in a Pond

Language Arts Crossword Puzzle



Down

1. A cold-blooded animal with scales (**reptile**).
2. An organism that converts energy from light (**producer**).
4. An animal that feeds on dead matter and breaks it down into simpler compounds (**decomposer**).
6. Rapid changes in an animal's form after it is born or hatched (**metamorphosis**).
10. The object of a hunt or pursuit, usually one animal caught and eaten by another (**prey**).
12. The natural environment of a plant or animal (**habitat**).
14. The part of an ecological system occupied by a particular organism, or the functions of that organism in the system (**niche**).

Across

3. A distinguishing feature or characteristic, as of one's appearance, personality, or nature (**trait**).
5. The sum of everything that surrounds animals and humans in the natural world (**environment**).
7. An organism that receives energy to live by consuming other organisms (**consumer**).
8. Blending in with an environment (**camouflage**).
9. An animal with an exoskeleton and jointed legs (**arthropod**).
10. An animal that hunts and eats other animals (**predator**).
11. A community of living things, together with their environment (**ecosystem**).
13. An animal that lives both in the water and on land (**amphibian**).

Life in a Pond Language Arts Word Search

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

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

Word Bank

AMPHIBIAN
ARTHROPOD
CAMOUFLAGE
CONSUMER
DECOMPOSER

ECOSYSTEM
ENVIRONMENT
HABITAT
METAMORPHOSIS
INHERITANCE

PREDATOR
PREY
PRODUCER
REPTILE
TRAIT

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: Evolution by Natural Selection - Resource Area For Teaching - RAFT Bay Area](#)

Grades Covered: 3 through 12

Subjects Covered: Life Science

Curriculum topics: Adaptation, Evolution, Fitness, Natural Selection, Predator-Prey Interactions, Variation

Description: Simulate evolution with critters and beaky birds...

<http://www.raftbayarea.org/ideas/Evolution%20by%20Natural%20Selection.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 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: 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

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

California Science Content Standards Fifth Grade:

Earth Sciences: 3. Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept:

- c. *Students know* water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to the Earth as rain, hail, sleet, or snow.
- d. *Students know* that the amount of fresh water located in lakes, rivers, underground sources, and glaciers is limited, and that its availability can be extended by recycling and decreasing the use of water.

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

Common Core Fifth Grade:

Speaking and Listening Standards: Students will...

1. Engage effectively in a range of collaborative discussions with diverse partners on *grade five topics*, building on each others' ideas and expressing their own clearly.
 - b. Follow agreed-upon rules for discussions and carry out assigned roles.
 - c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.
 - d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from discussions.

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

Next Generation Science Standards Fourth Grade:

Matter and Energy in Organisms and Ecosystems

- **5-LS2-1:** Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
 - **Science and Engineering Practices**
 - **Developing and Using Models:** Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.
 - Develop a model to describe phenomena. (5-LS2-1)
 - **Disciplinary Core Ideas**
 - **LS2.A: Interdependent Relationships in Ecosystems:** The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in

Life in a Pond: Education Standards

environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1)

- **LS2.B: Cycles of Matter and Energy Transfer in Ecosystems:** Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1)
- **Crosscutting Concepts**
 - **Systems and System Models:** A system can be described in terms of its components and their interactions. (5-LS2-1)

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