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# Life in a Pond



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## Third-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

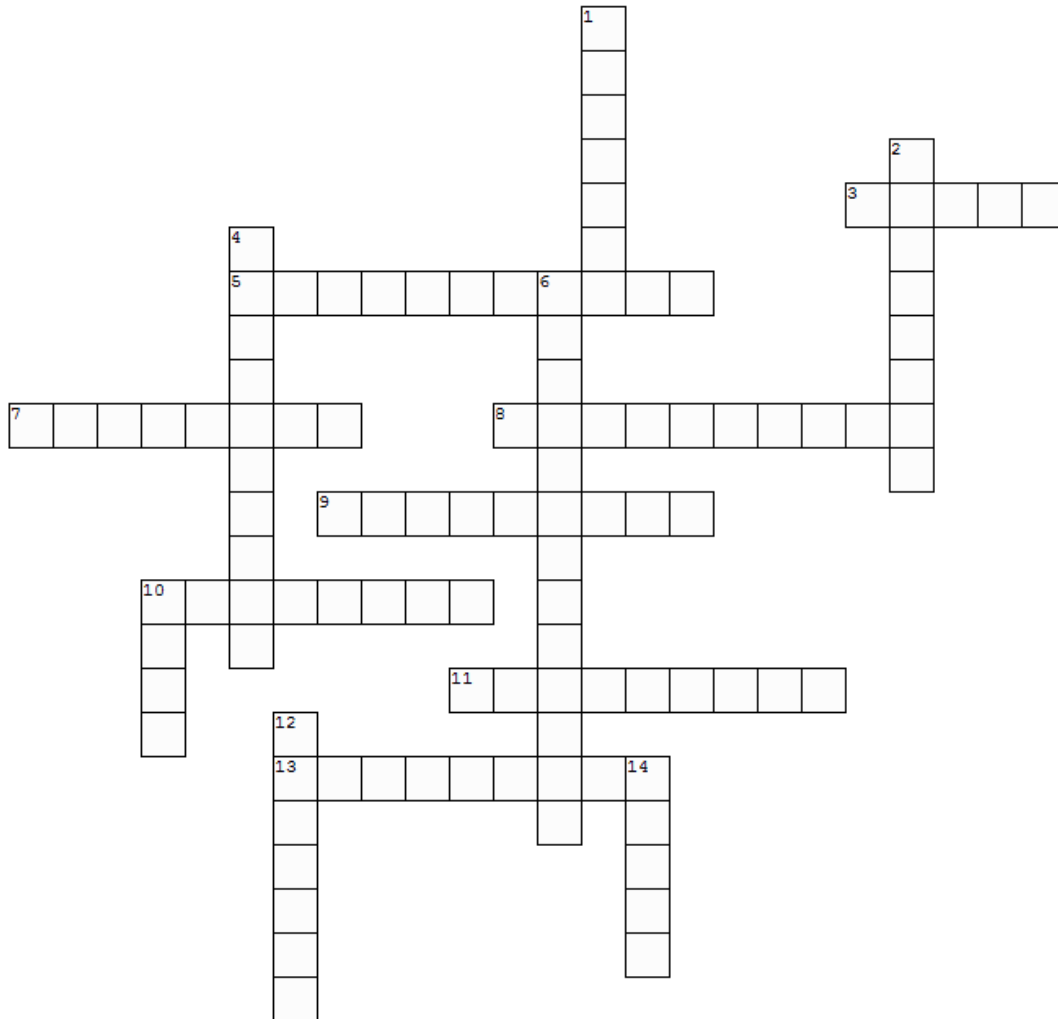
**Reptile:** a cold-blooded animal with dry scaly skin that typically lays soft-shelled eggs on land

**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](http://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. Changes in an animal's form from birth to adult
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.

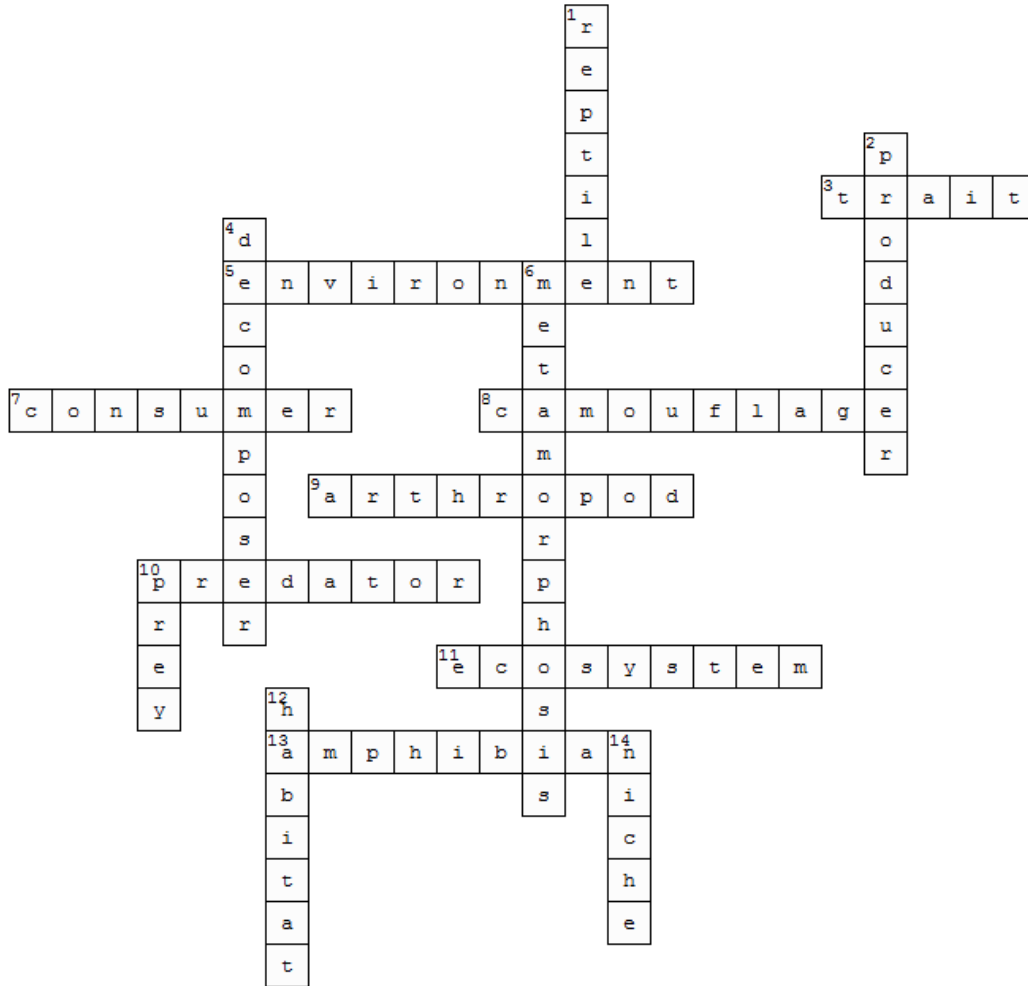
**Across**

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. Changes in an animal's form from birth to adult (**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

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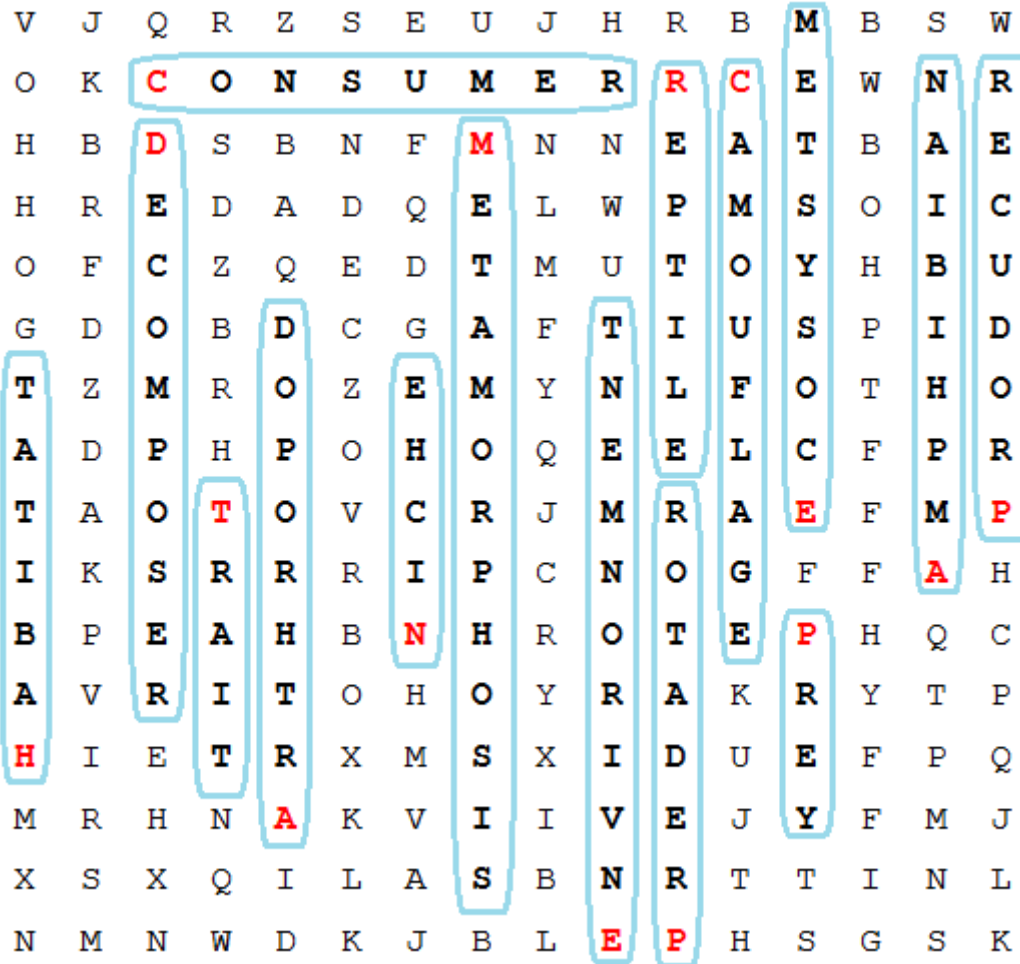
### Word Bank

AMPHIBIAN  
ARTHROPOD  
CAMOUFLAGE  
CONSUMER  
DECOMPOSER

ECOSYSTEM  
ENVIRONMENT  
HABITAT  
METAMORPHOSIS  
INHERITANCE

PREDATOR  
PREY  
PRODUCER  
REPTILE  
TRAIT

**Answer Key**  
**Life in a Pond**  
**Language Arts Word Search**



**Word Bank**

AMPHIBIAN  
ARTHROPOD  
CAMOUFLAGE  
CONSUMER  
DECOMPOSER

ECOSYSTEM  
ENVIRONMENT  
HABITAT  
METAMORPHOSIS  
NICHE

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](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 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 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**

*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 Third Grade:**

**Physical Sciences: 1.** Energy and matter have multiple forms and can be changed from one form to another. As a basis for understanding this concept:

- a. *Students know* energy comes to the earth in the form of light.

**Life Sciences: 3.** Adaptations in physical structure or behavior may improve an organism's chance for survival. As a basis for understanding this concept:

- a. *Students know* plants and animals have structures that serve different functions in growth, survival, and reproduction.
- b. *Students know* examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.
- c. *Students know* living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.

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

### **Common Core Third Grade:**

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

1. Engage effectively in a range of collaborative discussions with diverse partners on grade 3 topics, building on others' ideas and expressing their own clearly.
  - b. Follow agreed-upon rules for discussions.
  - c. Ask questions to check understanding of information presented, stay on topic, and link their comments to the remarks of others.
  - d. Explain their own ideas and understanding in light of the discussion.
2. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

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

### **Next Generation Science Standards Third Grade:**

#### **Interdependent Relationships in Ecosystems**

- **3-LS4-3:** Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
  - **Science and Engineering Practices:**
    - **Engaging in an argument from evidence:** Engaging in argument from evidence in 3–5 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.



## Life in a Pond: Education Standards

- Use materials Construct an argument with evidence. (3-LS4-3)

- **Disciplinary core ideas:**
  - **LS4.C: Adaptation:** For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- **Crosscutting Concepts**
  - **Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change. (3-LS4-3)

### Inheritance and Variations of Traits: Life Cycles and Traits

- **3-LS1-1:** Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.
  - **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 models to describe phenomena. (3-LS1-1)
  - **Disciplinary core ideas:**
    - **LS1.B: Growth and Development of Organisms:** Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)
  - **Crosscutting Concepts:**
    - **Patterns:** Patterns of change can be used to make predictions. (3-LS1-1)
- **3-LS4-2:** Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
  - **Science and Engineering Practices:**
    - **Constructing explanations and designing solutions:** Builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.
    - Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)
  - **Disciplinary core ideas:**
    - **LS4.B: Natural Selection:** Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)
  - **Crosscutting Concepts:**
    - **Cause and Effect:** Cause and effect relationships are routinely identified and used to explain change. (3-LS4-2)

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