The Amphibian Curriculum Guide for Grades K-4

David Alexander



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# HOP ACTION

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David Alexander



Arlington, Virginia



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# Preface

mphibian education and community involvement is critical at this time. We face a global amphibian extinction crisis. Of the more than 6,000 recognized species of amphibians, more than one third are suffering serious declines or have recently become extinct, despite having survived millions of years. If we do not educate our youth to appreciate, understand, and take action for amphibians and their environments, the amphibians are destined to go the way of the dinosaurs. The *Hop Into Action* curriculum guide was developed in response to this urgency in order to arm educators from a variety of settings with tools they can use to incorporate effective environmental education for learners in kindergarten through fourth grade.

As an educator, you are the audience for this guide, which offers 20 lessons that can be used individually or as a curriculum. In addition it

- includes interdisciplinary approaches to curriculum areas to meet national standards;
- is designed for classroom teachers, home school educators, naturalists, and camp leaders;
- provides lessons geared for grades K–4, with some appropriate content and extensions for younger and older grade levels; and
- was created from the firsthand experience of educators in both formal and informal learning environments.

Because amphibians form a link between aquatic and terrestrial environments, they offer exciting opportunities for education and also can be used to educate across multiple subject areas. Educating students about these species will be critical to foster awareness and social concern that may one day lead to stewardship and conservation. Lessons provide opportunities for students to build skills as environmental advocates and understand the vital need to protect our living world.

Through active, hands-on learning about the environment, children develop the knowledge and skills to address challenges in their communities while contributing to their own academic achievement.

# Acknowledgments

eveloped over five years of teaching outdoor environmental education, *Hop Into Action* is a collection of lessons for facilitating children's activities in the natural world. All creative works depend on experiences that preceded them, and this curriculum guide is no exception. In that light, I'd like to offer my thanks to those teachers, professors, naturalists, and other environmental education facilitators who have captured my attention and imagination and made my learning experiences both fun and meaningful. Finally, I owe my first debt of gratitude to my parents, who encouraged me to run free in the natural world, even if it meant coming home covered in both mud and duckweed and leaving a trail of smelly boots and other equipment to greet visitors at the door.



# About the Author

avid Alexander is an experienced naturalist who uses the environment to educate a diverse group of students at all age levels. He earned his graduate degree in environmental science, conservation biology at Green Mountain College and his bachelor's degree in natural resources at the University of Vermont. His enthusiasm and curiosity for the natural world is boundless.

# Introduction

op Into Action is an amphibian education curriculum designed for grades kindergarten through fourth grade in a way that allows students to apply knowledge from one lesson to others in the field and classroom. This cross-disciplinary curriculum guide introduces children to the joy of amphibians through investigations that involve scientific inquiry and knowledge building, while treating science as a process and not as memorization. In turn, these lessons bridge the gap between knowledge and action by promoting critical thinking, problem-solving skills, and collaboration to help students become advocates for the environment.

Lessons are offered sequentially, but they may be used out of sequence if students are learning at the grade level listed and educators are familiar with students' prior knowledge. Lessons are tailored to allow for extensions to multiple learning styles as needed for students who experience and process information differently. For example, kinesthetic learners will be provided the opportunity to have a concrete experience feeling a frog in the lesson about amphibian identification or using clay to demonstrate metamorphosis. Visual learners will benefit when participating in the creation of lily pad Venn diagrams or frog pond habitat webs that allow students to represent information spatially. Auditory learners will benefit from the discussion built into each lesson and specifically benefit from the lesson "Audible Amphibians," which offers the opportunity to hear the calls of frogs and toads. Finally, learners who enjoy and benefit most from reading and writing will love the stories provided as resources and thrive when participating in the lessons "Ribbiting Discoveries in the Lily Pad Paper" and "Seasonal Discoveries Journal."

Lessons also provide students with an understanding of career pathways as they act as biologists, herpetologists, ecologists, reporters, and park naturalists to investigate frog ponds.

The lessons included are designed to take advantage of and exercise children's natural curiosity about the environment using observation, photographs, games, and direct instruction. The curriculum includes reference materials such as field guides, websites, and storybooks that complement lessons and allow for study of species found in your own region. I hope you and your students learn to love, appreciate, and protect amphibians as a result of the fun and educational ideas provided in this guide.

# How to Use This Book

ach lesson plan includes basic information for the instructor to determine if the activity will meet his or her needs. The following information is provided: grade/ability level, subject area, skills used, class setting, time required, and group size. Lessons describe in detail the objectives or observable student outcomes of each lesson; method of meeting the objectives for each lesson; materials required to perform the lesson; background information that will help educate the instructor about the lesson topic; a procedure to follow for presenting each lesson; evaluation questions and methods to assess the knowledge of students after the lesson; extensions that provide additional study related to the lesson; and resource information that includes books, audiovisual references, and web resources.

The activities in this guide were designed to meet content standards outlined in the *National Science Education Standards* and the North American Association for Environmental Education's *Excellence in Environmental Education: Guidelines for Learning (PreK*–12).

Educators should modify their use of lessons to meet the learning goals of their students' ages and ability levels. Permission is granted in advance for reproduction for purpose of classroom or workshop instruction. To request permission for other uses, send specific requests to publisher.

Lesson Name	Grades	Subject Areas
How to Identify an Amphibian	K-4	Science, Language Arts, Art
Amphibian Encounter	K-3	Science, Language Arts
Amphibian Metamorphosis	K-2	Science, Drama, Art
Lily Pad Venn Diagrams	3–4	Science, Language Arts, Math
Frog Hop Relay Race	K-2	Science, Physical Education
Camouflaged Critters	K-2	Science, Art
Amazing Amphibian Migration	2–4	Science, Language Arts, Physical Education
Frog Pond Soup	3–4	Science, Language Arts
Frog Pond Web	3-4	Science, Language Arts

The following table outlines the grade levels and subject areas covered for each lesson:

Lesson Name	Grades	Subject Areas
Frog Pond Lifeguard	4	Science, Language Arts
Audible Amphibian	1–4	Science
Feeding Frenzy	K-4	Science, Physical Education, Math
Salamander Smell	2–4	Science
Frog Pond Poetry	3–4	Science, Language Arts
Ribbiting Discoveries in the Lily Pad Paper	3-4	Science, Language Arts, Media, Art
Seasonal Discoveries Journal	3–4	Science, Language Arts
Herp, Herp, Hooray	4	Science, Language Arts
Frog Pond Choices	4	Science, Language Arts
Frogville Town Meeting	4	Science, Language Arts, Civics
Amphibian Art	2–4	Science, Art, Language Arts, History

### **Resource Information**

National Research Council. 1996. National science education standards. Washington, DC: National Academies Press.

North American Association for Environmental Education (NAAEE). 2009. Excellence in environmental education: Guidelines for Learning (preK-12). Washington, DC: NAAEE.



-esson Correlations to National Science Education

Content Standards, Grades K–4

# Lesson

Content Standard	Topic	L	2	S	4	5	9	7	8	6	0	-	2 1	3 1	4 1	5 16	17	18	19	20
A. Science as Inquiry	Abilities necessary to do scientific inquiry		٠	•			•			•	•								•	
	Understanding about scientific inquiry		•	•			•				•	•					•		•	
B. Physical Science	Properties of objects and materials								•											
	Position and motion of objects					•														
C. Life Science	The characteristics of organisms	•	•	•	•	•	•			•	•	•	•	•	•	•			•	•
	Life cycles of organisms			•						•									•	
	Organisms and environments		•			•	•	•	•	•	•	•	•	•	•	•		•	•	•
D. Earth and Space	Properties of Earth materials								•											
science	Changes in the Earth and sky										•				•	•				

# Lesson Correlations to National Science Education Amphibian Curriculum Guide

Content Standards, Grades K–4 (cont.)

Lesson

Content Standard	Topic	-	2	3	4	5	9	7	8		0 1	1 12	. 13	14	15	16	17	18	19	20
E. Science and Technology	Abilities of technological design							•		•							•	•	•	
	Understanding about science and technology									•	•						•	•	•	
	Abilities to distinguish between natural objects and objects made by humans								•											
F. Science in Personal and Social	Characteristics and changes in populations							•											•	•
rerspectives	Changes in environments							•											•	•
	Science and technology in local challenges																•	•	•	
G. History and Nature of Science	Science as a human endeavor	•	٠				•			•	•						•	•	•	•

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# Educating With Amphibians in the Classroom and Field

### Amphibians in the Classroom

Due to the care and commitment required, educators should always receive permission from administrators before moving forward with housing amphibians in a nature center, recreation center, or classroom. Teachers should check with their board of education, school administrators, and the school nurse before housing amphibians in a classroom or handling them in the outside environment. Educators should have a plan in writing that describes any necessary funding and a care schedule that takes into account weekends and school breaks.

In a classroom, it is important that amphibians act as "Animal Ambassadors" that help educate students about their respective species. If, as an educator, you choose to host an animal ambassador, you may want to consult your students before making all the decisions. Consider the following questions:

- How would you create a habitat for the amphibian that provides basic needs and closely resembles the natural habitat? What does the amphibian need to survive? How can we create a habitat in our classroom that includes all of these things? Consider moisture, light, temperature, and food.
- What do amphibians need to eat? Do they eat the same things at all life stages?
- Should we hold and handle the amphibian?
- How long should we keep the animal in this artificial or model habitat?

Giving children the chance to help with this planning process will allow them to think deeply about the ways habitats meet the needs of animals. Ultimately, an amphibian in the classroom should be treated as an ambassador of its species and cared for with the utmost respect through responsible handling, feeding, maintenance, and general care schedules. Only one species of amphibian should be maintained in a classroom at one time, and it should not come into contact with anything else shared with other animals unless sterilized for health and safety reasons.

There are many biological science suppliers that offer live amphibians for classroom use; however, they may only be available at certain life stages throughout the seasons and require planning ahead. *After the completion of the curriculum*,

Educating With Amphibians in the Classroom and Field

amphibians purchased for use in the classroom should not be released into nearby habitats, but rather kept and cared for until the end of their lives. You may find your local herpetological society helpful at finding someone who can provide the care needed or at last resort a veterinarian can euthanize according to the American Veterinary Medical Association's (AVMA) Guidelines on Euthanasia.

This is important because releasing captive amphibians can spread disease or organisms against which native wildlife may not have immunity. The released amphibians may also not be native to the habitat or not have time to adjust to the seasonal changes taking place and therefore not capable of survival.

If amphibians are collected outside for short-term classroom use (see permits on following page) they may be released at the capture site so long as proper sanitation procedures were followed (as outlined on the following page).

There are many opportunities to educate students about how to care for amphibians. Anne Mazer's book *The Salamander Room* is a great place to start a discussion regarding the responsibilities involved for younger learners. It is also important to distinguish the fantasy from reality found in books and movies so students begin thinking about the basic needs of living things and how they are met.

### Amphibians in the Field

The best place to learn about the environment is the natural environment. The proximity of a pond to a classroom allows a much more intimate relationship with nature in terms of students being able to observe it with relatively little time and effort involved. It also helps to use local natural and cultural surroundings as the context for instruction and learning. When this place-based education is implemented, students and community members can benefit from partnerships.

Many students will benefit from opportunities to move in and out of open and focused explorations in a natural setting. When students are asked to focus their attention toward work, reading, or tests, they can feel fatigued. When they have opportunities for open exploration, involuntary attention can take over, giving the brain time to relax, in turn leading to better behavior and concentration. In addition, offering students playful learning opportunities can lead to better academic success and both interest in and excitement about the subject area.

Students should be briefed about what they might see outside, as some may be timid or scared if they have not had experience exploring the natural world. You should also discuss general discipline with students, including school rules that apply while outside.

Amphibian habitats may be found with assistance from a local environmental center, parks and recreation department, or state fish and wildlife agency. If your organization does not have access to a pond or other suitable habitat, you should consider creating a backyard or schoolyard habitat. Excellent resources exist from both the National Wildlife Federation and Tree Walkers International that will

Educating With Amphibians in the Classroom and Field

help you build a pond habitat suitable for amphibians. Remember that depending on the distance and weather conditions, field outings may require field essentials such as rain gear, rubber boots, waders, waterproof notebooks, and more (review Safety Practices for Outdoors and in the Classroom, p. xxiii). For younger students, you may even choose to consider life jackets as a safety precaution.

### **Handling Techniques**

As with handling all life, we must show our students how to be respectful. It is important that all handlers wash their hands before and after holding or touching an amphibian. Improper handling of amphibians can be detrimental to their health, so an adult should always be present to assist. One technique that should be encouraged is to sit low while holding an animal so if it squirms or hops there won't be an injuring fall. Gently touching with one finger should also be encouraged.

Things to remember:

- Return amphibians to the same location where they were found. If found under a log or rock, place the amphibian next to the cover item and return the cover item as it was found. Consider the cover item to be similar to the roof of a house. It maintains a microclimate that the amphibian requires.
- Avoid getting insect repellent, sunscreen, or other personal care products on hands, as it may absorb into the skin of the amphibian.
- If you are exploring outside environments, be careful not to disturb the habitat you wish to study. You may remind younger students of this by explaining that "plants grow by the inch but die by the foot."

### **Disinfectant Techniques**

Before and after placing amphibians in tanks or in contact with equipment including nets, filters, and boots—a disinfectant should be applied to the equipment. First clean with a detergent and rinse clean prior to bleaching. A 1% solution of household bleach (usually a 4% solution of sodium hypochlorite) can be made using one part household bleach to three parts water; a minimum contact time with equipment of 15 minutes is necessary.

It is also important to age chlorinated water for 24 hours, or use a drop of Chlor Out to dechlorinate water before introducing the animal, or the chlorine can harm it.

### Permits

Care should be taken to acquire all necessary information and permits before purchasing or collecting wildlife, as some species may be threatened or endangered. There may be national laws as well as state laws that restrict and regulate what



Educating With Amphibians in the Classroom and Field

species are available for outside handling or inside education. Your state department of environmental protection or fish and game should be able to provide you with a list of protected species and permit applications.

### **Resource Information**

American Veterinary Medical Association (AVMA). www.avma.org Mazer, a. 1994. The salamander room. New York: Dragonfly Books. Mendelson, J. 2009. Considerations and recommendations for raising live

- amphibians in classrooms. Society for the Study of Amphibians and Reptiles, www.ssarherps.org/documents/amphibians\_in\_classroom.pdf.
- National Research Council. 1996. National science education standards. Washington, DC: National Academies Press.

National Science Teachers Association. Responsible use of live animals and dissection in the science classroom. NSTA. www.nsta.org/about/positions

- North American Association for Environmental Education (NAAEE). 2009. Excellence in environmental education: Guidelines for Learning (preK-12). Washington, DC: NAAEE.
- Wyzga, M. 1998. Homes for wildlife: A planning guide for habitat enhancement on school grounds. Concord, NH: New Hampshire Fish and Game Department.



# Safety Practices for Outdoors and in the Classroom

### Outdoors

- 1. Teachers should always visit outdoor areas to review potential safety hazards prior to students carrying out activities.
- 2. Keep clear of outdoor areas that may have been treated with pesticides, fungicides, or other hazardous chemicals.
- 3. When working outdoors, students should use appropriate protective equipment, including safety glasses or safety goggles (if working with hazardous chemicals), gloves, closedtoed shoes, long-sleeve shirts and pants.
- 4. Caution students of poisonous plants (e.g., poison ivy, sumac), insects (e.g., bees, ticks, mosquitoes), and hazardous debris (e.g., broken glass).
- 5. Teachers need to inform parents in writing of on-site field trips relative to potential hazards and safety precautions taken.
- Teachers need to check with the school nurse relative to student medical issues (e.g., allergies, asthma). Be prepared for medical emergencies.
- 7. Teachers need to have a means of communication (cell phone, two-way radio) in case of emergencies.
- 8. Wash hands with soap and water after doing activities outdoors.
- 9. Contact the main office prior to taking classes out of the building.

### In the Classroom

- 1. Always review Material Safety Data Sheets (MSDS) with students to go over safety precautions in working with hazardous chemicals.
- Remind students only to observe animals. Do not touch or pick up animals unless instructed to do so by the teacher.
- 3. Use caution in working with sharp objects such as scissors or glass slides.
- 4. Wear protective gloves when handling animals.
- 5. Do not eat or drink anything in the science lab or when handling animals.
- 6. Wash hands with soap and water after doing activities with hazardous chemicals, soil, or biologicals (plants or animals).
- 7. To disinfect cages and other equipment used in animal care, first wash the items in hot water with detergent. Scrape off stuck material. Rinse with plain water. Apply a bleach solution (½ cup household bleach to 1 gallon of water). Let cage and equipment sit in the bleach solution for a minimum of 20 minutes. Rinse again with plain water.
- 8. Use caution when working with clay. Dry or powdered clay contains a hazardous substance called silica. Only work with and clean up clay when wet.



## Lessons for Prekindergarten Learners

hile this guide was designed to provide comprehensive lessons to educators in kindergarten through fourth grade, provided here are lesson ideas for prekindergarten educators looking to add live event learning and hands-on science for little explorers.

- **Slime:** Have children experience an amphibian-like substance with their sense of touch. Place the following ingredients in a plastic bag: 1 cup cornstarch, ½ cup water, green food coloring. Remove the air and knead the bag slowly until the mixture is well blended. Allow children to touch and play with the slime, but remind them not to taste it!
- **Getting Dirty:** Have children play and experiment with mud (know the source of the dirt and make sure it is free of pesticides). Wash hands with soap and water after the lesson.
- **Sink or Float:** Have children experiment with a water table to determine what sinks or floats. Predictions followed by results can be recorded on a chart.
- **Follow the Frog:** Place amphibian pictures along a trail for children to find on their walk to the pond.
- **Hop Around:** Follow the leader and imitate the movements of amphibians or other pond life.
- **Matching Frogs:** Create a matching game where children must find like colors of frogs and pair them together. Or pair baby and mommy animal pictures.
- **Feeding Frenzy:** Have children search around a field for "frog food" or strips of felt that represent the different foods frogs would find. Discuss what colors were easiest to find and why.
- **Tools of the Trade:** Have children practice using hand lenses to discover details and see more in nature.
- **Seasonal Discovery:** Have children revisit a pond or natural area monthly so they have opportunities to notice as much seasonal change as possible. Scavenger hunts can be added to the nature walk.
- **Frog Puppets:** Have children paste premade pieces onto a paper bag to create their own frog puppets.
- **Popsicle Puppets:** Have children color animals and paste them on sticks. They can be raised and lowered when the animals appear in a story or cast onto a sheet as shadows.

Lessons for Prekindergarten Learners

### **Prekindergarten Books**

Faulkner, K. 1996. Wide mouthed frog. New York: Dial
Fleming, D. 2007. In the small, small pond. New York: Henry Holt.
Kent, J. 1982. The caterpillar and the pollywog. New York: Aladdin.
Lescroart, J. 2008. Icky sticky frog. Atlanta: Piggy Toes Press.
Lionni, L. 1996. It's mine. New York: Dragonfly Books.
Pallotta, J., and R. Masiello. 1990. The frog alphabet book. Watertown, MA: Charlesbridge.



# **Lesson 4:** Lily Pad Venn Diagrams

### Objectives

Students will be able to identify the similarities and differences between amphibians as they compare and contrast two different species.

### Method

Students compare and contrast the similarities and differences between amphibians using Venn diagrams.

### **Materials**

Lily Pad Venn Diagrams worksheets, pencil, visual reference to amphibians

### Background Information

### Grade Level: 3-4

Subject Area: science, language arts, math

**Skills:** analysis, description, identification

Setting: inside or outside

Lesson Duration: 30 minutes

Group Size: no minimum size

### National Science Education Standards, Grades K–4

• Life Science: The characteristics of organisms

Amphibians come in many shapes, sizes, and colors and can be described and identified using language that appeals to our senses of sight, touch, and hearing. When students compare different amphibians, they are more likely to think deeply about the physical and behavioral characteristics that make each unique. Students may discover unique characteristics that showcase the differences between amphibians and also begin to recognize their similarities. An example of the physical differences students may observe is that adult salamanders and newts have a tail and adult frogs do not. Students may also visually notice the behavioral characteristics that are unique after watching frogs jump and salamanders walk, or they may listen and notice that frogs and toads can be told apart by their calls but salamanders and caecilians do not call. Students will also notice that most amphibians are cold-blooded, have moist skin, and undergo metamorphosis.

### Procedure

- 1. Read a story or show pictures to begin a discussion about the physical and behavioral characteristics of amphibians.
- 2. Engage students in a descriptive conversation about the similarities and differences between frogs, toads, salamanders, newts, or caecilians. You may first choose to create a T-chart to help graphically organize student answers, listing characteristics of one amphibian on one side of the chart and characteristics of another on the other side of the chart. This can be started by asking students an open-ended question, such as what they notice about each animal or what the book says about each animal.
- 3. Introduce students to Venn diagrams by inserting their answers from the T-chart into the circles on the Venn diagram. Ask them what the amphibians have in common and fill in the overlapping portion that includes shared characteristics.
- 4. Depending on the ability of students, you may choose to provide a list of key characteristics to be used in the Venn diagram or allow students to research these characteristics on their own or in groups.
- 5. If available, show students the species side by side, with animals in a tank or outside, so that they may compare and contrast while observing the living species. If living species are not available, prepare pictures for visual reference.

### **Reflect and Explain**

- What are the similarities and differences between the amphibian species you compared and contrasted?
- Based on similarities between amphibians, how would you define an amphibian?
- Attach a picture of one frog and one toad on each side of a display board or in a T-chart. Create text cards with characteristics that can be attached to the board underneath the animal or in between if the characteristic is shared by both the frog and toad.
- Place amphibian pictures into a pond net. Ask students to pull cards out of the net and decide if they are a frog, toad, salamander, newt, or caecilian. They should explain why.
- Write a comparison essay using the Venn diagram or T-chart that was created.

### Extensions

- Create a Venn diagram to compare and contrast amphibians and humans.
- Create a Venn diagram to compare reptiles and amphibians. Discuss the slimy skin of amphibians and the scaly skin of reptiles.
- Make up a story about an amphibian or other animal using vocabulary that describes their characteristics. See if the group can figure out what amphibian the student was discussing based on descriptive writing.

### **Resource Information**

Kalman, B. 2000. What is an amphibian? New York: Crabtree.Zim, H., H. Smith, and J. Gordon. 2001. Reptiles and amphibians: Revised and updated. New York: St. Martin's Press.

### <u>Both</u>

<u>Frogs</u>

**Bulging eyes** 

Jump

Have vocal sacs

Fertilized externally Hatch from eggs

Are amphibians

Young have gills

Young live in water

Adults have lungs

Have a backbone

Have vocal sacs

Go through complete metamorphosis

### <u>Toads</u>

Dry skin

Poison glands behind eyes

Spend most time on land

Have no teeth

Lay eggs in chains

Walk

**Frogs** 

Slimy, smooth skin

Have teeth

in top jaws

**Bulging eyes** 

Lay eggs in clusters

Jump

Long hind legs

### <u>Both</u>

Are amphibians

Have a brain

Have a heart

Have a backbone

Hatch from eggs

Young have gills

Young live in water

Adults have lungs

### **Salamanders**

Walk

Strong sense of Smell

Fertilized internally



### **Reptiles**

Dry scaly skin or shell

Leathery eggs laid on land (some have live young)

Young same shape as adult

Breathe with lungs at all times

May have claws

### <u>Both</u>

Have a brain

Have a backbone

Have a heart

Cold-blooded

Breathe air

### **Amphibians**

Jelly-like eggs laid in water

> Replace gills with lungs in adulthood

Young different shape from adults

Most young live in water

Adults have lungs

No claws

Moist skin



# Lily Pad Venn Diagrams

Name(s):\_

# Write the descriptive characteristics into the frogs and toads Venn diagram.

- Are amphibians
- Jump
- Walk

**Frogs** 

- Hatch from eggs
- Young live in water
- Adults have lungs
- Have a backbone
- Have vocal sacs
- Go through complete metamorphosis
- Spend most time on land

- Bulging eyes
- Lay eggs in clusters
- Lay eggs in chains
- Young have gills
- Long hind legs
- Slimy, smooth skin
- Dry, watery skin
- Poison glands behind eyes
- Have no teeth

Both

• Have teeth in top jaws

**Toads** 

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Name(s):

Write the descriptive characteristics into the frogs and salamanders Venn diagram.

- Bulging eyes
- Jump
- Strong sense of smell
- Have a brain
- Have a heart
- Have a backbone
- Young live in water
- Adults have lungs

- Walk
- Fertilized internally
- Have vocal sacs
- Fertilized externally
- Are amphibians
- Hatch from eggs
- Young have gills

Both Frogs Salamanders



HOP INTO ACTION: THE AMPHIBIAN CURRICULUM GUIDE FOR GRADES K-4

# Lily Pad Venn Diagrams

Name(s):\_

# Write the descriptive characteristics into the reptiles and amphibians Venn diagram.

- Dry scaly skin or shell
- Replace gills with lungs in adulthood
- Have a heart (some have live young)
- Breathe with lungs at all times
- Have a backbone

**Reptiles** 

- Moist skin
- Most young live in water

- Have a brain
- Young same shape as adult
- Cold-blooded
- Eggs laid on land
- Eggs laid in water
- Young different shape from adults
- Adults have lungs
- No claws

<u>Both</u>

**Amphibians** 

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