

# **Amphibians and Reptiles**

**A Compare and Contrast Book**



**by Katharine Hall**

# Amphibians and Reptiles

Most amphibians and reptiles may hatch from eggs but they have different skin coverings and breathe differently. These two animal classes are often confused. Pages of fun facts will help children classify the animals like a pro after reading the fourth book in Arbordale's *Compare and Contrast* series. Similar to *Polar Bears and Penguins*, *Clouds*, and *Trees*; *Amphibians and Reptiles* uses stunning photographs and simple non-fiction text to get kids thinking about the similarities and differences between these two animal classes.

Animals in the book include: alligator, caecilians, crocodile, frogs, lizards, poison dart frog, salamanders, sea turtles, snake, tuatara, and turtle.

It's so much more than a picture book . . . this book is specifically designed to be both a fun-to-read story and a launch pad for discussions and learning. We encourage adults to do the activities with the young children in their lives both at home and in the classroom. Free online resources and support at [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com) include:

- For Creative Minds as seen in the book (in English & Spanish):
  - Vertebrate Classes
  - Amphibian or Reptile Sorting
  - Herpetology
  - Amphibian Life Cycle Sequencing
- Teaching Activities (to do at home or school):
  - Reading Questions
  - Math
  - Language Arts
  - Geography
  - Science
- Interactive Quizzes: Reading Comprehension, For Creative Minds, and Math Word Problems
- English and Spanish Audiobooks
- Related Websites
- Aligned to State, Common Core & NGSS Standards
- Accelerated Reader and Reading Counts! Quizzes
- Lexile and Fountas & Pinnell Reading Levels

eBooks with Auto-Flip, Auto-Read, and selectable English and Spanish text and audio are available for purchase online.

Thanks to Dr. Kenneth L. Krysko, Division of Herpetology at the Florida Museum of Natural History, for reviewing the accuracy of the information in this book.



Award-winning author **Katharine Hall** is a life-long nature lover and avid reader. She hopes the *Compare and Contrast* series will help children use critical thinking skills to explore and learn about the natural world around them. Katharine has written *Polar Bears and Penguins* (NSTA/CBC Outstanding Science Trade Book), *Clouds*, and *Trees* for Arbordale. Katharine and her husband live in South Carolina with their dogs and cats.



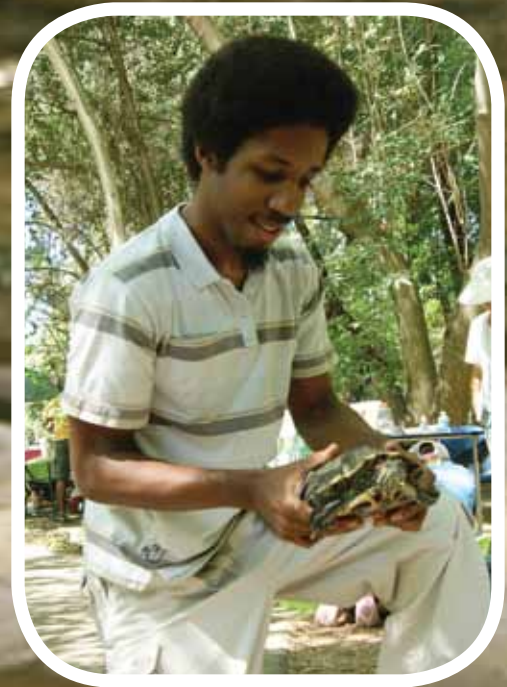
Katharine Hall

# Amphibians and Reptiles

## A Compare and Contrast Book

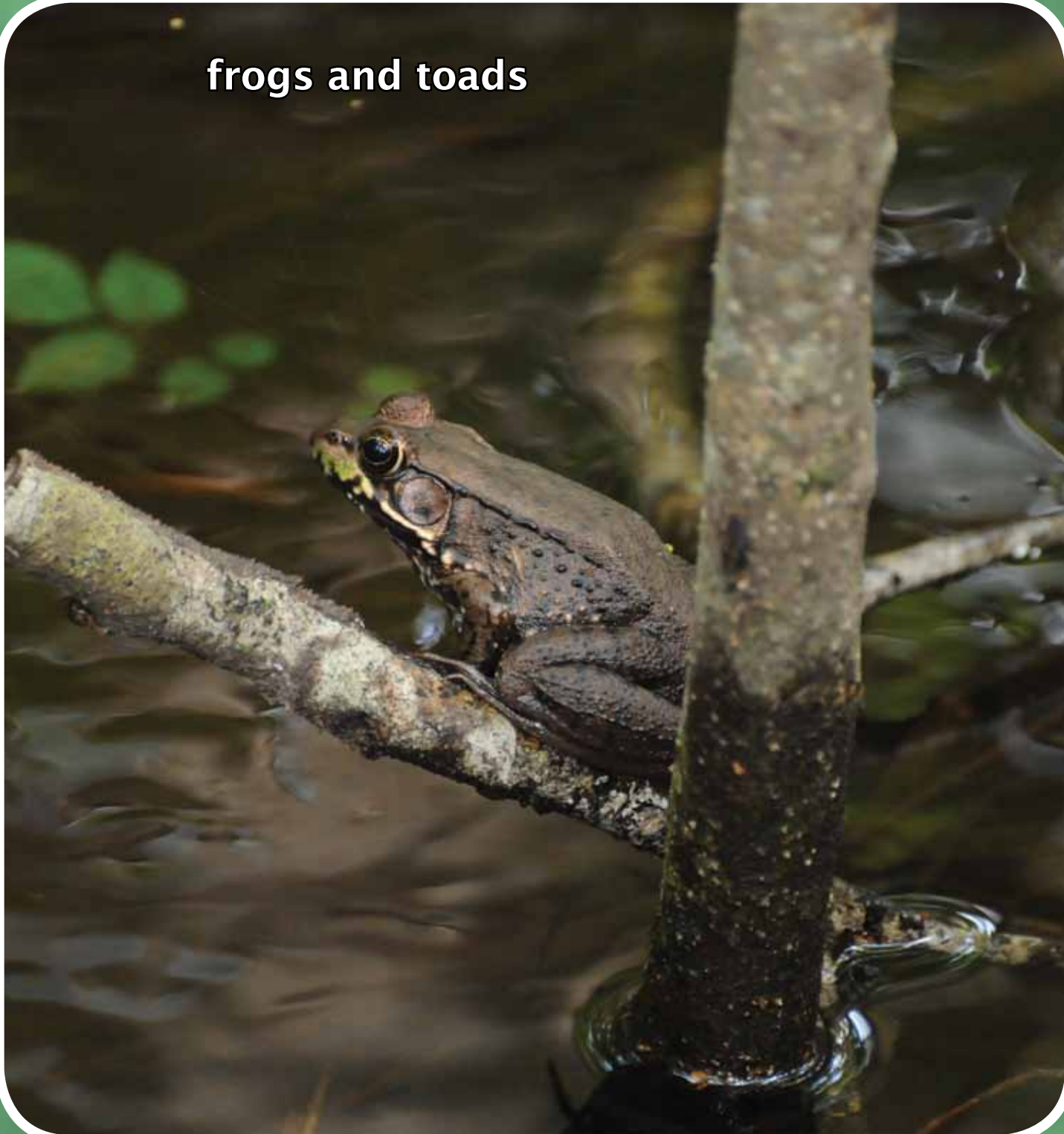
by **Katharine Hall**

**Amphibians and reptiles are two different classes of animals. Scientists who study them are called herpetologists.**



There are three main types of amphibians.

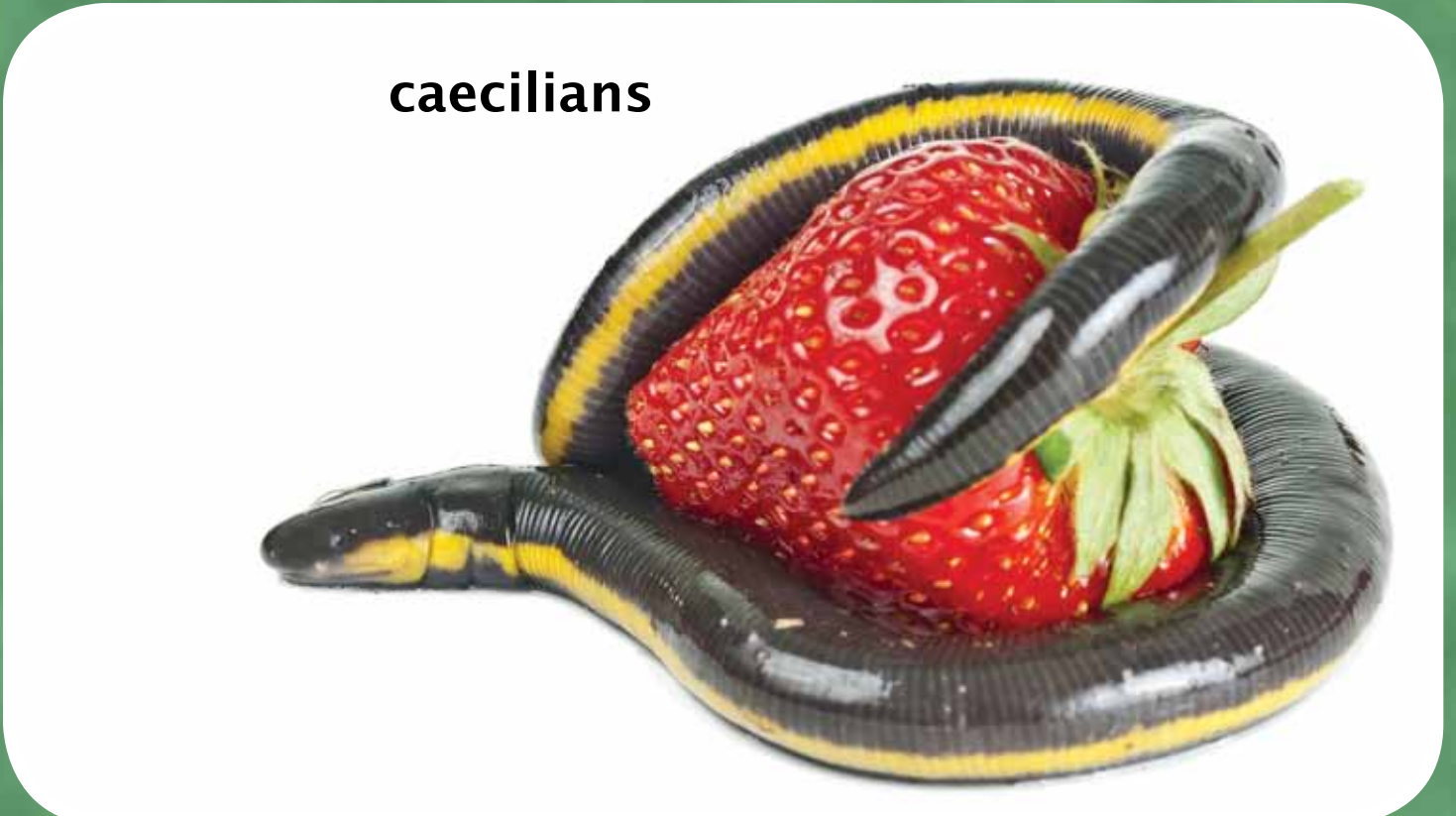
frogs and toads



salamanders and newts



caecilians



There are four different kinds of reptiles.



crocodylians



lizards, worm lizards, and snakes



tuatara



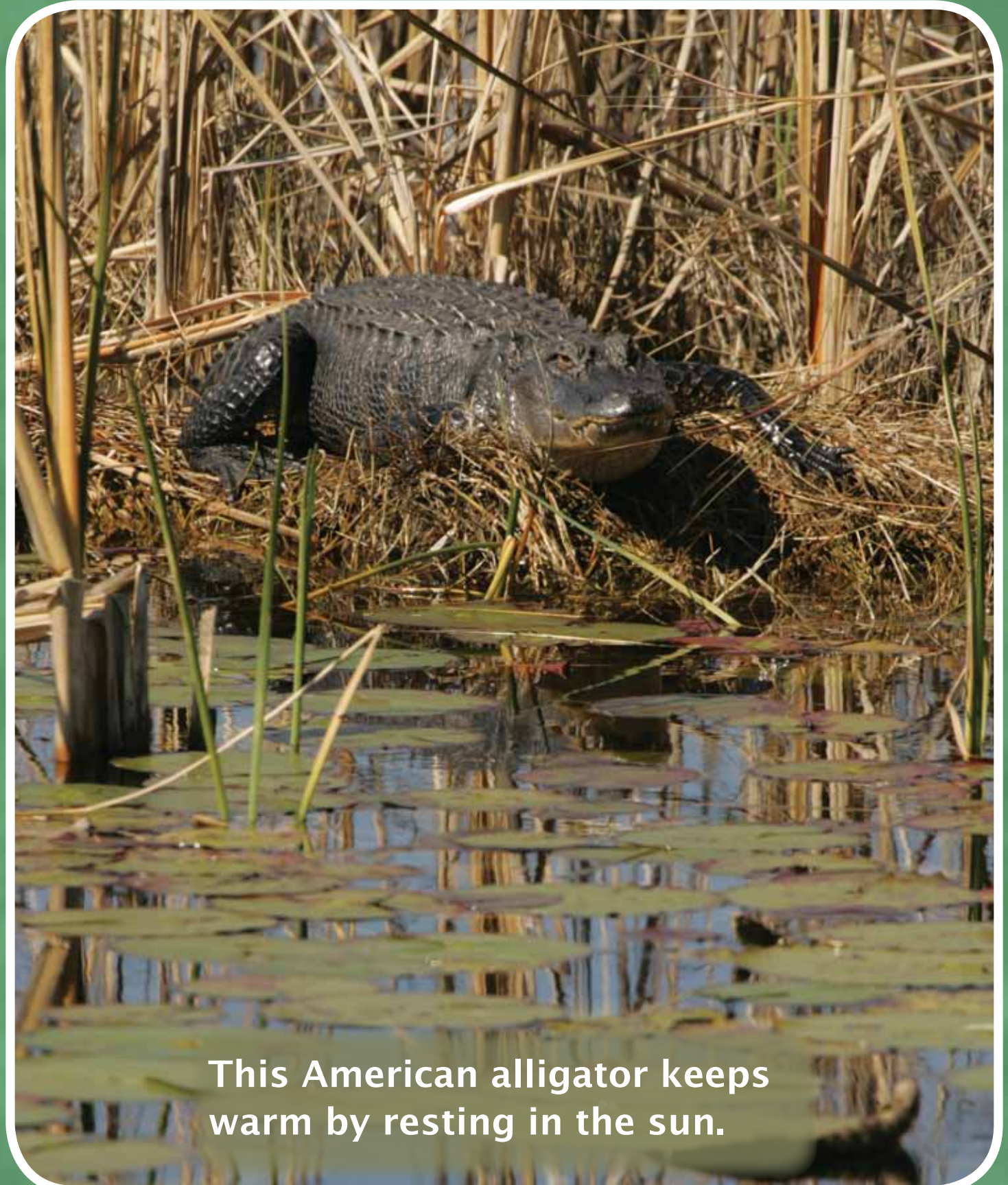
turtles and tortoises

**Amphibians and reptiles are cold-blooded.**

**This olympic salamander stays moist and cool by resting on wet earth.**



**This American alligator keeps warm by resting in the sun.**



## For Creative Minds

This For Creative Minds educational section contains activities to engage children in learning while making it fun at the same time. The activities build on the underlying subjects introduced in the story. While older children may be able to do these activities on their own, we encourage adults to work with the young children in their lives. Even if the adults have long forgotten or never learned this information, they can still work through the activities and be experts in their children's eyes! Exposure to these concepts at a young age helps to build a strong foundation for easier comprehension later in life. This section may be photocopied or printed from our website by the owner of this book for educational, non-commercial uses. Cross-curricular teaching activities for use at home or in the classroom, interactive quizzes, and more are available online. Go to [www.ArbordalePublishing.com](http://www.ArbordalePublishing.com) and click on the book's cover to explore all the links.

### Vertebrate Classes

All living things can be sorted into groups based on what they have in common. Scientists call this practice of sorting **taxonomy**. Animals can be divided into vertebrate animals and invertebrate animals. A **vertebrate animal** has a backbone (spine or spinal column). Humans, dogs, sharks, owls, snakes, and salamanders are all vertebrate animals. **Invertebrate animals** don't have a backbone. Worms, slugs, spiders, insects, squid, and oysters are all invertebrate animals.

Vertebrate animals can be sorted into five **classes**: fish, amphibians, reptiles, birds, and mammals.

#### Fishes:

- most have scales covered with a thin layer of slime
- gills to breathe
- babies are either born alive or hatch from eggs
- cold-blooded

#### Amphibians:

- most have soft, moist skin
- most hatchlings are called larvae or tadpoles and live in water, using gills or skin to breathe
- as they grow, they develop legs and lungs and move onto land
- cold-blooded

#### Reptiles:

- dry scales or plates
- lungs to breathe
- babies are either born alive or hatch from leathery eggs
- cold-blooded

#### Birds:

- feathers
- lungs to breathe
- hatch from eggs
- warm-blooded

#### Mammals:

- hair, fur, whiskers, or quills at some point in their lives
- lungs to breathe
- most give birth to live young
- produce milk to feed young
- warm-blooded

## Amphibian or Reptile Sorting

Use clues from the book to determine which of the animals below are amphibians and which are reptiles.



American alligator



garter snake



loggerhead sea turtle



olympic salamander



poison dart frog



Puerto Rican crested toad



Texas horned lizard



tuatara



woodhouse toad

Amphibians: olympic salamander, poison dart frog, Puerto Rican crested toad, woodhouse toad  
Reptiles: American alligator, garter snake, loggerhead sea turtle, Texas horned lizard, tuatara

## Herpetology



Herpetology is the study of amphibians and reptiles (herps). Herpetologists can work in universities, museums, zoos, conservation programs, rehabilitation centers, ecology programs, nature centers, and veterinary offices. If you think herpetology might be for you, it is never too early to get started! Read about amphibians and reptiles. Visit local nature centers, zoos, or parks to find out more about the animals in your area. Volunteer at nature centers and other places where you can gain experience and work alongside professionals.



**Field work** is an important part of science. But before you go looking for herps in your area, find out if there are any venomous or poisonous ones you should avoid. Learn to recognize the dangerous animals so you can keep yourself safe and only approach the harmless ones.

When you are looking for herps, move slowly. Watch for a quickly darting herp looking for cover, or for motionless ones under logs and other debris. Listen for the rustle of a camouflaged animal moving through the grass or other plants. Many herps like to hide under logs, rocks, and leaves. **Never stick your hand in places you can't see.** Use a tool like a garden hoe or a stick to turn over the leaves or sticks and see what is underneath. If you move any rocks or logs while looking for herps, make sure to put them back in their place so you don't damage any animal's habitat.

If you catch any amphibians or reptiles, keep them only long enough to observe them and then release them back where they came from. Because you will be doing all of your observations in the field, it is important to be prepared. Pack a "research kit" with tools that can help you observe and record information about the animals you find:

- A notebook. Write information about the animals you found and the habitats where you found them. Include the date, exact location, habitat, weather, and behavior.
- A camera. Take pictures of both their dorsal (back) and ventral (stomach) sides.
- A net. Use this to catch small, harmless herps. Do not take the tadpoles out of the water—at this stage in their lives, they cannot breathe air and would die.
- A magnifying glass. Closely examine the animals you catch. Pay attention to the colors and patterns of their markings so you can identify them later.
- A small ruler or flexible cloth tape. Measure the animal and make notes.
- Plastic bags or jars. These can help hold your herp while you make your observations. Poke holes in the bag or in the lid of the jar so that the animal can breathe.



## Amphibian Life Cycle Sequencing

Put the amphibian life cycle events in order to spell the scrambled word.

R



When the eggs hatch, little tadpoles or larvae swim out. They have dark, oval bodies and swim by moving their long tails. They breathe oxygen from the water.

G



The legs continue to grow and the gills disappear. At this point, the amphibians look like miniature adults and can leave the water.

S



Over time, the amphibian continues to mature. Eventually it is an adult and will be able to reproduce. After mating, a female amphibian will lay her eggs in fresh water.

F



An adult amphibian lays eggs in fresh water. The eggs do not have a hard shell. They are small and soft, surrounded by layers of jelly that protects the tiny embryo growing inside.

O



As the tadpoles grow, they begin to develop legs. Many amphibians keep their tails for their whole life, but in frogs and toads, the tail begins to shrink. Their lungs develop and they start to visit the surface of the water to breathe air.

Answer: FROGS



To Terry and Ellen, for catching and holding the herps while I did the note-taking part.—KH  
Thanks to Dr. Kenneth L. Krysko, Division of Herpetology at the Florida Museum of Natural History, for reviewing the accuracy of the information in this book.

Library of Congress Cataloging-in-Publication Data

Hall, Katharine, 1989- author.  
Amphibians and reptiles : a compare and contrast book / by Katharine Hall.  
1 online resource. -- (Compare and contrast book)  
Audience: Ages 4-8.  
Includes bibliographical references.  
Description based on print version record and CIP data provided by publisher; resource not viewed.  
ISBN 978-1-62855-578-3 (English Download) -- ISBN 978-1-62855-596-7 (Eng. Interactive) -- ISBN 978-1-62855-587-5 (Spanish Download) -- ISBN 978-1-62855-605-6 (Span. Interactive) -- ISBN 978-1-62855-551-6 (english hardcover) 1. Amphibians--Juvenile literature. 2. Reptiles--Juvenile literature. I. Title. QL644.2 597--dc23  
2015011178

Translated into Spanish: Anfibios y Reptiles: Un libro de comparación y contraste

Lexile® Level: 690L  
key phrases for educators: amphibians, animal classification, compare & contrast, complete metamorphosis, life cycles, metamorphosis, reptiles, vertebrate classification

Bibliography:

"Amphibians, Reptiles and Fish." National Wildlife Federation. Accessed June 2014. Web.  
Collins, Joseph T., Roger Conant, Roger Tory Peterson, and Isabelle Hunt Conant. A Field Guide to Reptiles and Amphibians: Eastern and Central North America. Peterson Field Guides. Boston: Houghton Mifflin Harcourt, 1998.  
"Rules and Tools for the Young Herpetologist." Virginia Herpetological Society. Accessed June 2014. Web.

Photo Credits:

Thanks to author Katharine Hall and her husband, Terry Hall, for supplying the photographs indicated below. Thanks to the following photographers for releasing their images into the public domain or for making them available via Shutterstock.

red poison dart frog sitting on green leaf—Dirk Ercken, Shutterstock  
turtle—Terry Hall  
cheat mountain salamander—Ryan Hagerty, USFWS  
"I think I've Got Something"—Steve Hillebrand, USFWS  
snake demonstration—Steve Hillebrand, USFWS  
man with turtle—Katharine Hall  
frog in hands—Terry Hall  
river frog on a branch—Mark A. Musselman, USFWS  
cheat mountain salamander—Ryan Hagerty, USFWS  
fish caecilian—Kamnuan, Shutterstock  
American alligator—Steve Hillebrand, USFWS  
tuatara—Andrew McMillan  
collared lizard—Lawrence Gamble, USFWS  
painted turtle—W.L. Franch, USFWS  
olympic salamander—John and Karen Hollingsworth, USFWS  
alligator on the bank of pond at St. Marks National Wildlife Refuge—Steve Hillebrand, USFWS  
frog egg mass—Pete Pattavina, USFWS  
sea turtle egg relocation—Jennifer Strickland, USFWS  
red legged frog—Mark R. Jennings, USFWS  
two tadpoles in water—Tom Tetzner, USFWS  
loggerhead sea turtle—Peter Leahy, Shutterstock  
baby loggerhead heading towards ocean—Steve Hillebrand, USFWS  
small tadpoles in the hands of a man—Alex Kalashnikov, Shutterstock  
longtail salamander—Ryan Hagerty, USFWS  
Texas horned lizard—Steve Hillebrand, USFWS  
frogs—Peter Griffin  
alligator—Tammy Sue  
red poison dart frog sitting on green leaf—Dirk Ercken, Shutterstock  
sneaky snake in grass—Maria Dryfhout, Shutterstock  
turtle in Hands—Katharine Hall  
garter snake—Kim Newberg  
Puerto Rican crested toad—Jan P. Zegarra, USFWS  
woodhouse toad—Gary M. Stolz, USFWS  
Lake Erie water snake—Megan Seymour, USFWS  
eastern indigo snake—James Rickard, USFWS



Text Copyright 2015 © by Katharine Hall

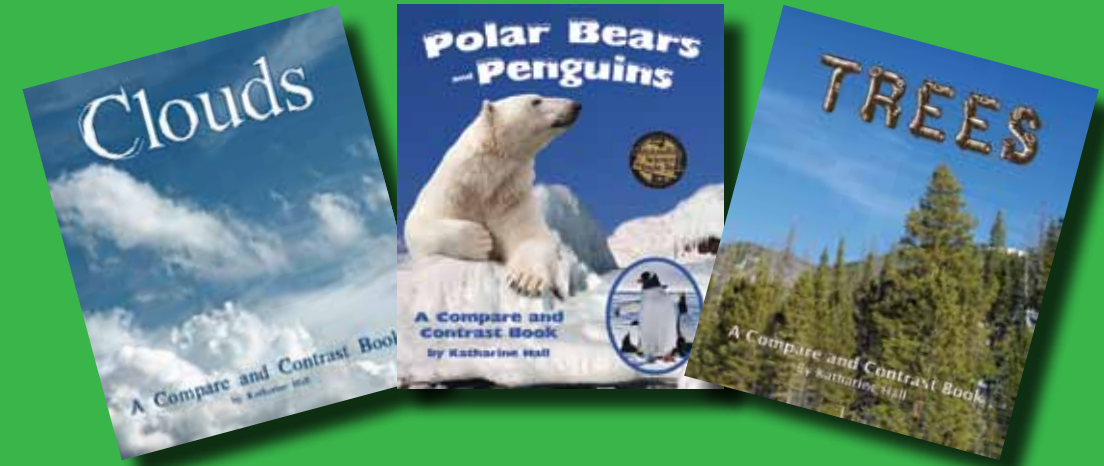
The "For Creative Minds" educational section may be copied by the owner for personal use or by educators using copies in classroom settings

Manufactured in China, June 2015  
This product conforms to CPSIA 2008  
First Printing

Arbordale Publishing  
Mt. Pleasant, SC 29464  
www.ArbordalePublishing.com



If you enjoy this book,  
look for other books in this series:



and other Arbordale books about amphibians or reptiles:



Includes 4 pages of  
learning activities.  
Look for more free activities  
online at  
**ArbordalePublishing.com**