

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 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:

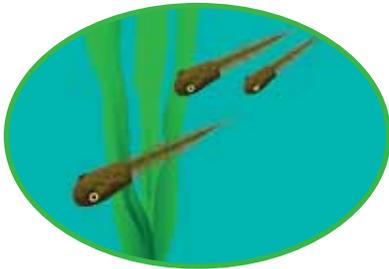
- A notebook. Write information about the animals you found and the habitats where you found them. Include the date, exact location, habitat, weather, and behavior.
- A camera. Take pictures of both their dorsal (back) and ventral (stomach) sides.
- A net. Use this to catch small, harmless herps. Do 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



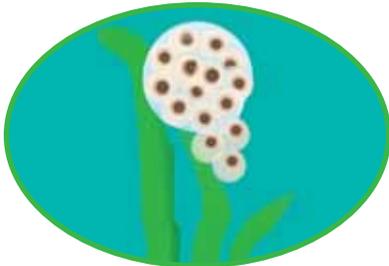
The legs continue to grow and the gills disappear. At this point, the amphibians look like miniature adults and can leave the water.

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.