Reptile and Amphibian Lesson Plan

2nd-6th grade

Watkins Nature Center

Dive into the fascinating world of herpetology. Explore the differences and similarities between amphibians and reptiles and see how they have adapted to survive relatively unchanged for millions of years. Meet cold blooded creatures not only from your local area, but from around the world!

**Learning Objectives**

By the end of this lesson, students will be able to:

* Discuss herpetology
* List some unique physical and behavioral adaptations of amphibians
* List some unique physical and behavioral adaptations of reptiles
* Discuss similarities and differences between reptiles and amphibians
* Classify animals according to their shape and adaptations

**BIG IDEAS/ ENDURING UNDERSTANDINGS (EU’S)**

• While similar in many ways, there are many big differences between reptiles and amphibians.

• Animals are grouped, or classified, by similar characteristics.

**ESSENTIAL QUESTIONS**

• How are reptiles and amphibians alike and different?

• How does a reptile meet its needs for survival?

* How does an amphibian meet its need for survival?

• How can we use the observable properties of reptiles to group them?

**CONTENT OUTCOMES ADDRESSED**

Students will be able to

• develop a simple classification system for grouping organisms.

• recognize adaptations reptiles and amphibians have for survival.

**COMMON MISCONCEPTIONS**

Students may thing reptiles and amphibians are the same kind of animal.

**BACKGROUND INFORMATION**

**Amphibians are some of the oldest organisms on the planet, having arrived about 365 million years ago, and have remained relatively unchanged. The main groups of amphibians include the caecilians, legless amphibians who remain mostly underground, salamanders, amphibians that look like lizards, though they are still semi-aquatic, and the frogs. In contrast, the reptiles showed up around 340 million years ago, and have also remained relatively unchanged, although are classified into a number of other groups, including the crocodiles and alligators, tuatara (while they look like lizards, they are in their own group), lizards, snakes, and turtles. When scientists study both reptiles and amphibians, that study is known as herpetology. The reason scientists study them together is their similarities, but they can also be very different.**

**Similarities:**

* **Both lay eggs**
* **Both have bones**
* **Both are ectothermic, or cold blooded. They cannot regulate their own body temperatures and they are easily affected by outside temperatures.**
* **Lungs (As adults, amphibians do not start with lungs)**

**Differences:**

**Amphibians:**

* **The word amphibian actually means “two lives”. This is because they start their lives in the water and go through metamorphosis to be able to get out on land.**
* **Lay their eggs in water; they have porous shells and are jelly like and their young start as an immature form, usually a tadpole**
* **During their metamorphosis, they usually develop limbs and lungs**
* **If they have legs, they do not have nails or claws**
* **Thin, moist, scaleless skin that they use to drink and breathe**
* **Some of the most vulnerable organisms on the planet, known as an indicator species.**

 **Reptiles:**

* **Reptiles has dry scaly skin. These scales are connected in a "sheet," which is the outermost layer of skin. In order to grow, reptiles shed this skin, either in large flakes or as one big sheet.**
* **Reptile eggs are leathery and pliable. This allows for the young to maneuver easier and prevents water loss, especially in dry climates.**
* **If they have legs, they have claws or nails**
* **Reptile young are fully formed at birth, looking like miniature adults. Most are responsible for themselves as soon as they hatch.**

**VOCABULARY**

**• species: a group of animals that are more like each other than they are like any other group of animals**

**• classification: a systematic arrangement in groups**

**• reptile: any of a group of cold-blooded, air-breathing vertebrates (such as snakes, lizards, turtles, and alligators) that usually lays eggs and has skin covered with scales or bony plates**

**• amphibian: any organism that is able to live both on land and in water; especially, any of a class of cold-blooded vertebrates (such as frogs and salamanders) that in many respects are between fishes and reptiles**

**• metamorphosis: the process of transformation from an immature form to an adult form in two or more distinct stages**

**• adaptation: anything an animal has or does that helps it to survive**

**• ectothermic: “cold blooded” an organism that can’t make enough heat to keep themselves warm**

**• endothermic: “warm blooded” an organism that generates body heat**

**• camouflage: a defense mechanism where an animal blends in with its surrounding in some way to hide from predators/ prey**

**• predator: an organism that hunts other organisms for its food**

**• prey: organism that is hunted for food**

**• carapace: the shell of a turtle**

**• scute: an individual scale of a turtle shell**

**• venomous: organism that must inject venom in order for it to be effective**

**• poisonous: organism that must be eaten in order for it to be effective**

**• scale: small, thin horny plate that protects the skin or reptiles**

**• native: organism that originates from an area**

**• indicator species: organism that can be used to see the conditions in a particular habitat**