





### **Introduction**

Reptiles and amphibians are vertebrates – they belong to a group of animals characterized by having backbone. Reptiles and amphibians are similar in some respects but very different in others. "Herpetology" (from the Greek word *herpo*, meaning to creep or crawl) is the study of reptiles and amphibians, and thus the building they are housed in at the Rio Grande Zoo is called the Herpetarium.

### **Characteristics of Amphibians**

The word amphibian comes from the Greek words meaning "double life." Most of these animals spend the first part of their lives in water or in very damp places. Most amphibian eggs are laid directly in water, and the larval forms, such as tadpoles, develop in water. Generally, larval amphibians have gills and lack legs. When they change (i.e. go through metamorphosis) into adults, their body forms change quite dramatically. Adults usually have four legs and have lungs to breathe air.

Adult amphibians usually live very close to water or live in very humid habitats. That is because their skin is semi-permeable, allowing them to absorb moisture and gases from the water. Adult amphibians usually return to water to mate and lay their jelly-like eggs. Most adult amphibians do not take care of their young.

Amphibians are ectothermic (sometimes called "cold-blooded"). This means they have no internal control over their body temperature and must control it behaviorally by moving towards or away from sources of heat or cold in their environment.

Amphibians can defend themselves by secreting a toxic substance from their granular glands. As another defense, some amphibians may urinate when captured or under stress. To survive during periods of drought or cold weather, some amphibians may go into hibernation, burying their bodies in mud.

Some examples of amphibians are frogs, toads, newts and salamanders.

### **Characteristics of Reptiles**



Reptiles are similar to amphibians in that both classes of animals are ectothermic; however, there are many differences between amphibians and reptiles.

Reptiles do not have a larval phase and do not go through metamorphosis. When the young are born or hatched, they look like miniature adults. Most reptiles lay shelled eggs on land. While most reptiles lay eggs, a few species of reptiles give live birth.

Reptiles are covered with dry scales rather than the semi-permeable skin of amphibians. Both amphibians and reptiles shed their skin. Both amphibians and reptiles have a vomeronasal organ, also called Jacobson's organ, in the roof of the mouth. In lizards and snakes, the tongue picks up scents in the air, bringing them to the Jacobson's organ in order to identify the smell and even to determine the trail of moving prey.

Some examples of reptiles are turtles, snakes, lizards, alligators, and crocodiles.

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Amphibian	An ectothermic vertebrate which lives a double life,
	metamorphosing from a larval stage to the adult stage. Frogs, toads,
	salamanders.
Autotomy	The ability of some lizards to break off their tail to distract
	predators.
Carapace	The top portion of a turtle's shell.
Carnivorous	Meat eating.
Constriction	A method used by snakes to kill their prey by squeezing until the
	victim can no longer breathe.
Ectothermic	A trait in which animals must depend on an external source of heat
	(or cold) for maintenance of their body temperature.
Gill	An organ used to obtain oxygen from the water.
Gland	A cell or group of cells through which substances are secreted or
	excreted from the body.
Herbivorous	Plant eating.
Hibernation	A period of dormancy usually passed during the winter.
Jacobson's organ	A special organ in the roof of the mouth or in the nasal passage of
e	most amphibians and reptiles which detects both smell and taste.
Lung	An organ used to obtain oxygen from the air.
Metamorphosis	A change in the form or structure of an animal occurring after birth
Ĩ	or hatching.
Omnivorous	Eats both meat and plant material.
Oviparous	The ability to lay eggs that develop and hatch outside the female's
1	body.
Permeable	Allowing both moisture and gases to pass through.
Plastron	The bottom portion of a turtle's shell.
Reptile	An ectothermic air-breathing vertebrate having scales.
Venom	Toxin used by some snakes and lizards to paralyze or kill prev.
Viviparous	The ability to give live birth.
Vomeronasal organ	See Jacobson's organ
v omoronasar organ	

### **Vocabulary Words**

### **Objectives**

Students will be able to:

- 1. Identify one characteristic common to both amphibians and reptiles.
- 2. Identify the characteristics of amphibians.
- 3. Understand the stages of metamorphosis in amphibians.
- 4. Identify the characteristics of reptiles.
- 5. Describe how an amphibian or reptile is adapted to survive in its habitat.

### New Mexico Science Content Standard, Benchmarks and Performance Standards Addressed

Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environment.

#### *K-4 Benchmark I: Know that living things have diverse forms, structures, functions, and habitats.* Grade 1 Performance Standards

1. Know that living organisms have needs (e.g., water, air, food)

2. Know that living organisms inhabit various environments and have various external features to help them satisfy their needs (e.g., water, air, food)

3. Describe the differences and similarities among living things.

4. Observe that living organisms have predictable but varied life cycles.

Grade 2 Performance Standard

1. Observe that diversity exists among animals within a population.

Grade 3 Performance Standards

1. Know that an adaptation in physical structure or behavior can improve an organism's chance for survival.

2. Observe that plants and animals have structures that serve different functions (e.g., shape of teeth)

3. Classify common animals according to their observable characteristics (e.g., body coverings, structure)

### K-4 Benchmark II: Know that living things have similarities and differences and that living things change over time.

Grade 1 Performance Standard

2. Recognize the differences between mature and immature animals

Grade 2 Performance Standards

1. Explain that stages of the life cycle are different for different animals

2. Observe that many characteristics of the offspring of living organisms are inherited from their parents.

3. Observe how the environment influences some characteristics of living things

Grade 3 Performance Standard

1. Identify how living things cause changes to the environments in which they live and that some of these changes are detrimental to the organism and some are beneficial

2. Know that some kinds of organisms that once lived on Earth have become extinct and that others resemble those that are alive today

# What is it?

Write an **A** next to each amphibian. Write an **R** next to each reptile.

Crocodile Toad Turtle Lizard Tadpole Snake Salamander

# Oh, Give Me a Home

Draw a line from each amphibian and reptile to its habitat.

Cane toad

Swamp

Leopard gecko

Desert

Box turtle

Tropical forests and woodlands

Alligator

Woodlands and grasslands

Corn snake





1. Reptiles and amphibians are cold-blooded, or

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2. Reptiles and amphibians are vertebrates because they have a

3. Most snakes may kill their prey by \_\_\_\_\_ or

4. Most amphibians go through
\_\_\_\_\_ and change their body
forms when they because adults

form when they become adults.

5. A reptile has skin with \_\_\_\_\_ \_\_\_ \_\_\_.

6. An amphibian has skin that is \_\_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_ \_\_

and must live in \_\_\_\_\_ environments.

### **Word Search**

Find the following words up or down, backwards or forwards:

amphibian carapace carnivore constriction ectothermic frog gill gland habitat herpetology lizard lung oviparous plastron reptile shell snake tadpole toad tongue	HYABQPTHRABB	EEMOUAWESCTI	BLUVPNORTSAL	STPIZONPTDDE	KREPTILEGEPC	R U N A G T A T N N O T	OTORUCKOAYLO	VENOMILLIGET	HEOUYRUOBLRH	A W S S X T B G I A S E	BITHESFYHNTR	IJVEMNDNPDEM	T D O L G O R F M U K I	AAMLNCARAPAC	T O N G U E Z A P I N Q	STGULTIBHXSU	VEMESHLCNVPO
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# **Math Problems**

- 1. A zoo's herpetarium contains the following animals: 7 snakes, 4 frogs, 2 geckos, 3 turtles, 6 lizards, 1 salamander, 2 toads and 3 alligators. How many amphibians and how many reptiles are at the zoo?
- 2. A sea turtle lays 200 eggs in the sand on the beach and then leaves the nest for the eggs to hatch on their own. Ten percent of the eggs did not hatch for some reason. Of the eggs that hatched, twenty-five percent of the baby turtles did not get to the ocean before they were eaten by predators. Of the remaining babies that made it to the ocean, only forty percent lived to adulthood. How many babies survived to become adults?

3. If a single frog leap is 2  $\frac{1}{2}$  feet, how far can a frog travel in 50 leaps?

4. When trying to escape a predator, a lizard's tail breaks off. After two months, one inch of the tail has grown back. If the rate of regeneration of the tail doesn't change, how long will the tail be in four more months?

# **Cross Word Puzzle**

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9.	9. Amphibian with a tail and four legs.											myth	ical li	zard	•						
10.	10. Large, powerful, river-dwelling reptile.												r nam	e for	turtl	e.					
11. A type of constrictor.											. Le	gless	repti	le.							
13. A type of lizard with suction pads on its											2. A	type	of en	viror	nmen	t to	wh	ich			
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### Cryptograms

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### ANSWERS

### **Grouping Game**

- <u>R</u> Crocodiles and alligators
- <u>A</u> Toads
- <u>R</u> Turtles
- <u>R</u> Lizards
- A Tadpoles
- R Snakes
- <u>A</u> Salamanders

### Matching Game

Marine toad

Corn snake

- » Tropical forests
- Leopard gecko Box turtle
- » Desert
- » Woodlands and grasslands
- » Swamp
- » Woodlands and grasslands

### Fill in the Blanks

Alligator

ectothermic backbone venom, constriction metamorphosis scales permeable, moist

### **Word Search**

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#### Math Problems

- 1. There are 7 amphibians and 21 reptiles.
- 2. 54
- 3. 125 4. 3

### **Cross Word Puzzle**

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### Cryptograms

In most amphibians and reptiles, the tongue is important in catching prey. It is usually very muscular and is often sticky with mucus to catch insects.

Some lizards like the chameleon are able to change color to be camouflaged. Color changes can also be caused by temperature, humidity and light levels.

