What are you…A reptile or amphibian?

Objective:

1. Students will demonstrate a general knowledge of reptiles and amphibians.

2. Students will identify at least two ways in which reptiles and amphibians differ and two ways they are similar.

Grades: 1-2

Key Vocabulary:

- **Reptile**
- **Amphibian**
- **Metamorphosis**

Related Literature:

Miles and Miles of Reptiles
Tish Rabe

Lizards
Peter Heathcote

Give up, Gecko
Margaret Read

Performance Objectives:

Grade 1: Strand 4: Concept 1 – PO 1-3
Concept 2 – PO 1-2
Grade 2: Strand 4: Concept 1 – PO 1-2 Concept 2 – PO 1
NGSS: 1-LS 3. B; 2-LS 2. A
SS: 1. W. 3; 1. W. 5; 2. W.2, 2. W. 8

Background Information:

Reptiles and amphibians are among the most interesting creatures on Earth. They can live in many different locations, such as humid rainforests or hot, dry deserts. What do you think of when you hear the word, reptile? Many people think of a snake or a lizard because they are both reptiles. The green tree python is a perfect example of a reptile.

What makes this snake a reptile? For one thing, a snake is covered with scales. Most reptiles have dry, scaly skin. The scales help to protect the snake's body from getting injured.

This python is wrapped around a tree branch where it likes to rest and watch what is going on.

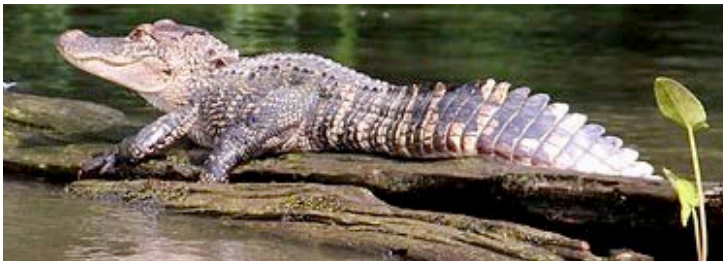
Reptiles and amphibians are considered ectothermic, which means “cold-blooded,” because they do not have the ability to regulate their internal body temperature. What that means is that both reptiles and amphibians absorb heat from the sun and the temperature in their environment. Another interesting trait of both species is that they shed their skin. Amphibians often eat their discarded skin, which gives them nutrients, while reptiles leave their skin behind. Reptiles and amphibians are also vertebrates. Vertebrates are animals that have a backbone or spine. In addition, both have excellent eyesight and can use camouflage to hide from predators. A crocodile is a great example of a reptile with super eyesight.

A crocodile has exceptional vision that allows it to see in color, at night and underwater. The positioning of the eye allows the crocodile to see all around him, which is a benefit when searching for his next meal. The thick eyelids protect the eye, and the crocodile can draw his eyeball back into the socket for additional protection. A second membrane on the eye helps the crocodile to see underwater, like a built-in pair of swim goggles!

Another example of a reptile is a gecko. Geckos are lizards that can live in the rainforest. Geckos may be very colorful and blend in with the tree or leaves where they live. Some geckos, like the crested gecko, can be tan or brow in color.

These reptiles can hide themselves in the forest leaves or climb high in the trees to avoid predators. They have sticky pads on their feet that help them to grip tightly to almost anything, even slippery leaves.

While reptiles and amphibians share a few characteristics, they are vastly different types of creatures. There are four main groups of reptiles: turtles and tortoises; lizards and snakes; crocodiles and alligators; and the tuatara. While most reptiles spend their time on land, some share their time on land and in water. For example, crocodiles and alligators enjoy living on land and spending time in the water.



Reptiles breathe with lungs and are either covered with scales or have a bony external plate to protect their body. Tortoises are a perfect example of a reptile with an external plate, often called a shell.

The tortoise's top plate, or carapace, is made of bones covered with plates of keratin. The carapace provides protection from most predators and the environment. This is a shelter carried on four legs.

Most reptiles lay shelled eggs that can be soft, leathery or hard. Depending on the type of reptile, eggs may be laid on land or held inside the body until hatching. A tortoise lays her eggs in a burrow she digs out of dirt. The soft shells harden quickly and the eggs remain in the burrow, covered with dirt, until they hatch.

Baby tortoises dig out of the dirt and begin their life on land. But in contrast, the anaconda and the boa constrictor are reptiles whose eggs hatch internally, which allows the mother snake to give birth to live baby snakes. Some people make the mistake that these

snakes do not lay eggs, but that's not the case. The eggs just stay in, and hatch in, their mother! Snakes sport massive amounts of scales that cover their body and provide protection. The small size of the scales allows them to twist and maneuver very easily. Notice the difference between the tortoise's plate and the snake's scales.

Many reptiles live in earth's rainforests. For example, the panther chameleon is a colorful reptile whose natural habitat is the tropical rainforest. The color may vary depending upon the plants in each individual's habitat. Colors can include red, green, blue and orange.

The color of the chameleon's skin helps it blend in with the habitat. Chameleons that live in trees are usually green. Camouflage is not the only reason for the chameleon's color changes. Chameleons can darken their color to absorb more heat or lighten their color to stay cool. They can also change color to communicate with other chameleons. Turning bright colors can warn enemies away or attract another chameleon to come closer.

Amphibians are different from reptiles, but both are cold-blooded. Amphibians can live in both water and on land. Some examples of amphibians are frogs, toads and salamanders. They often have wet, sticky skin instead of dry, scaly skin.

Salamander

Horned Frog

Amphibians lay eggs in the water where they hatch into tadpoles. The tiny tadpoles live in water for awhile as their body begins to change. As they change, tadpoles grow legs and arms, and also lungs to breathe. Soon they are ready to live on land, but they continue to enjoy their time in the water. A fully grown frog started as a tiny little tadpole.

Amphibian eggs

Tadpoles

Keeping in mind that reptiles and amphibians share a number of common traits, amphibians are in a class of their own. Amphibians are animals that live part of their lives in the water and part on land. Most amphibians have soft, moist skin that is protected by a layer of mucus. Amphibians have what is called ‘water-permeable’ skin and generally live near water, which keeps their skin from drying out.

Some of the most beautiful colors of the rainforest are found on the skin of the bumblebee dart frog and the azureus dart frog. These amphibians have bright colors and distinctive patterns on their skin, which appears glossy and moist. Dart frogs prefer the moist, damp, foliage covered rainforest with lots of vines, leaves and flowers. Dart frogs cling on plants, especially bromeliads, but can also be found under rocks and fallen tree trunks.

The bumblebee dart frog is beautifully marked with bright yellow and black patterns. These tiny "jewels of the forest" grow from one to two inches and only weigh about 11 ounces. Bumblebee dart frogs live in small groups and protect their habitat by making a warning sound and acting fierce toward intruders. Like many amphibians, dart frogs have a sticky tongue that extends out to catch prey, which consists mainly of small insects such as flies, ants and beetles. Another distinguishing feature of dart frogs is the toxin secreted by the skin. The toxin can vary from species to species of dart frogs, but some can be very poisonous when touched or eaten by other animals. Pretty to look at, but do not touch!

Another "jewel of the forest" is the azureus dart frog. Named for its vibrant blue color, the azureus dart frogs exist in small groups and prefer the rainforest environment. They are very tiny, only about one to two inches in size.

These tiny creatures have four toes on each foot with a suction pad at the tip of each toe, which gives them mighty gripping power. They stay close to water and enjoy hopping from leaf to leaf during the day. Azureus dart frogs are very territorial and use their color and toxin to warn off predators.

The female azureus dart frog lays between five and ten eggs, which are often guarded by the male frog. After about ten weeks, the frogs have changed from eggs, to tadpoles, to frogs, and are fully developed and ready to begin life on land. While not considered endangered, dart frogs rely on the existence of their rainforest habitat to survive in the wild.

The natural world embraces creatures surviving on land, in water, on trees, rocks and leaves. Isn't it amazing how so many reptiles and amphibians manage to live in varied environments creating a natural balance on planet Earth!

White's Tree Frog

Sources: Aquarium of the Pacific; National Geographic; Sciencing.org; Smithsonian National Zoo; Animaldiversity.org; Mannago bay. Pictures are in public domain.

Procedures and Pre-Activities:

1. State the learning objective.

2. Read related literature and discuss the general characteristics of reptiles and amphibians. Refer to classroom materials to clarify.

3. Discuss and give examples of how reptiles and amphibians differ.

4. Discuss the habitats of both reptiles and amphibians.

5. Ask open-ended questions to check for understanding related to the similarities and differences of reptiles and amphibians.

6. Discuss the fieldtrip to the reptile and amphibian exhibit.

Activity: "What is a Chameleon" is an activity that can be done as a group or individually. Depending on the skill level, students may write or copy the list of characteristics.

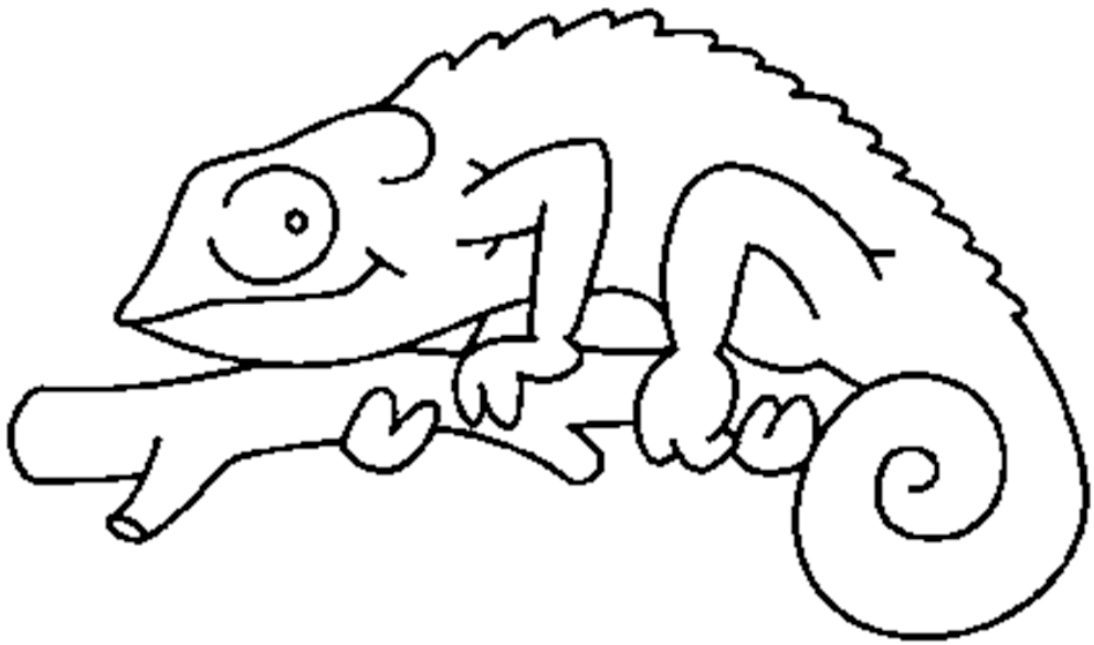
Activity: "Color the Frog" is designed to check for understanding about amphibians and to allow students to be creative in coloring.

Activity: "Circle the Reptiles" allows students to demonstrate knowledge in identifying reptiles from amphibians. This activity lends itself to engaging students in a discussion. Students use their creativity on the second part of the activity by drawing and writing about their reptile.

Activity: Creating a turtle puppet can be easily done by having students color two paper plates, one for the top shell of the turtle and one for the bottom. To assemble the turtle, staple along the sides of the plates (only). Next, glue the googly eyes on the socks. Students then put one sock on their hand to become the head of the turtle. Students put their arm/hand through the paper plate shells to become the turtle puppet.
Supplies needed: paper plates, socks, googly eyes (to glue on socks as turtle eyes), glue, staples and crayons.

Reflection and Assessment: Students are assessed on various levels depending on the participation in each activity.

What is a Chameleon?



Write 4 characteristics of a chameleon:

1. _____

2. _____

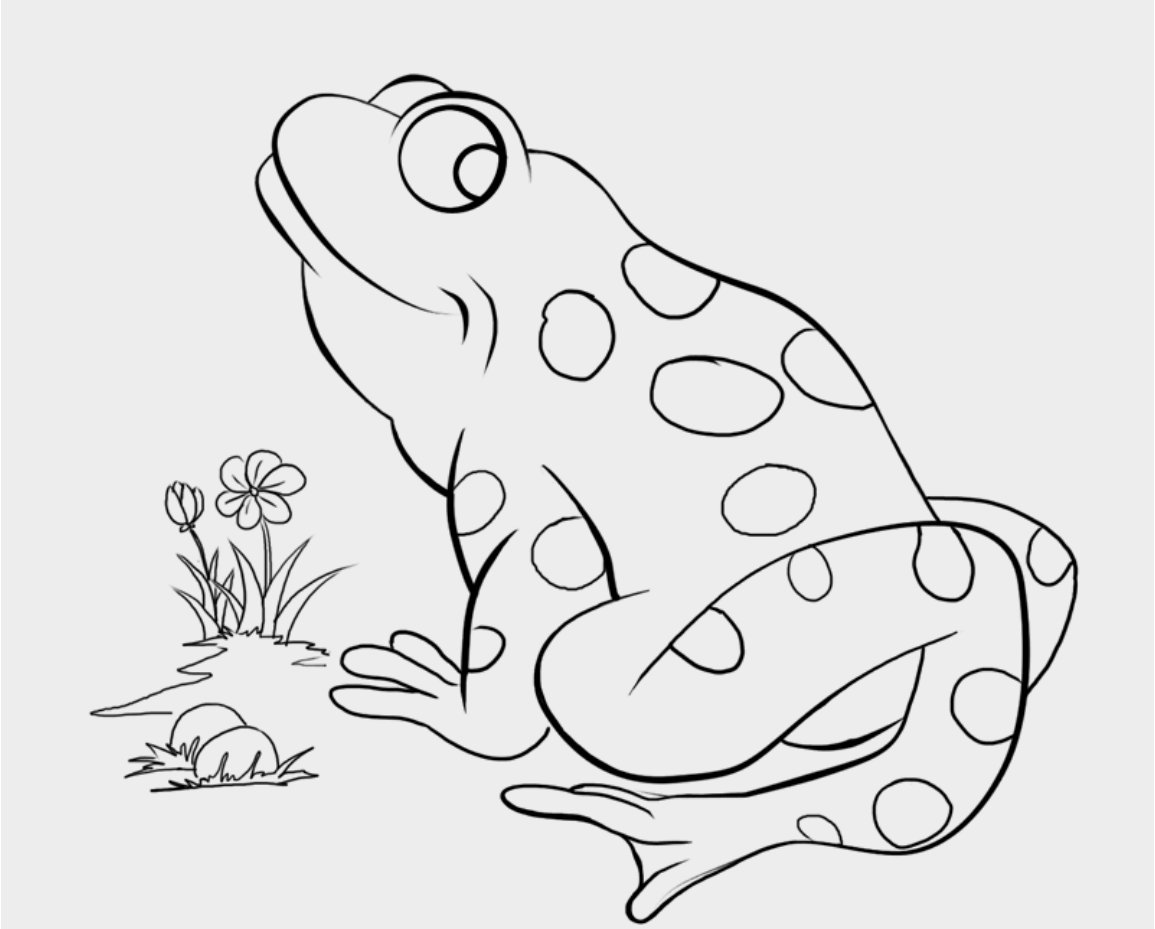
3. _____

4. _____

Circle the correct answer – **A chameleon is a**

REPTILE AMPHIBIAN

Color the Frog



Write what you know about frogs:

_____

_____

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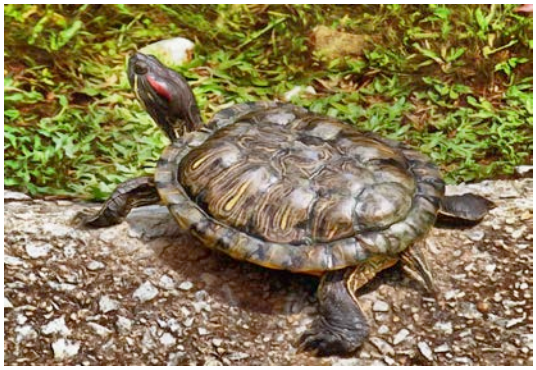
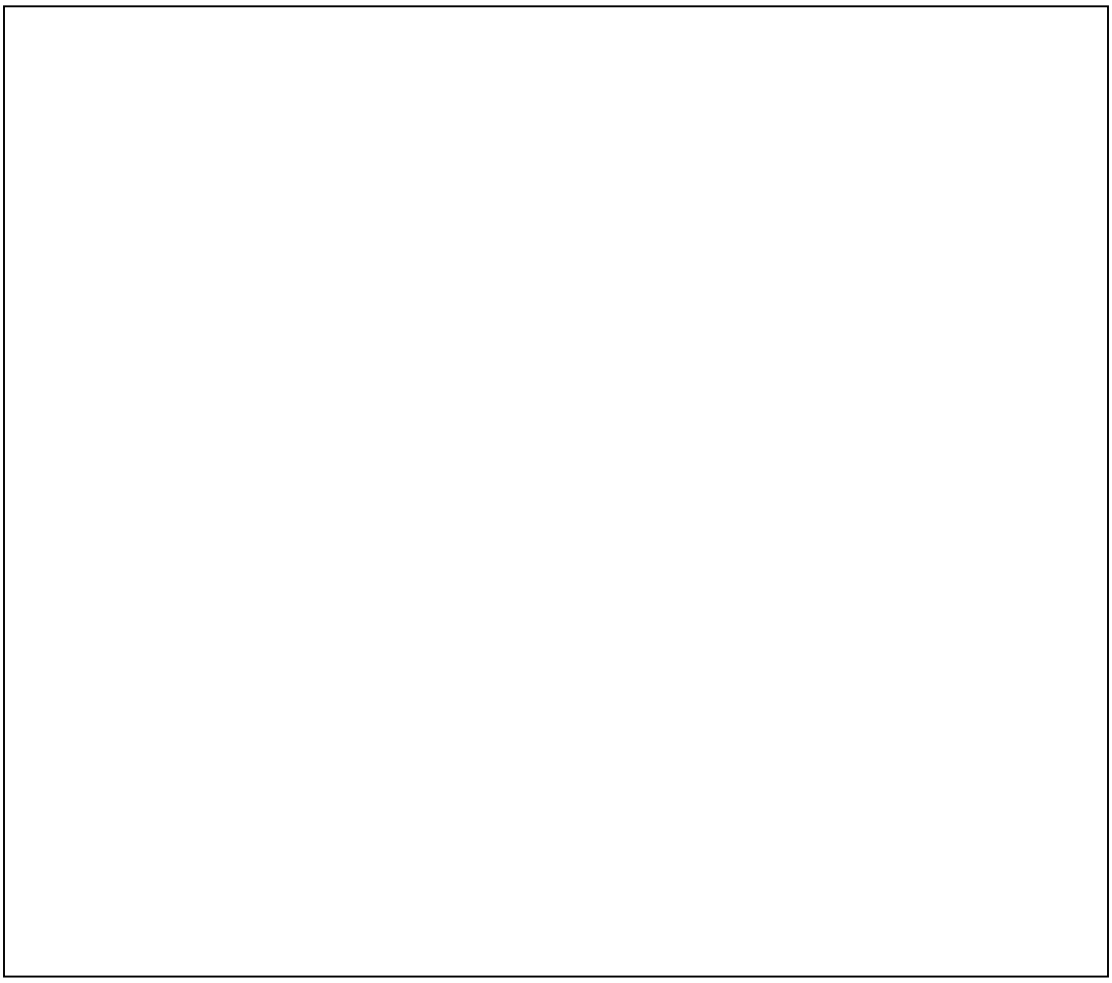
Circle the Reptiles



Draw a picture of your favorite reptile



What type of reptile did you draw?

_____

Where does your reptile live?

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