Title

Fun with Frogs

Objective: Students will be able to identify characteristics about frogs and their habitats.

Standards:

K-ESS3-1, 1-LS3-1, 2-LS4-1, 3-LS2-1, 3-LS4-3, 3-LS3-2, 4-LS1-1, 4-LS1-2, 5-LS2-1, 6-LS1-5, 7-LS2-2

Introduction:

Ten species of frogs make their home at Buffalo National River making them a resource we should learn about and protect. Frogs are amphibians which means they can live on water or land. They need to live near water as their skin must constantly be moist. If it dries out the frog will suffocate.

Audience:

Program is created for kids ages 6-12 but can be adapted for other age groups.

Duration:

30-45 Minutes

Vocabulary:

Amphibian

Cold-blooded

Hibernate

Frogspawn

Tadpoles

Herbivore

Carnivore

Materials:

Frog pictures

Frog call recordings

Lily pads

Paper springs

Glue sticks

Crayons

Paper frogs for coloring

Warm up:

Frogs are amazing little creatures, found in every continent except Antarctica. They are amphibians and an important component of the food chain. Pass around the pictures of the 10 frog species found in the Buffalo River. Use the narrative on the back side of the picture to explain about the frog, it's life cycle and behaviors.

Main Lesson:

- Picture 1 & 2: Amphibians/cold-blooded
 - Who knows what amphibians means?
 - Who knows what cold-blooded means?
 - \circ Check for understanding after each one and go to the next picture.
- Picture 3: Egg clusters
 - Begin with where frog lay eggs and discuss how many and what the clusters are called.
 - lay eggs in clusters and the eggs hatch in the water. A group of eggs are called a frogspawn. The eggs hatch into tadpoles.
- Picture 4: Tadpoles
 - Top picture is spring peepers/cricket frog.
 - As tadpoles grow, they develop gills to breathe in water. They grow lungs before they mature into a frog. They have fins to swim around with. As tadpoles grow and mature into frogs, their gills become lungs to breathe the air and their fins turn into limbs to hop on the land. How cool is that?
- Picture 5: A group of frogs
 - A group of frogs are called an army and a larger group can be called a colony and a group of calling males are called a chorus.
- Picture 6: Frogs do not drink water
 - Frogs need water to survive, but they do not drink it like you would think!
 - So, how do they get water? Frogs absorb water through their skin with 'drinking patches' on their belly and on their thighs.
 - They need to live near water as their skin must constantly be moist. If it dries out the frog will suffocate. Wow, frogs are amazing!

- Picture 7: Frogs are hunters
 - What do they eat?
 - What tadpoles eat depends on their stage of development. At early stages of life, they are herbivores, meaning they eat plant material and as they mature, they turn into carnivorous as they eat insects.
 - They start by eating the jelly from the frogspawn, then move onto algae after a week. Once their teeth grow at about four weeks old, they become carnivorous and eat small insects.
 - Frogs catch their prey with their tongue and use their eyeballs assist them in swallowing food whole– they push the food down their throat by pushing down the eyeballs. It looks like they are blinking a lot.
 - Like most animals they will eat small animals and each other: the larger frog will eat the smaller frog, YUCK!
 - Frogs will catch and eat fish and crustaceans to get some protein into their diet.
 - The ickiest thing they eat is their own skin. To keep its skin as fresh as possible a frog will shed its skin once a week. Once the old skin is off, the frog will eat the skin.
- Picture 8: Frogs are fantastic jumpers
 - Most frogs are really good at jumping and can jump about 20 times their body length. That's like a human jumping more than 100 feet. The furthest jumper is the African frog. It can span 14 feet in a single jump! Can you believe it?
- Picture 9: Frog hibernation
 - In colder climates, frogs will go into hibernation to survive the winter. They will cover themselves in mud or burrow down in crevices.
 - Some frogs may even freeze solid, but then will later thaw out and come back to life in the spring.
 - In extreme conditions they can also enter a state called torpor which can last for months. Incredible!
 - What's even cooler about frogs in hibernation is that their bones will develop growth rings every year (much like a tree), so scientists can then tell how old they are by counting the rings. Woah!
- Picture 10: Frog eye placement
 - Frog's eyes on the sides of their heads can see forward and backward.
- Picture 11: Frog coloration
 - Dark on top to blend in with a water environment when birds of prey are looking down.
 - Light on the bottom so they blend into the light sky for a fish looking up for a snack.

Activity:

Create your own hopping frog.

Prior to this program you will have to make copies of the frog picture, lily pad and assemble the spring, one for each participant.

Make copies of the frog and cut them out: 4 fit nicely on 8.5 X 11 sheet of paper

Make copies of the lily pad on green colored card stock paper and cut out.



How to make paper springs:

To make these paper springs you will need -

2 strips of paper (roughly 2cm x 20cm)

Begin by overlapping the ends of the colored paper at a right angle. Tape into position.

Snuggly fold the bottom strip of paper over the top one.

Next, snuggly fold the now lower strip of paper over the paper which is now on top.

Continue this pattern of always folding the lower strip of paper over the top strip.

Next, fasten the paper sprig to the front of the lily pad and next to the back of the frog.

Now your frog is jumping off of the lily pad!

Additional Information:

• Frogs versus Toads:

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- Toads are warty and have dry skin and their hind legs are shorter.
- Wood frogs are a species of special protection with the Arkansas Game and Fish.
- Development stages of a tadpole to a frog: A timeline
 - Frogspawn, week 1: laid in February, two to three weeks hatching time.
 - Hatchling tadpole, week 3: the first week after hatching the tadpole might not be visible as it doesn't have the energy to swim. It'll camouflage itself while it eats the jelly in its stomach.
 - Swimming tadpole, week 4: after a week the tadpoles will have strength to swim and will be looking for food. They'll only be eating algae.
 - Toothed tadpole, week 6: at about four weeks old tadpoles grow teeth and more complex digestive system develops. Their diet expands to include small insects.
 - Tadpole with legs and tail, week 7: at about five weeks old the tadpole will gradually start to grow legs, starting with the back legs.
 - Froglet, week 14: 12 weeks after hatching the tadpole now looks like a tiny frog with a tadpole's tail. The lungs should have also developed by this point and the froglet can start venturing out of water.
 - Young adult frog, 16: at around 14 weeks old the tadpole's tail drops off. The metamorphosis is complete, and the tadpole has become a young frog.
 - Tadpole development: how long does it take?
 - The development time between frogspawn being laid and young frogs leaving the pond is about 16 weeks, give or take. The time it takes for a newly hatched tadpole to become a frog is around 14 weeks.

Resources:



Cold-blooded ANIMALS



Body temperature depends on whether its cold or hot outside. Picture 1&2



Frogs stater their life as tadpoles:

Frogs lay eggs in clusters and the eggs hatch in the water. A group of eggs are called a frogspawn. The eggs hatch into tadpoles.





Frogs are carnivores, but eat a variety of foods:

What tadpoles eat depends on their stage of development. They start by eating the jelly from the frogspawn, then move onto algae after a week. Once their teeth grow at about four weeks old, they become carnivorous and eat small insects.

As tadpoles grow, they develop gills to breathe in water. They grow lungs before they mature into a frog. Tadpoles have fins to swim around with. As they grow and mature into frogs their gills become lungs to breathe the air and their fins tun into limbs to hop on the land. How cool is that?



A Group of frogs is called an army:

A group of frogs is called an army but can also be called a colony or chorus. When you hear them talking or singing to each other they make croaking noises that sound like ribbits, creaks, peeps, and more. If you live near the water, you can hear them at night starting in the spring.



Picture 6 Frogs do not drink water:

Frogs need water to survive, but they do not drink it like you would think! So, how do they get water? Frogs absorb water through their skin with 'drinking patches' on their belly and on their thighs. They need to live near water as their skin must constantly be moist. If it dries out the frog will suffocate.



Frogs catch their prey with their tongue and their eyeballs assist them in swallowing food whole – they push the food down their throat by pushing down the eyeballs.

Insects make up most of their diet, but they also eat algae and vegetation when they are tadpoles. Like most animals they will eat small animals and each other: the larger frog will eat the smaller frog, YUCK! Frogs will catch and eat fish and crustaceans to get some protein into their diet. The ickiest thing they eat is their own skin. To keep its skin as fresh as possible a frog will shed its skin once a week. Once the old skin is off, the frog will eat the skin.



Frogs are fantastic jumpers:

Most frogs are really good at jumping and can jump about 20 times their body length. That's like a human jumping mor than 100 feet. The furthest jumper is the African frog. It can span 14 feet in a single jump.



Picture 10 Some frogs hibernate:

In colder climates, frogs will go into hibernation to survive the winter. They will cover themselves in mud or burrow down in crevices. Some frogs may even freeze solid, but then will later thaw out and come back to life in the spring. In extreme conditions they can also enter a state called torpor which can last for months.

What's even cooler about frogs in hibernation is that their bones will develop growth rings every year (much like a tree), so scientists can tell how old they are by counting the rings.



Picture 11 Frogs coloration:

Dark on top to blend in with a water environment when birds of prey are looking down. Light on the bottom so they blend into the light sky for a fish looking up for a snack.