

# JUST FOR U.S.\*

GRADES 4 - 5

\* UNDERSTANDING SCIENCE

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## FROGS RULE!

All frogs are amphibians but not all frogs are alike. Not all frogs live near water. Not all frogs live in warm climates. Not all frogs have smooth skin. The more you learn about frogs, the more you realize how hard it is to make a rule that fits. That's why we think frogs rule!



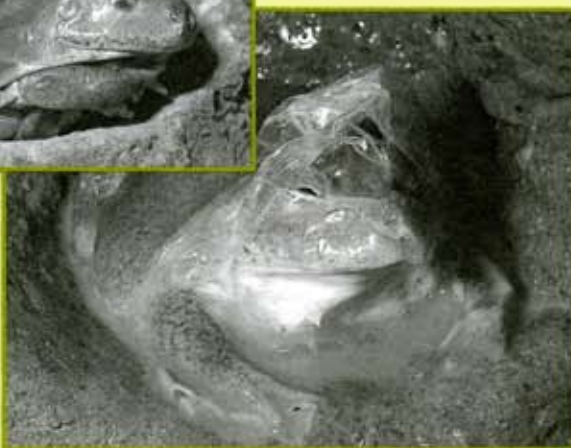
## RULE #1. FROGS LIVE NEAR WATER.

Frogs are amphibians. Amphibians need water for at least one part of their life. While many frogs live near water, some frogs live in very dry places. Their water might be a puddle or a raindrop!

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Water-holding frogs are found in the deserts of Australia. During dry times they make a cocoon of their own skin and mucus. They can live this way underground for years without water. When it rains, they eat the cocoon and come out of the ground. Wow!



## RULE #2. FROGS LIVE IN WARM CLIMATES.

Frogs live on all continents except Antarctica. Frogs, like all amphibians, are ectotherms which means "cold-blooded". They don't really have cold blood. Their bodies are the temperature of their environment. It is easier for ectotherms to live in warmer climates. Even so, some frogs have adaptations for life in very cold places.

©L.A. Wilson



Wood frogs have a COOL adaptation. They can freeze solid and not die! Their heart stops and they look dead but they aren't. When it warms up, the frogs thaw out and hop away! Wood frogs live in Georgia as well as other places like Alaska.



### RULE #3. FROGS HAVE SMOOTH SKIN.

Frogs' skin, like all amphibians' skin, is very special but it is not always smooth. There are 3 groups of amphibians: frogs, salamanders and caecilians (see-sil-yuns). Some frogs with bumpy skin are called toads. Some frogs with bumpy skin are still called frogs. Amphibian skin is special because amphibians absorb water and oxygen with their skin. Bumpy skin holds water better than smooth skin. Bumpy skin usually means the animal lives farther away from water. Touching bumpy skin does not cause warts! Smooth skin usually means the animal lives near or in water.

Toads are a type of frog.



*Fowler's toad*

Newts are a type of salamander.



*Redspotted newt*



*Mexican caecilian*

Caecilians are legless amphibians that look like worms!

Lizards, snakes and turtles are NOT amphibians. They are reptiles. Reptiles have scales. Amphibians do not.



## ***EVEN TADPOLES DON'T FOLLOW RULES!***



### **RULE #4. FROGS DEVELOP AS FREE-SWIMMING TADPOLES.**

All frogs develop as tadpoles first. In most cases the tadpoles develop and swim in water. However, there are exceptions to this rule.

©Michael and Patricia Fogden



The Darwin's male frog, *left*, carries the eggs in his throat until they develop into tiny frogs (froglets). Then the froglets hop out of the father frog's mouth!

The Surinam male toad, presses the eggs (*right*) onto the female's back. Skin grows over the eggs. When the froglets mature they crawl out!



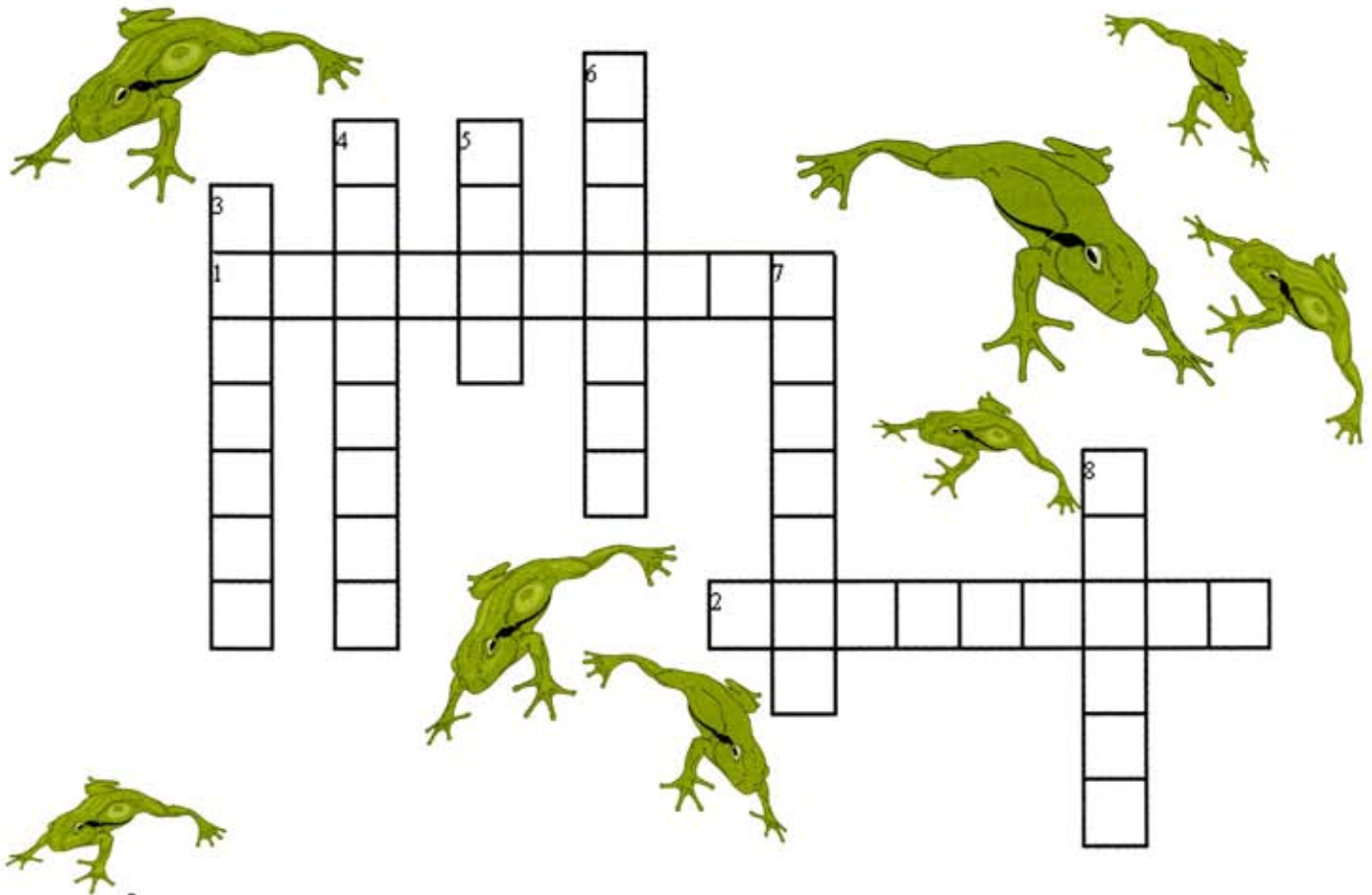
©Chris Mattison



**EXTINCT**

Eggs of the gastric brooding frog develop in the mother's stomach. While the eggs are developing, all digestion stops so she doesn't digest the eggs. When the froglets have developed, the mother frog throws them up and out! Recently, no one has been able to find any of these frogs. Scientists think this animal may have just become extinct. Frogs are extremely sensitive to pollution because of their skin. Clean air and water are essential for their survival.

# HOP ACROSS.... AND DOWN!

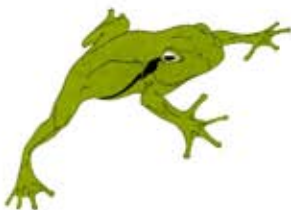


## Across

1. Frogs, toads, newts, salamanders and caecilians are \_\_\_\_\_.
2. Another name for coldblooded is \_\_\_\_\_.

## Down

3. First the egg develops into a \_\_\_\_\_, then into a frog.
4. Lizards, snakes and turtles are not amphibians but \_\_\_\_\_.
5. Water-holding frogs make a cocoon of their \_\_\_\_\_.
6. The \_\_\_\_\_ toad develops the eggs on its back.
7. The gastric brooding frog develops eggs in its \_\_\_\_\_.
8. Wood frogs can \_\_\_\_\_ and still live.



# DEKALB COUNTY SCHOOL SYSTEM CHAMPION TREES

1st Runner Up



Chesnut Elementary  
Sweetgum 220 points



**WINNER**  
Stone Mountain Elementary  
Water Oak 251 Points

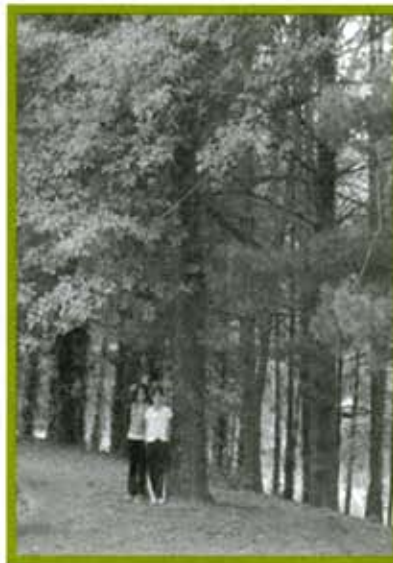
2nd Runner Up



Henderson Middle  
N. Red Oak 218 points



Dresden Elementary  
Pine 146 points



Cary Reynolds Elementary  
Water Oak 122 points



Druid Hills High  
Water Oak 216 points

Thank you Davey Trees and Pikes Family Nursery for sponsoring this event!  
Thanks also to the wonderful photographers for allowing us to include their photos of amphibians.

Written by Rachel Fiore with  
art and graphics by Sheila Ward.  
Tree photos by Georgann Schmalz.

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