Herpetologist Transports Third-Graders to Frogland

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Abstract:

A partnership between a university and a science and technology magnet school brings a renowned herpetologist, Dr. Meg Stewart, to involve third-graders in her studies of coqui frogs. These students prepared to meet this scientist with a series of lesson plans (eight activities and four lab lessons) to learn the anatomy, behavior, and diversity of frogs; and how they differ from reptiles. Included is a list of resources containing an annotated bibliography of trade books that can be found in most elementary school media centers. Other aspects of the collaboration between the university and the school are described.
Key words: frogs, herpetology, university collaboration

Article:

Co-qui. Co-qui. Co-qui. All third-graders' ears, all 200 of them, attend to the sound of the coqui chorus as its song diffuses through the air. Eyes focus intently as they struggle to make out the image of the tiny frog as it sits, nearly camouflaged, against the forest floor. Hands delicately scrutinize the simple yet novel craftsmanship of a bamboo frog house. We are in an experimental study plot in the mist-shrouded rain forest of Puerto Rico.

The Herpetologist's Visit

Well, not exactly. Actually, we are in the temperate zone, not the tropics, inside General Greene School of Science and Technology, a magnet elementary school (grades K-5) in Greensboro, North Carolina. The occasion is Dr. Margaret (Meg) Stewart Day. With a tape recording, some slides, and a few props, Dr. Stewart transports her young audience to a place of lush green vegetation and exotic animals.

Dr. Stewart, a vertebrate ecologist/herpetologist and professor at the State University of New York (SUNY) at Albany, has been studying frogs of the genus Eleuthero-dactylus in Puerto Rico for almost 20 years. Within this group of arboreal (tree) frogs, the one that is of particular interest to her is the coqui. Less than two inches long, this frog is known to parachute down from the top of the forest canopy during the predawn hours. Stewart, a North Carolina native and a 1948 graduate of the Woman's College of the University of North Carolina [now the University of North Carolina at Greensboro (UNCG)], returned to the Greensboro area for her 50th class reunion and for the opportunity to share her knowledge of these "flying frogs" with the students at General Greene.

We decided that Dr. Stewart's visit and a detailed study of amphibians would become our Paideia project. Paideia is an educational program designed by Mortimer Adler in the 1980s to foster more active learning. One of its three components, coached projects, features an integrated, thematic learning unit. The other two components are Socratic seminars and didactic instruction. The Meg Stewart celebration was a third-grade coached project at General Greene. Our school was in its second year of operation as a Paideia school in addition to nine years as a science and technology magnet school, and such a project, focused on amphibians, seemed to offer a good conjunction. Besides, a more in-depth focus on the Puerto Rican rainforest and its tiny coqui frog would give new meaning to our springtime presentation of The Great Kapok Tree (a play based on

the book of the same name by author Lynne Cherry). The Great Kapok Tree play has been an annual third-grade spring ritual at General Greene.

Preparing for the Herpetologist's Visit

When thinking about how to best promote Dr. Stewart's visit, General Greene's science specialist, Dr. Helen Cook, and UNCG science education associate professor, Dr. Catherine Matthews, birthed the idea for a day of celebration that would be called simply The Dr. Meg Stewart Day. Four third-grade teachers, along with Dr. Cook and Dr. Matthews, cooperatively planned the lessons leading up to Dr. Stewart's visit and the events during the visit. This project is just one example of the ongoing collaboration between the university and the public elementary school.

Each grade level studied amphibians through a variety of creative, hands-on activities. Students investigated the mechanics of how frogs eat using bubbles and a common party-favor called a blowout (see Activity 1). The blowouts were used to illustrate the manner in which a frog's tongue is attached at the front of a frog's mouth and flips out as it strikes at its prey. The tongue is sticky at the end. The frog uses its tiny teeth and tongue to bring the prey back to its mouth, where the prey is swallowed whole. The students reveled in the opportunity to practice "feeding on their prey," in this case, the bubbles. The students were reminded that most frogs do not hunt; they sit and wait for their prey. The children as frogs then had to sit and wait until a bubble came by for their meal.

Students also engaged in examinations of other frog attributes. One such examination involved making frogs in art out of clay, wrapping them in plastic wrap, and then slathering the wrap with oil. A student best summarized the results of the activity, "I now know what a frog's skin feels like: slimy and cold." We took this a step further with the students and had them make "snakeskin," more "frog skin," and "toad skin" (see Activity 2). Another activity for learning frog attributes involves using fall leaves (see Activity 3). In this case, the art teacher had the students gather leaves earlier in the year to make frog pictures from the fall leaves. This activity is easily done in any classroom at any grade level.

The third-graders also had four lessons in the science lab in preparation for Dr. Stewart's arrival. The first lesson was to acquaint the students with the various frogs in the world in general and in North America in particular. The videodisc, Encyclopedia of Animals, was the foundation source for the first lesson. It may not seem that this lesson would have been interactive or hands-on, but as the students heard about the peculiarities of different frogs around the world and saw them on the monitor, they asked to see this or that frog again. Since the videodisc also had frog calls, the students made the sounds of the frogs as the videodisc was replayed (see Activity 4 for additional activities with frog calls). With this background, the children were ready to list characteristics of frogs. The texts that are in our media center and that are given in an annotated bibliography at the end of this article also helped the students understand the diversity and sheer number of frogs in the world.

For the next lesson, we listed the characteristics of frogs that we learned from the videodisc and knew previously from personal knowledge. We also made a Venn diagram of the characteristics that amphibians and reptiles share and the characteristics that are peculiar to each class. We used as many artifacts as we had, such as preserved frogs and a live lizard. We were able to count toe differences (Amphibians and reptiles both have five toes on the back feet. Amphibians have four toes on their front feet while reptiles have five toes on their front feet). We have many snake-skins so the students were able to feel the difference between preserved frogs and snakeskins. In this lesson we made skeletons of a snake and a frog with toothpicks. This is time consuming, but it demonstrates that although both amphibians and reptiles are vertebrates, they differ in the number of vertebra. Also, snakes have rib cages, but frogs do not (see Activity 5).

In the third lesson we discussed the location of Puerto Rico and learned facts about this area of the world. We talked about the rainforest and viewed pictures and artifacts of and from Puerto Rico. (We discussed radio telescopes and pointed out that this is the place where the largest radio telescope in the world is located.) We also looked at the latitude and longitude of Puerto Rico and the history of this United States protectorate. Our stamp activity gave the students a social studies and a science lesson together (see Activity 6).

For the fourth lesson we wrapped up our preparation by visiting our nature trail and looking for salamanders and other creatures in our small stream. We tested the pH of the water and looked for organisms that might be food for the salamanders, and we wondered why we couldn't find tadpoles. We ended with each student writing down one question that they wanted to ask Dr. Stewart when she visited.

The Herpetologist Arrives at General Greene

When Dr. Stewart arrived, she was greeted at the door by a banner, balloons and three costumed third-graders who "hopped" right up and extended their greetings and an invitation to the school. At the end of the day, a Spanish speaking native Puerto Rican student presented Dr. Stewart with three gifts from the student body: a stylized frog pin complete with long tongue, a General Greene fanny pack for her travels to Puerto Rico, and a frog key chain with a frog call.

Following introductions of special guests and presenter Dr. Stewart, the presentation began. Dr. Stewart had slides of the Puerto Rican rainforest where she conducted her research, tapes of the coqui calling, and a bamboo tree frog house that she used in one of her studies. Students paid rapt attention as Dr. Stewart explained her research and described her activities in the rainforest. She and her colleagues in the field constructed 100 bamboo tree frog houses and placed these in likely coqui habitats. The local coqui population increased significantly with the additional housing. While Dr. Stewart has studied amphibians in Africa, Jamaica, New York, and North Carolina, she limited her talk at Greene to her research on the coqui (see Activity 7).

The coqui is a well-known symbol of Puerto Rico. Coqui photographs can be found on calendars, stamps, and post cards from the country (see Activity 6). In suitable habitats, there is one coqui per every square meter of land in Puerto Rico. Dr. Stewart talked to students about the meaning of the word amphibious, living a double life tied to both land and water, and how the coqui as well as many other frogs were exceptions to this rule. Coqui are totally terrestrial. There is no tadpole stage for this species of tree frog. The female lays a clutch of approximately 26 eggs and these eggs hatch directly into frogs (see Activity 8).

After a brief presentation of 20-30 minutes, students asked questions. The questions would have continued all day, but Dr. Stewart and the students needed a lunch break. She asked the students who still had questions to write them down and send them to her. Each third-grader wrote not only questions for Dr. Stewart, but also letters, which were mailed shortly after her visit.

In addition to the 100 third-graders at General Greene, their teachers, their teacher assistants, some parents and the principal, Dr. Matthews' team of preservice teachers (32 juniors majoring in elementary education) was also on hand to participate in the day's events. The two schools have had a professional development school partnership for six years, and this is just one example of the events that the two schools plan and share.

Near the end of the program, several of the UNCG students donned white lab coats and humbly asked Dr. Stewart to autograph them. This signing launched the Lab Coat Project at General Greene, another collaborative undertaking by Cook and Matthews and another way to introduce students to scientists. This project will be

described in detail in a forthcoming article (Cook and Matthews, in preparation).

The role of the UNCG students did not end there. Following the presentation, half of the cohort helped their elementary counterparts in the lab while the other half sat down with Dr. Stewart to discuss the day from an educator's perspective. They critiqued the pedagogical usefulness of the event and highlighted effective strategies that they felt they could include in their own teaching repertoires. Amid the talk of pedagogy and strategies arose one prevailing observation: those elementary students really knew their stuff. They really understood many facets of amphibian biology.

This captivated audience was just as prepared for its guest speaker as she was for them. Dr. Stewart's reaction to her first-ever presentation to elementary school students was one of both surprise and gratification. "It was nice to be in a room with so many little people who knew so much about amphibians. I aimed my remarks higher than I intended because I realized I was talking to an educated group."

A Women Scientists Initiative Grant from the Women Studies Program at UNCG sponsored Dr. Stewart's visit to UNCG and Greene. The Professional Development School (PDS) partnership between General Greene and UNCG is helping to make science fun for students of all ages. So pack your bag, your book bag that is, and join these students as they travel vicariously to other environments. You won't even need your passport.

Conclusion

Our third-graders walked on air or above the rainforest for days after The Meg Stewart Event. They had learned so much about amphibians, especially the coqui frogs. They were pleased that Dr. Stewart had been impressed with their knowledge and their insightful questions. For the rest of the year they kept gathering more information about reptiles and amphibians and asking when Dr. Stewart was coming back. We now have an ongoing activity on our school grounds. We have added PVC pipes for tree frog habitats along our nature trail and are continuing our amphibian studies.

Resources

Dr. Stewart and Her Works

For more information about Dr. Stewart you can access her Web site at http://www.albany.edu/faculty/mstewart/index. html and read some of her books and articles that are listed below:

Stewart, M. 1967. Amphibians of Malawi. Albany, NY: State University of New York Press.

Stewart, M., and F. H. Pough, 1983. Population density of tropical forest frogs: Relation to retreat sites. Science 221: 570-572.

Stewart, M. 1985. Arboreal habitat use and parachuting by a subtropical frog. Journal of Herpetology 19(3): 391-401.

Stewart, M., and D. Townsend, 1986. Courtship and mating behavior of a Puerto Rican frog, Eleutherodactylus coqui. Herpetologica 42 (2): 165-170.

Stewart, M. 1995. Climate driven population fluctuations in rain forest frogs. Journal of Herpetology 29(3): 437-446.

(You may also want to read about Meg Stewart in a chapter called The Frog Professor in Anne La Bastille's Women and Wilderness (1980), Sierra Club Books, San Francisco, CA.)

Teaching Units on Amphibians

Resources for teaching units on amphibians include: The Eyewitness videotape series, (a co-production of BBC Wildvision, BBC Lionheart Television, and Dorling Kindersley Vision in association with Oregon Public Broadcasting). Two excellent videotapes to use are the 1994 Amphibian and the 1996 Pond and River videotapes. Each videotape is 35 minutes long.

An excellent laserdisc is the Encyclopedia of Animals--Volume 6, Reptiles and Amphibians, 1987, by Laserdisc Corporation of America. You may also want to use trade books, including the Osborne series on animals and the Golden Guides on Pond Life and Reptiles and Amphibians.

In Activity 6, we used the book Look What I Did with a Leaf! by Morteza E. Sohi. This book is part of the Nature Craft series published by Walker and Company (New York, 1993). The book provides instructions and illustrations for making pictures of animals with leaves. The book concludes with a description of the life cycle of a leaf as well as a short field guide containing common leaves of North America.

Suggested Amphibian Titles

Arnosky, J. 2002. All about frogs. New York: Scholastic Press. Very interesting facts are presented using colorful pictures that portray the habitats of frogs. You learn a lot about frogs and a little about toads.

Back, C., and B. Watts. 1986. Tadpole and frog. Morristown, NJ: Silver Burdett Co. This book chronicles the metamorphosis of a tadpole into a frog. At the end of the book are pictures for the students to use to retell the story of metamorphosis.

Butterworth, C., and D. Bailey. 1990. Frogs. Austin, TX: Steck-Vaughn. A very interesting book filled with facts and photographs about frogs that children will like. For instance, the Australian water-holding frog stores water inside its body and the Aborigine people squeeze the frog to get water to drink. Some information about toads is also provided.

Cherry, L. 1990. The great kapok tree: A tale of the Amazon Rain Forest. Orlando, FL: Harcourt Brace Jovanovich Publishers. This is a story of animals that live in the Brazilian portion of the Amazon rain forest and their attempts to convince a man with an ax not to cut down a kapok tree that is their home. The author is also the artist of this fictional treasure. Her drawings of the animals capture the beauty of the Amazon rain forest.

Chinery, M. 1991. Life story: Frog. Mahwah, NJ: Troll Associates. Many interesting facts are given in this book, which mixes photographs and drawings. The details on the life cycle of a frog include amazing photographs.

Clarke, B. 1993. Eyewitness books: Amphibians. London: Dorling Kindersley Limited. As is true of all the Eyewitness books, the amount of information is great. Their summary of the book is quite comprehensive: "Examines the evolution, behavior, physical characteristics, and life cycle of all kinds of amphibians."

Cole, J. 1980. A frog's body. New York: William Morrow & Company. This book is an oldie but a goody. The book jacket describes it best by stating that, "The close-up photographs and carefully coordinated text focus on the various parts of a frog's body, describe how they function, and show detail that is rarely seen outside the laboratory."

Cowley, J. 1991. Red-eyed tree frog. New York: Scholastic Press. This photographic essay follows a red-eyed tree frog native to the rainforest of Central America through the night as it tries to find food without being dinner for some other creature. Nic Bishop's photographs are spectacular.

Czerniak, C., and L. Penn. 1996. Crossing the curriculum with frogs. Science and Children 5(33): 28-31. This article is a great resource of ideas for integrating science with other disciplines. A side bar on raising and maintaining African Clawed Frogs in the classroom is very informative. The authors share their ideas for an integrated unit on frogs.

Dallinger, J., and S. Johnson. 1982. Frogs & toads. Minneapolis: Lerner Publications Company. This is one of a series of Lerner Natural Science Books. This particular one won the New York Academy of Sciences Children's Science Book Award. This book, using text and beautifully detailed photographs, traces the development of tadpoles into frogs and toads.

Driscoll, L. 1998. Frogs. New York: Grosset & Dunlap. This leveled reader for level 1 readers (preschool and grade 1) gives quite a bit of information about frogs that will be of interest to young readers. The illustrations are done in cut-paper photography and are very interesting.

Gibbons, G. 1993. Frogs. New York: Holiday House. As is usual for a Gail Gibbons book, the illustrations are worth the perusal. Her book is much more. It serves as an introduction to the study of frogs and includes illustrated differences between frogs and toads as well as many unusual and interesting facts about frogs. For example, there are more than 38,000 different kinds of frogs.

Johnston, G., and J. Cutchins. 1991. Slippery babies: Young frogs, toads, and salamanders. New York: Morrow Junior Books. An introduction at the beginning sums up the contents of a book that can be enjoyed for

its photographs or its text or both. An excerpt from the introduction follows: "This engaging photo essay offers a fascinating look at the variety of ways some young frogs, toads, and salamanders survive and grow during their first years of life."

National Wildlife Federation. 1987. Ranger Rick's NaturesScope: Let's hear it for herps! 3(4). Washington, DC: National Wildlife Federation. This booklet is full of ideas, activities and facts that can be used in introducing amphibians and reptiles (herps) to children. Six chapters are included in this excellent resource. All student pages may be copied for classroom use.

Parker, N., and J. Wright. 1990. Frogs, toads, lizards and salamanders. New York: Greenwillow Books. Four of the most interesting representatives of each of the animals mentioned in the title grace this book that has a great deal of information as well as range maps and a glossary. Each animal is introduced by a couplet and beautiful illustrations done by the first author.

Parker, S. 1988. Eyewitness Books: Pond and river. London: Dorling Kindersley Limited. The summary given at the front of the book is accurate. This is "a photo essay about the range of plants and animals found in freshwater throughout the year that examines the living conditions and survival mechanisms of creatures dwelling at the edge of the water, on its surface, or under the mud."

Patent, D. H. 1997. Flashy fantastic rain forest frogs. New York: Walker and Company. This is a beautifully illustrated book about frogs that live in the rainforest. Many interesting facts about the frogs' physical characteristics, their habitats, and their reproductive habits are included.

Schneider, R., M. Kransky, and S. Morreale. 2001. Handson herpetology: Exploring ecology and conservation. Arlington, VA: NSTA Press. As stated by the authors, the goal of this book is to provide an introduction to the study of reptiles and amphibians and to present opportunities for young people ages 10-19 (grades 5-12) to become involved in their conservation. The information and activities have been divided into five sections and materials in the book (e.g., food webs, skeletal drawings, and care sheets) and are reproducible.

Wallace, K. 1998. Tale of a tadpole: Eyewitness readers. London: Dorling Kindersley Limited. This leveled reader (preschool and grade 1) describes the development of a tadpole. The photographs are stunning and the picture word list is an added bonus.

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ADDED MATERIAL

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HELEN M. COOK has been a science specialist at General Greene School of Science and Technology for thirteen years; she retired this year. She will work in the fall with preservice teachers from the University of North Carolina at Greensboro. Her interests include science fairs, field experiences, and inquiry-based science instruction. She has written articles for Science Activities and Science & Children.

Discover: How Frogs Catch Their Prey

Materials

1. Blowouts (1 per child)
2. Pipe cleaners (1 per child)
3. Joy or Dawn dishwashing detergent
4. Glycerin

Make

1. Prepare bubble solution. Put 1 cup of Joy or Dawn in a container and add 4 cups of water. Add 1 tablespoon of glycerin to the solution to stabilize the bubbles. Put the solution in flat containers for the students to use.

2. Use the pipe cleaners to make bubble wands similar to the ones that are included in the commercial bubble solution.

Do

1. Divide the students into pairs.
2. One student is the frog; the other student makes "prey" in the form of bubbles.
3. The frog must remain still while their partner blows bubbles near them.
4. When a bubble is close enough, the frog inflates their blowout to catch the "prey" with their "tongue."
5. Pairs change places in order for each student to have a chance to be "prey" and the "frog."

What Do We Learn?

Students gain knowledge of how the frog uses its tongue and how it catches prey. They also encounter difficulty in trying to catch "prey." It is a fun activity that helps to explain frog anatomy and a predator/prey relationship.

ACTIVITY 1. How frogs catch their prey.

Discover: The Skin of Reptiles and Amphibians

Materials

1. Sunflower seeds
2. Clay
3. Clear plastic wrap
4. Vegetable oil
5. Kelloggs' Rice Krispies Treatsr mixture
6. Paper plates

Make

1. A snake and frog out of clay
2. A toad out of Rice Krispies Treatsr mixture

Do

1. Wrap the clay frog with clear plastic wrap and then slather the plastic wrap with vegetable oil.
2. Add sunflower seeds (all pointing in the same direction) to the clay snakes.
3. Shape the Rice Krispies Treatsr mixture into a toad shape.

What Do We Learn?

Compare and contrast the feel of the skins of the snake, frog, and toad.

Snakes have skins with dry scales. Frogs have moist smooth skins. Toads have bumpy dry skins.

ACTIVITY 2. The Skin of reptiles and amphibians.

Discover: Leaf Frogs

Materials

1. A collection of fall leaves
2. Glue
3. Paper (card stock works well)
4. Examples of animals made from leaves from the book Look What I Did with a Leaf! by Montexa E. Sohi

Make

1. A leaf frog

Do

1. Share the pictures from the book with the students.
2. Share a model with them and explain any things they should be careful to avoid to ensure a product of which they will be proud.
3. Have students lay their leaves out to form their frog before gluing.

What Do We Learn?

The students learn more about a frog's anatomy. They also have a chance to be creative.

ACTIVITY 3. Leaf frogs.

Discover: Frog Calls

Materials

1. One 35mm black plastic film canister for each student in your class (must have an even number of film canisters)
2. A variety of items that make sounds when placed in film canisters such as dimes, marbles, and paper clips

Make

1. Two film canisters with matching frog calls (one per person)
2. Label the caps with numbers so that you know your matches

Do

1. Holding your thumb on the bottom of the film canister and your index finger on your lid, shake slowly.
2. Walk around the room slowly shaking your film canister and listening for others of your species.
3. When students have found another member of their species, have the pair of students open their film canisters at the same time to compare the contents.

What Do We Learn?

Male (boy) frogs make calls to attract females (girls) to mate and have young. Males use one or two vocal sacs to call. Each kind or species of frog has a distinctive call that other frogs of its kind recognize. We can learn to identify frogs by their calls.

ACTIVITY 4. Frog calls.

Discover: Reptile and Amphibian Skeletons

Materials

1. Picture of reptile skeleton
2. Picture of amphibian skeleton
3. Flat toothpicks
4. Glue
5. Scissors

Make

A picture of a reptile skeleton and a picture of an amphibian skeleton using toothpicks

Do

1. Show models of the completed skeletons.
2. Demonstrate how to attach toothpicks to the skeleton pictures.

What Do We Learn?

The students learn the similarities and differences between amphibian and reptile skeletons. They also compare these skeletons to our human skeletons.

ACTIVITY 5. Reptile and amphibian skeletons.

Discover: Frogs around the World

Materials

1. 6 stamps with frogs
2. Reference materials
3. Computers with Internet access
4. Globes

Make

1. Posters to share
2. Travel brochures
3. A new stamp

Do

1. Hand out one frog stamp per table.
2. Have students find the following facts about the frog's country.
1. name of frog
2. status of frog (e.g., common, threatened, local, widespread, etc.)
3. name of the country
4. continent where the country is locate
5. latitude and longitude of the country
6. predominant language spoken in the country

What Do We Learn?

Students will have an appreciation of the connection between social studies and science. They will also develop an appreciation of frogs around the world.

ACTIVITY 6. Frogs around the world.

Discover: New Homes for Amphibians

Materials

1. Bamboo cuttings
2. PVC pipe You can buy bamboo and PVC pipe at hardware stores such as Lowe's. You can also find someone who is growing bamboo and ask them for enough bamboo to make the houses. Most stores where you purchase PVC pipes will cut it for you at no additional cost. Both items are inexpensive.

Make

1. A bamboo tree frog house
2. A home for tree frogs from PVC pipes

Do

1. Erect the houses.
2. Wait till the frogs come. The houses can be just pieces of bamboo or PVC pipe anchored in the ground with the tops open, or you can put tops on the bamboo houses to make them appear more "hut" like.

What Do We Learn?

Put these new homes outside where you have seen or heard tree frogs before. After a while tree frogs will move into these new homes.

ACTIVITY 7. New homes for amphibians.

Discover: A Taste Experience--Edible Jellor Frogs

Materials

1.2, 6-ounce boxes of lime Jellor
2. 2 cups boiling water
3. 2 cups cold water
4. 1, 17" x 11" glass pan
5. Frog cookie cutter

Make & Do

1. Dissolve the Jellor in 2 cups of boiling water.
2. Add 2 more cups of cold water and stir.
3. Pour the mixture into the glass pan.
4. Let set for several hours.
5. Cut out frog shapes with the cookie cutter.
6. Gently slide a Jellor frog onto a paper plate and add two miniature chocolate chips for eyes.

What Do We Learn?

In this activity, the solid Jellor particles represent frog eggs. Metamorphosis takes place when the Jellor firms; then we have frogs. Not all frogs have a tadpole stage.

Children enjoy the taste experience and develop an appreciation for the smooth, cool, damp skin of many frogs.

ACTIVITY 8. A taste experience--edible Jello frogs.

Fun Facts about Amphibians

1. Frogs leap with their eyes closed while toads walk with their eyes closed.
2. Frogs have porous skin and therefore can never be far from water. Their skin "leaks."
3. Frogs and toads have pupils that come in all shapes and sizes. Some are square and some are heartshaped.
4. Eye color and skin color vary. Some are bright, some are dull, and some are used for camouflage. Other colors are used as scare tactics.
5. Amphibians cannot see color. They only see in black and white
6. One Golden Dart Frog has enough poison in its skin to poison 1,000 people.
7. In 1986 an entire new class of antibiotics was discovered using the African Clawed Frog.
8. All amphibians have sticky tongues.
9. Some Tree Frogs lay their eggs on leaves that are located over water so that newly hatched tadpoles will drop into a body of water.
10. Frogs don't drop from the sky, but some can glide like the coqui, opening their webbed feet to act as wings. Coquis don't have webbed feet, but they put their feet out anyway!

Students in costume participating in the annual performance of "The Great Kapok Tree."
Dr. Meg Stewart holds a bamboo home for a coqui frog.
A coqui frog resting on leaves.
Students try to catch bubbles with blowouts. This activity mimics frogs extending their tongues to catch prey.