



Fabulous Frogs

Grade Level: K-5
Class Size: 30-40
Class Length: 45 min-1hr

Class Summary:

Students will understand the importance of amphibians and their relationship to our environment.

Objectives:

Students will

- Identify amphibian species
- Explore the frog life cycle
- Observe adaptations
- Understand environmental/human effects on amphibians

Concepts:

- Adaptations
- Life Cycles
- Habitat
- Habitat Fragmentation
- Biodiversity

Background:

What makes frogs and other amphibians so different from other animals like reptiles? And, why are they so important to our environment?

"Amphibian" comes from the Greek phrase "double life", referring to the young's life in water and the adult's life on land.

The amphibian class includes caecilians, salamanders and newts, and frogs and toads.

Ancestors of the modern frog have roamed the Earth for at least 190-200 million years. There are over 4,900 species of frogs worldwide and frogs can be found in every environment, on every continent except Antarctica.

The United States is home to at least 90 different species of frogs and toads.

Amphibians eat lots and lots of insects and provide food for other animals, too. If the amphibians disappear, who will eat all of the insects? What will the animals that prey on amphibians eat?

Amphibians also tell us if we are taking good care of the environment. Because amphibians have sensitive skin, live in water, on the land, and require special habitats, their presence tells us if their habitats are healthy. If the amphibians start to disappear, it is a message to us that something is wrong.

The WAVE Foundation is an independent, educational foundation at the Newport Aquarium created to further the Newport Aquarium's efforts in educating communities and students about marine life and the conservation of natural resources and habitats. The WAVE Foundation is designated as a 501(c)(3) organization and encompasses and embraces conservation, education, and volunteerism.

WAVE
FOUNDATION

NEWPORT AQUARIUM
A Million Gallons Of Fun





Fabulous Frogs PRE-LESSON ASSESSMENT

1. Frogs use their skin to (circle all that are correct)

Breathe

Drink water

Camouflage

2. Frogs are reptiles.

True

False

3. Frogs are cold-blooded.

True

False

4. Frogs swallow their prey whole.

True

False

5. Frogs live all over the world.

True

False

6. Toads are frogs.

True

False

7. The largest frog in the world is the _____.

8. Name 3 kinds of amphibians.

9. One thing I already know about frogs is

10. One thing I want to learn about frogs is





Fabulous Frogs

VOCABULARY

Adaptation - A characteristic or trait that an animal has or can do that helps them survive.

Amphibian- An animal that lives both on land and in water.

Biodiversity- The variety of plant and animal life in a particular habitat.

Call - A way frogs communicate with each other. This is one way frogs recognize each other.

Camouflage- The ability of an animal to blend in with its surroundings using shape, color and pattern.

Carnivore- An animal that eats meat.

Hibernation- A sleeplike state that protects animals from harsh conditions, usually during winter or drought.

Metamorphosis- A change in body shape and structure that most amphibians go through before becoming adults.

Predator - An organism that hunts and eats other animals.


Prey- An animal hunted for food.

Species- A class of animals grouped together by their common characteristics.

Vertebrate - An animal that has a backbone.



Frog Bog SCAVENGER HUNT

The  means it is a listening clue!!

1. I am the largest frog in North America. _____

2. Parrots owe their beautiful feathers to me!! _____

3. Being a dad is tough work, I carry my young in my mouth to keep them safe.

4. Sumo wrestlers learn their moves from us. _____

5. I am a large, nocturnal toad. _____

6. I eat with my hands because I don't have teeth or even a tongue!!


7. People may think my call sounds like a miniature helicopter. 

8. I am the largest tree frog in the world. _____

9. _____ have large legs and webbed feet.

_____ have stocky legs and non-webbed feet.

10. I am considered to be the most poisonous vertebrate in the world.

11. I have a loud, "barking" call. 

12. The _____ is the deadliest organism to frogs.

13. _____ is when an egg grows into an adult frog.



Frog Bog

SCAVENGER HUNT

(Answer Key)

Some questions may have more than one answer. Below are the answers, however, the students may discover other frogs that fit each question!

1. American Bullfrog
2. Dyeing Frog
3. Bumblebee Frog
4. Green/Black Poison Dart Frog
5. Colorado River Toad
6. Surinam Toad, African Clawed Frog
7. Marine Toad
8. Cuban Tree Frog
9. Frogs; Toads
10. Golden Dart Frog
16. African Bullfrog
17. Chytrid Fungus; Humans
18. Metamorphosis





Fabulous Frogs

POST-LESSON ASSESSMENT

1. Frogs use their skin to (circle all that are correct)

Breathe

Drink water

Camouflage

2. Frogs are reptiles.

True

False

3. Frogs are cold-blooded.

True

False

4. Frogs swallow their prey whole.

True

False

5. Frogs live all over the world.

True

False

6. Toads are frogs.

True

False

7. The largest frog in the world is the _____.

8. Name 3 kinds of amphibians.

9. Today, I learned that frogs...

10. The thing I like best about frogs is





Fabulous Frogs

POST-LESSON ASSESSMENT

ANSWER KEY

1. Frogs use their skin to breathe, drink water, and camouflage.
2. Frogs are reptiles. **False**
3. Frogs are cold-blooded. **True**
4. Frogs swallow their prey whole. **True**
5. Frogs live all over the world. **True and False; they live everywhere except**

Antarctica

6. Toads are frogs. **True; but not all frogs are toads!!!**
7. The largest frog in the world is the **Goliath Frog** .
8. Name 3 kinds of amphibians.

**There are 5 kinds of amphibians:
Frogs, Toads, Salamanders, Newts and Caecilians**



The Association of Zoos and Aquariums' TOP 8 in '08 -Ways to Help Frogs

- Look, listen and learn: educate yourself and your family about amphibians.
 - Pick up a book, hop around the Internet, or watch your favorite animal television show with your family.
- Visit an AZA institution and experience your very own amphibian adventure.
 - Look for the AZA logo whenever you visit an aquarium or zoo.
- Create amphibian friendly environments by providing clean water, hiding places, and insects to eat.
 - Amphibians love leaf litter, rocks, logs, vegetation and ponds!
- Don't pollute.
 - Do your part to keep garbage out of the natural environment.
- Be a responsible pet owner.
 - Discourage your pets from pestering wildlife.
- Conserve water at home, school and at work.
 - Collect rainwater in buckets for gardens and potted plants; take shorter showers; turn the faucet off when brushing your teeth.
- Reduce the use of fossil fuels such as oil coal and natural gas.
 - Drive less, use compact fluorescent light bulbs.
- Be an amphibian champion.
 - Donate to wildlife conservation programs; participate in citizen-science monitoring programs with your family.





Classroom Extension Activities

(Use/adapt to suit your classroom and age of students)

From Tadpole to Frog

By making a simple puppet, your students will learn about the stages of frog metamorphosis from tadpole to adult.

Objective: Students will make a model of a frog undergoing metamorphosis and use this model to communicate the sequence of stages in metamorphosis.

Background: Frog eggs are soft and jelly-coated, and they need a moist environment to keep from drying out. Most frogs lay their eggs in the water where they develop into tadpoles or polliwogs. These fishlike animals eat algae and use their strong tails to swim. Tadpoles have gills to take up oxygen that is dissolved in the water. The name tadpole comes from words meaning "toad head" while polliwog comes from words that mean "head" and "to wiggle". These names really fit an animal that looks like a big head with a tail. Over time, the tadpole sprouts back legs and later front legs. Its tail shrinks and it develops lungs for breathing air on land. Its digestive system changes also, becoming suited to eating animals instead of plants. The fully developed froglet, ready to live on land, still has lots of growing to do before it reaches adult size.

Related Subjects: visual arts, language arts

Materials:

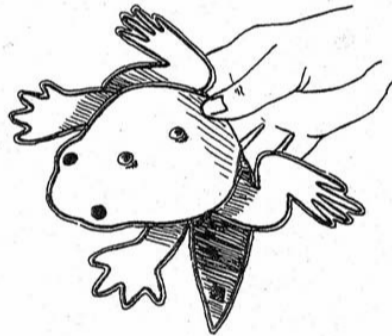
For each student: a copy of the Tadpole-Frog puppet page, crayons and/or markers, scissors, 2 brass fasteners

Procedure:

1. Introduce the activity with an overview of frog metamorphosis, based on the background discussion outlined above. Use the four stage teaching model to help illustrate the changes that occur.
2. Tell the students they are going to make their own frog models. Provide each student with a copy of the Polliwog-Frog puppet page. Ask the students to color in the body parts and cut them out.
3. Push a brass fastener through circle A on the body and then up through circle A on each front leg. Fold down the two sides of the fastener. Then, attach the back legs in the same manner, matching up the circles marked B.
4. Next, fold the tail under the body along the dotted line.



5. With the aid of the puppets, review the stages of metamorphosis from tadpole to frog:
- Tadpole-Head with tail
 - Tadpole with legs-Back legs appear
 - Froglet-Tail gets smaller and front legs appear
 - Adult Frog-No tail and all four legs!



(sample puppet)

Follow along with the **Polliwog-Frog Poem**:

One day a little polliwog wished
it could be a jumping frog

(show polliwog with tail out and all legs hidden)

In the spring guess what it grew?

Back leg number one and back leg number two.

(pull out each back leg)

Its tail became short and something more...

(fold tail under body)

It grew front legs, number three and four.

(pull out front legs)

It splashed in the water.

It sat on a log.

For it had become a jumping frog!

6. Close the lesson by asking questions to make sure students understand the sequence of events in frog metamorphosis.

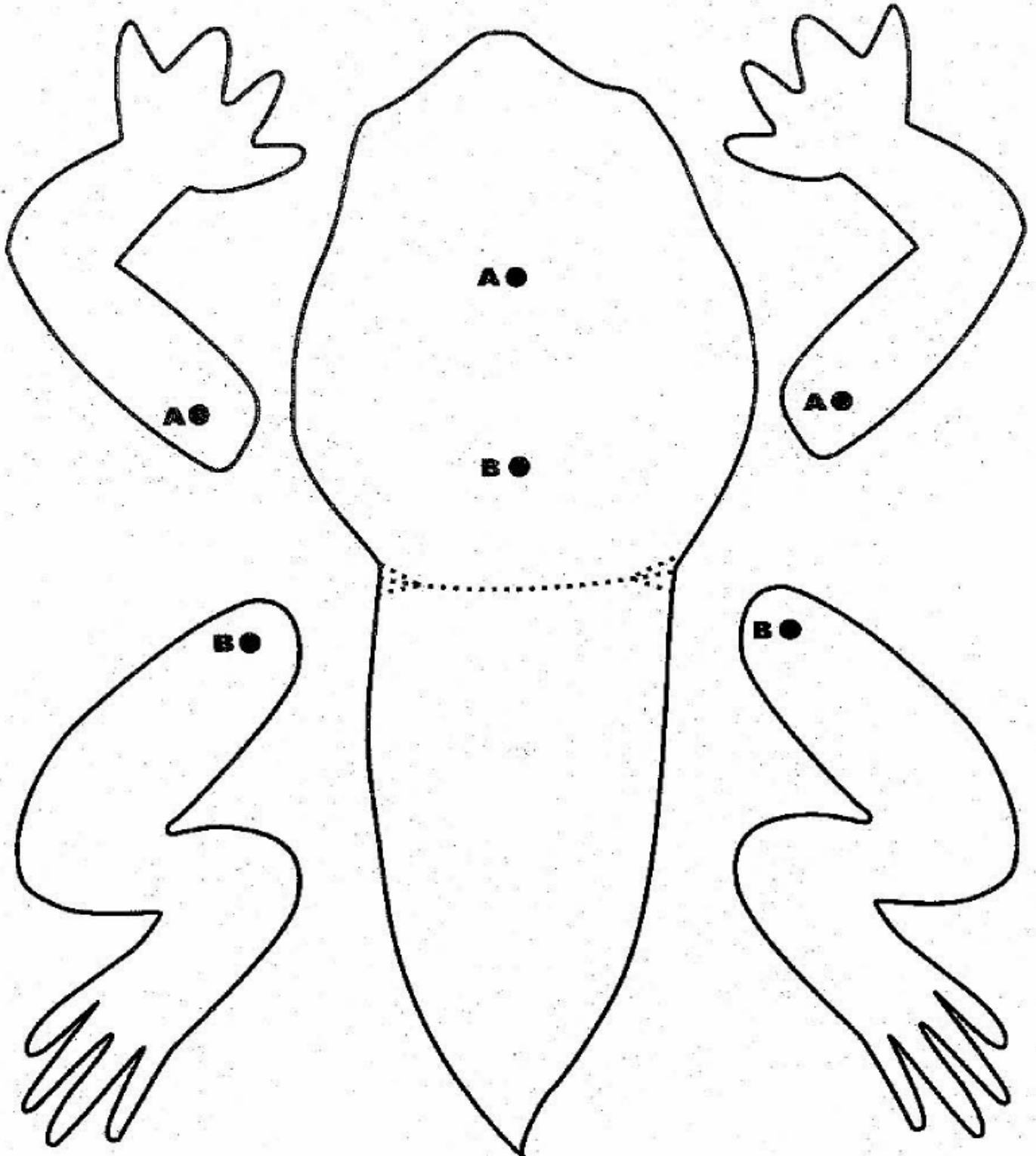
Adaptation of an activity from John G. Shedd Aquarium Frogs! Curriculum
All Activities and Materials used with Permission of Originating Institutions



Amphibian Alert!



From Tadpole to Frog Puppet





Where in the World are the Amphibians Going?

Amphibians are facing many problems around the world in nearly every type of habitat. Your students will discuss these problems and look for any patterns in this geography activity.

Objective: Students will investigate patterns between geographical location and habitat then determine potential reasons for current amphibian declines around the world.

Vocabulary: Urbanization, Habitat Fragmentation, Deforestation, Genetic Diversity

Background:

Amphibians throughout the world are in decline. In the last 10 years, more than 200 species were reported to be in decline and about 20 species are thought to have become extinct. The most alarming thing is that most of these species have declined or disappeared from habitats that are protected in national parks such as Yosemite in California. The same pattern was reported in Puerto Rico, Costa Rica, Honduras, Panama, Venezuela, and Australia. No single cause has been found, but many are suspected. Below is a list of possible reasons for decline:

- Habitat change and loss
- Deforestation, logging or mining
- Agriculture or grazing
- Urbanization
- Drought or Floods
- Amount of water in a habitat
- Habitat fragmentation
- Pesticides, fertilizers, and pollutants
- Predators (natural or introduced)
- Food competitors
- Disease - fungal and other
- Loss of genetic diversity
- Traps
- Pet trade or collecting
- Climate change





Materials:

Copies of Amphibian Species cards (one for each student), large world map, area for students to form groups

Procedure:

1. Distribute Amphibian cards to students. There should be enough for each student in the class. *Please note: these cards are only a partial list of the amphibian species in decline around the world, and are not representative of the total range of issues affecting amphibians.*
2. Discuss the information provided on the cards (e.g., name of species, region, habitat, etc). Give the students a few minutes to look at their cards.
3. Have the students arrange themselves according to Region of the world: Australia, Asia, North America, South America, Europe, Central America, and the Caribbean. Record/Chart/Graph how many species (students) are declining in each Region.
4. Next, within the Regions, have the students separate further into Habitats: Mountain Forests, Rain Forests, Wooded areas, Streams or Rivers, Ponds or Lakes, Wetlands, Caves or Underground. Record/Chart/Graph how many species (students) are declining in each Habitat.
5. Finally, within the Habitats, the students may begin discussing the possible threats to their species and why their species are declining. Allow each group to share their findings with the entire class, then open discussion to the entire class.
6. What conclusions can the class draw? Do similar habitats have similar problems? Do certain regions of the world have certain problems? Using a large world map, ask the students to locate their species' home region.
7. Worldwide amphibian declines seem to be caused by a variety of causes, and scientists from every region are studying local populations to pinpoint problems. It is an on-going issue with no clear answers. Your students may wish to follow up this exercise with additional research on the Internet, using the websites listed in the Resources section of this curriculum.

Information provided by Amphibia Web

<http://elib.cs.berkeley.edu/aw/declines/index.html>



Amphibian Alert!



Amphibian Species Cards



= World Conservation Union Listed Endangered Species

Amphibian: Archey's Frog

Region: Australia

Country: New Zealand

Habitat: Mountain forest

Possible Threats to Species: Deforestation, Agriculture

©2004 David M. Green



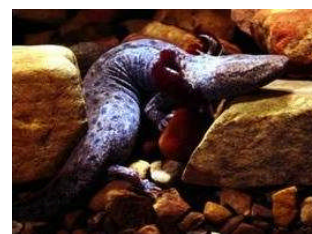
Amphibian: Mudpuppy

Region: North America

Country: United States

Habitat: River/Stream

Possible Threats to Species: Habitat loss, Pollution



Amphibian: Red-Eyed Tree Frog

Region: Central America

Country: Columbia

Habitat: Rainforest

Possible Threats to Species: Habitat loss



Amphibian: Golden Poison Frog

Region: Central America

Country: Columbia

Habitat: Mountain forest

Possible Threats to Species: Deforestation, Pollution





Amphibian: Leopard Frog

Region: North America

Country: United States

Habitat: Marsh

Possible Threats to Species: Introduced species



Amphibian: Mossy Frog

Region: Asia

Country: Vietnam

Habitat: Forest

Possible Threats to Species: Deforestation



Amphibian: Gray Tree Frog

Region: North America

Country: United States

Habitat: Forest

Possible Threats to Species: Habitat loss, Pollution

©2000 John White



Amphibian: Fowler's Toad

Region: North America

Country: United States

Habitat: Forest

Possible Threats to Species: Urbanization, Agriculture





Amphibian: Spadefoot Toad

Region: North America

Country: United States

Habitat: Forest

Possible Threats to Species: Habitat loss



©2006 Horia Bogden

Amphibian: Wyoming Toad

Region: North America

Country: United States

Habitat: Marsh

Possible Threats to Species: Disease



Amphibian: Waxy Monkey Frog

Region: South America

Country: Argentina

Habitat: Scrub Forest

Possible Threats to Species: Pet trade, Habitat loss



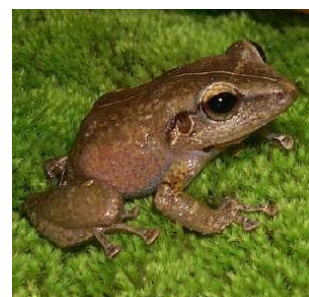
Amphibian: Coqui

Region: Caribbean

Country: Puerto Rico

Habitat: Forest

Possible Threats to Species: Pollution, Disease





Amphibian: Puerto Rican Crested Frog
Region: Caribbean
Country: Puerto Rico
Habitat: Scrub Forest
Possible Threats to Species: Habitat Loss



Amphibian: Tomato Frog
Region: Africa
Country: Madagascar
Habitat: Forest
Possible Threats to Species: Over-collection



©2004 Franco Andrione

Amphibian: Budgett's Frog
Region: South America
Country: Argentina
Habitat: Rain pools
Possible Threats to Species: Agriculture



Amphibian: African Bullfrog
Region: Africa
Country: Nigeria, Angola
Habitat: Grassland
Possible Threats to Species: Hunting





Amphibian: Green/Black Poison Dart Frog

Region: Central America

Country: Costa Rica

Habitat: Rainforest

Possible Threats to Species: Habitat loss



Amphibian: Phantasmal Poison Frog

Region: Central America

Country: Ecuador

Habitat: Mountain

Possible Threats to Species: Agriculture, Pollution



Amphibian: Brazil Nut Frog

Region: South America

Country: Brazil

Habitat: Rainforest

Possible Threats to Species: Over-collection



©1998 Hugo Claessen

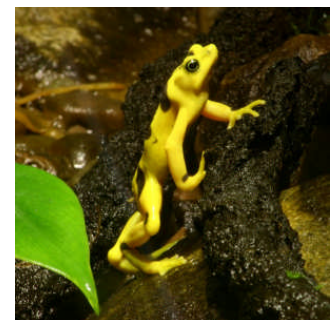
Amphibian: Panamanian Golden Frog

Region: Central America

Country: Panama

Habitat: Rainforest

Possible Threats to Species: Disease





Amphibian: Tiger-Legged Monkey Frog
Region: South America
Country: Argentina
Habitat: Rainforest
Possible Threats to Species: Deforestation



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Amphibian: Kokoe Poison Frog
Region: South America
Country: Columbia
Habitat: Mountain Forest
Possible Threats to Species: Deforestation



© 2007 Dr. Peter Janzen

Amphibian: Hellbender
Region: North America
Country: United States
Habitat: River/Stream
Possible Threats to Species: Habitat change



Amphibian: Kweichow Crocodile Newt
Region: Asia
Country: China
Habitat: Grassland
Possible Threats to Species: Habitat loss, Collection



© 2005 Henk Wallays



Amphibian: Black Leg Poison Dart Frog
Region: South America
Country: Columbia
Habitat: Mountain Forest
Possible Threats to Species: Deforestation



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Amphibian: Green Tree Frog
Region: North America
Country: United States
Habitat: Swamps
Possible Threats to Species: Urbanization



Amphibian: Barking Tree Frog
Region: North America
Country: United States
Habitat: Marsh
Possible Threats to Species: Habitat loss



Amphibian: Bird-voiced Tree Frog
Region: North America
Country: United States
Habitat: Swamp
Possible Threats to Species: Urbanization





Amphibian Facts Wheel

Materials:

Scissors, brass fasteners

Procedure:

1. Cut along the dotted lines.
2. Punch a hole in the center of both disks.
3. Unite both disks with frog disk on top with brass fastener.
4. Spin the disk and find the answers!





Adapted from "Amphibian Facts Wheel"
<http://www.aza.org/YearoftheFrog/Documents/RanaRueda_English.pdf>



Fabulous Frogs REFERENCE LIST

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Fabulous Frogs

National Science Standards (Grades K-5)

Below is a list of National Science Standards discussed during the teaching of **Fabulous Frogs**.

Life Science K-4

Content Standard C: As a result of activities in grades K-4, all students should develop an understanding of:

- The characteristics of organisms
- Life cycles of organisms
- Organisms and environments

Science in Personal and Social Perspectives

Content Standard F: As a result of activities in grades K-4, all students should develop an understanding of:

- Personal Health
- Characteristics and changes in populations
- Types of resources
- Changes in environments
- Science and technology in local challenges

Life Science 5-8

Content Standard C: As a result of their activities in grades 5-8, all students should develop an understanding of:

- Structure and Function in living systems
- Reproduction and heredity
- Regulation and behavior
- Populations and ecosystems
- Diversity and adaptations of organisms

The NSES publication (ISBN 0-309-05326-9) can be viewed at
<http://books.nap.edu/html/nses/html/index.html>.

A bound, paperback copy can be purchased from the [National Academy Press](#), 2101 Constitution Avenue, N.W., Washington, D.C. 20418; tel. (202) 334-3313 or 1-800-624-6242.