

THE VANISHING

FROG



Title	State of the Frogs
Grade Level	3rd - 5th
Lesson Duration	2 - 3 class sessions
Curriculum Focus	Science, Social Studies, Language Arts, Visual Arts, Technology

STUDENT OBJECTIVES

- Investigate the current situation and reasons behind the global amphibian crisis.
- Draw conclusions, summarize, and present important information about the plight of amphibians.

MATERIALS

- Computer with access to the Internet
- Four signs, each with one of the following phrases: climate change, pollution, disease, and habitat loss.
- Tape
- Flip chart (optional)

PROCEDURES

Note: Before the lesson, place four signs (see above) in different corners of the room.

1. As students enter the room, tell them you need their help solving a mystery. Read or ask a student to read aloud the statement below:

Do you know that the world's frogs are mysteriously disappearing? Frogs have been around since the days of the dinosaurs. That's more than 360 years. They've lived through many events and changes but something is making them disappear. In the past few decades, as many as 130 species of frogs and other amphibians may have been wiped out. Right now, almost one half of the world's amphibian species are threatened with extinction. That would be the largest mass extinction since the disappearance of the dinosaurs! Why are the frogs disappearing?

2. Explain to students that there are four signs around the room. (See above.) On each sign is written a reason why the frogs might be disappearing. Have students read the signs aloud. Then challenge them to get up and stand by the sign that they think represents the reason why frogs are disappearing.
3. Once students are standing by the sign that represents their guess, encourage them to justify their choice.
4. Congratulate all students because they are all correct! All four explanations help to explain why frogs are disappearing. But that answer alone can't help to fix this problem for the frogs.
5. Have students return to their seats. Ask how they feel about the frogs disappearing. Do they know what role frogs play in our world? How might the disappearance of frogs impact their lives? Would they want to help the frogs if they could?
6. Explain that scientists, researchers, ecologists and many others all over the world are trying to save the frogs. One of the ways that scientists help is by asking and answering questions that start with "who, what, where, why and how."
7. Challenge the class to brainstorm as many "who, what, where, why and how" questions as they can about this alarming situation. Record the questions on the board or a flip chart.

Questions could include:

Who?

Who are the frogs that are disappearing?

Who is trying to save the frogs?

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What?

What are scientists and others currently doing to help the frogs?
What role do frogs play in our ecosystem?
What do frogs need to survive?
What are the dangers of the extinction of frogs?
What is the name of the disease that is killing the frogs?

Where?

Where are the frogs disappearing?
Where can frogs go to be saved?
Where can I find more information?

Why

Why are the frogs disappearing?
Why is this a global crisis?
Why are climate change, pollution, habitat destruction and disease killing the frogs?

How?

How do frogs help our environment?
How can we help the frogs?
How many frogs have disappeared?
How does the plight of the frogs impact me?

8. Divide students into groups. Then tell students to imagine that they have been asked by the Governor of their state for a briefing about the plight of the frogs. Once he or she receives this briefing, a decision will be made whether to include information about the crisis in the annual State of the State address. You may want to share with students that Governors use this annual speech to report to the state legislature and the people about important national and global issues that have an impact on their state. From these issues, new laws are and initiatives are and public support is gained for new programs.
9. Ask student groups to select 3-5 questions from the list they've developed. They must include questions from at least three different questioning categories. (If possible, have each group select unique questions so that no question is repeated). Encourage groups to use the Internet as well as any other available research resources. A list of useful Web sites is below.
10. Once students have answered their questions, challenge them to summarize and present the information into a three minute presentation for the "Governor!"

DISCUSSION QUESTIONS

1. Discuss the differences between extinct, endangered and threatened species.
2. All living things in an ecosystem depend on each other for survival. How does the plight of the frog likely impact the entire ecosystem in which they live?
3. Do students know of any animals or species that are threatened or endangered in your community? What things do students think they can do to help these animals? What other things can students do to help the environment?
4. Scientists say that the plight of the frogs is a warning sign for the environment. Why might this be?
5. Ask students if they think it's our responsibility to help endangered animals? Why or why not?
6. One way that people can help the frogs is to donate to groups that are trying to help them. How might donations help? Would students consider donating their own money to help the frogs?
7. How do students feel about frogs? What frogs can they name from stories, songs or television shows?

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ADAPTATION/EXTENSION

- Younger students can develop one question for each of the questioning categories. They then can read or listen to information from www.savethefrog.com to help them learn the answers.
- Have students observe a local ecosystem such as a pond, creek, wooded area or even a puddle. Have them list the living and non-living things that make up the ecosystem and create a chart that shows the interactions between them. Have them imagine how the ecosystem would change if one of the organisms died or was removed.

ASSESSMENT

You can evaluate your students using the following three-point rubric:

Three points: Students use sound reasons to justify what is killing the frogs; work cooperatively in groups; accurately research answers to the questions they've chosen; develop and present a well-written summary.

Two points: Students use somewhat sound reasons to justify what is killing the frogs; work somewhat cooperatively in groups; accurately research most answers to the questions they've chosen; develop and present an adequate summary.

One point: Students are unable to use sound reasons to justify what is killing the frogs; need assistance to work cooperatively in groups; accurately research some answers to the questions they've chosen; develop and present an adequate summary.

VOCABULARY

Amphibian

Definition: Any of the class of cold-blooded vertebrates such as frogs, toads and salamanders intermediate between fishes and reptiles; they have gilled aquatic larva and air-breathing adults.

Context: Frogs and toads are amphibians because they spend part of their lives in water and part of their lives on land.

Ecosystem

Definition: A system formed by the interaction of a community of organisms with their environment

Context: Amphibians are a very important part of the ecosystem.

Endangered

Definition: Threatened with danger or extinction.

Context: The bald eagle is classified as an endangered species.

Extinct

Definition: No longer in existence; died out.

Context: When a species is extinct, that means there are no longer any animals of that kind on the Earth.

Fungus

Definition: Any of a large group of thallophytes which are parasites on living organisms or feed upon dead organic material.

Context: The chytrid fungus threatens the world's amphibians.

Habitat

Definition: The place or environment where a plant or animal naturally lives and grows.

Context: A frog's habitat is usually a swampy wetland area.

Plight

Definition: A dangerous situation

Context: Scientists are working around the clock to uncover clues on the frogs' deadly plight.

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Population

Definition: The total of organisms inhabiting a particular locality.

Context: A decline in the world's frog population is a warning sign for the environment.

ACADEMIC STANDARDS

This lesson plan may be used to address the academic standards listed below. The standards listed are drawn from the National Education Science Standards.

Grade Level: K-4

Content Standard: Science as Inquiry: Understandings about Scientific Inquiry

Benchmarks: Scientists use different kinds of investigations depending on the questions they are trying to answer.

Grade Level: 5-8

Content Standard: Science as Inquiry: Abilities to do Scientific Inquiry

Benchmarks: Think critically and logically to make the relationships between evidence and explanations.

Grade Level: K-4

Content Standard: Life Science: The characteristics of organisms

Benchmark: Organisms have basic needs; the behavior of individual organisms is influenced by internal cues and external cues.

Grade Level: K-4

Content Standard: Life Science: The life cycles of organisms

Benchmarks: Plants and animals have life cycles that include being born, developing into adults, reproducing and eventually dying; many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from an individual's interaction with the environment.

Grade Level: 5-8

Content Standard: Life Science: Structure and Function in Living Systems

Benchmarks: Disease is a breakdown in structures or functions of an organism.

Grade Level: 5-8

Content Standard: Life Science: Diversity and Adaptation of Organisms

Benchmarks: Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.

Grade Level: K-4

Content Standard: Science in Personal and Social Perspective: Changes in Environments

Benchmarks: Changes in environments can be natural or influenced by humans; some environmental changes occur slowly, and others occur rapidly.

Web sites

www.amphibianark.org

<http://animal.discovery.com/tv/vanishing-frogs/vanishing-frogs.html>

www.savethefrog.com

www.yearofthefrog.org