

## actionbioscience.org lesson

To accompany the article by Kevin Zippel:

“Why Do We Need an Amphibian Ark?” (May 2007)

<http://www.actionbioscience.org/biodiversity/zippel.html>

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### **Save Our Amphibians** (Mar. 2008)

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Student Handout 1: <i>p. 3-4</i>
Student Handout 2: <i>p. 5-6</i>

#### **Grades & Levels:**

- **Handout 1:** middle school
- **Handout 2:** high school (general)

#### **Time Recommendations:**

- minimum 2 class periods
- additional time depends on whether research is conducted in or out of class

#### **NSES (USA) Content Standards, 9-12:**

- NSES 1.1. Unifying Concepts & Processes: systems, order & organization
- NSES 4.4. Life Science: interdependence of organisms
- NSES 7.5. Science in Personal & Social Perspectives: natural & human-induced hazards
- NSES 7.6 Science in Personal & Social Perspectives: local, national, and global challenges

#### **NSES (USA) Content standards, 5-8:**

- NSES 4. Life Science
- NSES 7. Science in Personal & Social Perspectives

*Note:* View the NSES content standards on this site to choose other curricular applications for additional activities at

<http://www.actionbioscience.org/educators/correlationcharts.html>

**Learning Objectives:** Students will ...

- appreciate the role frogs and other amphibians play in ecosystems
- learn about the anatomy and life cycle of some amphibians
- research the concept of aquatic food webs/chains
- examine why conservation efforts are crucial to amphibian survival
- consider proactive solutions to the problem

## **Preparation**

### **Article Discussion:**

- Distribute copies of the article “Why Do We Need an Amphibian Ark?” to students, or have them download the article from <http://www.actionbioscience.org/biodiversity/zippel.html>
- Do the same for the student handout that you select. **Part A of each handout lists questions about the article.**
- Assign the article as homework reading or ask students to work on the questions in small groups in class. Ask students to complete Part A of the handout (article questions) and look up definitions for key words.
- In class, review and discuss student answers to questions and ask them to define key words.

### **Student Handouts 1 and 2:**

- Part B of each student handout lists projects that require research. Indicate which projects should be performed individually, in pairs, or teams.
- Students can be assessed on their comprehension of the vocabulary and concepts in the article. They can reflect in a journal why they think it is important to help frogs survive. If students observe frogs in a classroom terrarium or outdoors, assess observation skills.

### **Useful Links:**

Refer to the links provided in the “Educator Resources” section at the end of the article. There you will find links that can serve as a starting point for student research.

# Save Our Amphibians

## Student Handout 1

### A. Questions about the article

Read the article “Why Do We Need an Amphibian Ark?” at <http://www.actionbioscience.org/biodiversity/zippel.html>

Choose the correct answer to each question.

1. The recent status of amphibians shows:
  - a) half of the species have recently gone extinct
  - b) species have declined by half
  - c) birds are just as threatened as amphibians
2. What benefit are frogs to humans? They...
  - a) are a source of medicine
  - b) destroy tadpoles
  - c) kill infectious fungus
3. The fungus destroying amphibian populations:
  - a) infects 80% of all frog species
  - b) killed 90% of all infected species
  - c) spreads approximately 28 km/year
4. Amphibian chytrid:
  - a) was bioengineered in the lab
  - b) lives in harmony with frogs in some places
  - c) was spread by pet owners of exotic frogs
5. A good way to save frogs and other amphibians from extinction is to:
  - a) treat chytrid fungus in the wild
  - b) capture infected frogs and treat them in the lab
  - c) collect and house samples of as many species as we can

### Article key words

Provide the definitions for amphibians, biomass, biomedicines, conservation, ecosystem, endangered/vulnerable/extinct species, *ex situ*, fungus, infectious, invertebrates, *in situ*, reintroduction, tadpole, and vertebrates

## **B. Projects**

### **1. Amphibian Poster or Campaign**

#### **a) Poster:**

Research one of the vulnerable or endangered species of amphibians. Create a poster about it, which includes a picture and information about habitat, size, habits, food, life span, and special features, such as camouflage. Be sure to include the scientific name and its geographical range.

#### **b) Campaign**

Explain why this amphibian is vulnerable or endangered. Think of one thing humans can do to improve the situation for species. Propose a campaign to save it from extinction. Your proposal can be presented as a flyer, a feature for a school newspaper, or a poster.

### **2. Froggie Fun**

Write a one-page fact page or prepare a slide show (PDF format, for example) to illustrate fun and weird facts and misconceptions about frogs. For example: The Goliath Frog from West Africa is the largest frog in the world.

### **3. Frog Penpals**

Take photos of frog species found in your area. Create a postcard with your photos. Write information about the species on the card. Mail the postcard to a class in another part of your country, or maybe in another country. Ask the other class to do the same and send you a postcard of frog species in their area. Do this several times. When you have enough postcards from other classes, create a display in your school library or other location.

### **4. Frog Stories**

Find one story about a frog that is considered a fable, folklore, or parables. Create your own illustrations for the story. Display your illustrations in class and tell the story to your classmates. Talk about the story's message.



## **Article key words**

Provide the definitions for amphibians, analgesic, antibiotic, assessment, biomass, biomedicines, ecosystem, endangered/vulnerable/extinct species, *ex situ*, fungus, herbicide, infectious, invertebrates, *in situ*, parasite, population, reintroduction, tadpole, taxa, vertebrates

## **B. Projects**

### **1. Aquatic Ecosystems**

Research ONE of the following concepts and create an oral or written presentation about how the concept applies to amphibians:

- producers, herbivores, omnivores, carnivores, and decomposers
- predator/prey relationships
- difference between food 'chain' and food 'web'

### **2. Humans and Amphibians**

Create a display or a web presentation that addresses these 2 questions: "Which members of the aquatic food web are directly consumed by humans?" and "What would happen if one of the amphibian organisms in this food web were to disappear?"

### **3. Take Action**

Research some local amphibian species. Create a display or some other form of promotion to inform the public about threats to these local species. You may want to contact your local conservation organization and/or aquarium to ask them about the groups' plans to save local species. Ask them if you could bring your promotional material to display in their building.

### **4. Frogging Around**

Research what makes a suitable habitat for a frog in your area. Use maps and other data to locate places that might be good frog habitat. Write a short report, with map illustrations, or create another visual presentation, to explain why you think these places make a good frog habitat. If possible, visit one or more of these areas and observe frog activity (take notes).