



## **Dress Like A Frog**

### **Audience/ Group Setting**

Event setting or classroom setting– this is a demonstration that would involve a volunteer dressing like a frog to show the various adaptations. Appropriate for visitors aged 5 and up.

### **Goal**

To recognize the many adaptations that amphibians have that allow them survive in various habitats.

### **Objectives**

By the end of this activity, participants will be able to:

- Have a volunteer visitor become involved in the activity.
- Utilize the volunteer visitor to show the many adaptations amphibians have including:
  - Amazing eyesight
  - Permeable skin
  - Poison glands
  - Webbed feet, etc.

### **Big Idea/ Main Message**

Amphibians have many adaptations that allow them to survive and thrive in almost any habitat.

### **Conservation Action/ Behavior Addressed**

**Look, listen, and learn: educate yourself and your family about amphibians.**

With more than 6,000 frogs, toads, newts, salamanders, and caecilians worldwide, there's a lot to learn. Pick up a book, hop around the Internet, or watch your favorite animal television show to educate yourself and your family about amphibians.

### **Background Information**

The word “adaptation” is defined as “the adjustment of an organism to its environment or the process by which it enhances such fitness.” Amphibians, over millions of years, have developed many different adaptations, which allow them to survive predators, stressful habitats, and other environmental issues. In the activity information section below, for each adaptation that will be added to the frog “costume,” there is information on that specific adaptation.

### **Materials needed**

- Goofy eyeball glasses
- Ear muffs
- Mesh shirt
- Fanny pack

- Bottle of Tylenol
- Tube of antibiotic cream
- Bottle of skin moisturizer
- Bottle of poison (label an empty plastic bottle with skull & cross bones)
- Diver's fins
- Felt or cardboard tail
- Birthday noise maker (tongue un-rolling type)
- Digital thermometer
- Fake/plastic teeth
- Jug of antifreeze (or empty plastic bottle labeled "anti-freeze")
- Bin to hold all costume contents
- Disinfectant wipes (to clean items between uses)

## Staff

This is a demonstration activity that will need a staff or volunteer to facilitate.

## Length of Activity

15-20 minutes

## Set up

- Ahead of time: Gather materials. Make the felt or cardboard tail, get poison & anti-freeze bottles (empty), and place all items in the costume bin.
- Day of: Prepare an area for the visitor presentation/demonstration.

## Procedures

1. For an event setting, this demonstration would work best if you set a time (or times) for the presentations and gathered an audience or group to watch the presentation/demonstration.
2. Once you have an audience, welcome them to your event, and discuss what an adaptation is, give example of adaptations they might already know (ex: birds have wings and feathers to fly), and discuss how they will be learning about the many amazing adaptations of amphibians.
3. Ask for a volunteer. Have the volunteer come up to the front of the group.
4. This activity works best with audience participation. Ask the group of visitors if the volunteer looks like a frog (to which they should answer "no"). Then explain how, as a group, you will be turning the volunteer into a frog!
5. For the first few adaptations, you can ask the visitors for ideas. Usually they will know that frogs have webbed feet and long tongues. Beyond that, you can discuss the various adaptations with the visitors as you dress your volunteer like a frog. Below is the list of adaptations:
  - a. **Amazing eyes (= googly eye glasses).** Frogs have amazing eyes. Their eyeballs can turn inside out to help push food down their throats. They also have a transparent, nictitating membrane that protects the frog's eyes and cleans them, too!
  - b. **Big Ears/Tympanum (= ear muffs).** Frogs hear using big round ears on the side of their heads called tympanum or tympanic membranes. Tympanum means drum.
  - c. **Permeable skin (= mesh shirt).** Amphibians have permeable skin, which allows oxygen and water into their bodies more easily. These molecules enter their bodies through tiny holes or pores in the skin.

- d. **Painkillers & antibiotics in the skin (= Tylenol & antibiotic cream).** Scientists are discovering that the skin of an amphibian contains chemicals that act as painkillers and antibiotics. In fact, some amphibians are just walking chemical factories! These may be very beneficial to people in the future.
- e. **Mucous glands in the skin (= skin moisturizer).** An amphibian's skin contains mucous glands that help keep them and their skin moist.
- f. **Poison glands (= bottle of poison).** The skin of an amphibian can also contain poison glands. Most of these toxins aren't strong enough to harm people, but some of the toxins are known to cause muscle spasms or even breathing trouble. It's always a good idea to wash your hands after handling an amphibian!  
(Note: for items d-f, you can put the items in a fanny pack around the visitor's waist.)
- g. **Webbed Feet (= diving fins).** Amphibians have strong webbed feet that help them swim. In some species, these adapted feet might even act as a parachute to help them escape predators!
- h. **Brightly colored tails (= felt or cardboard tail).** Salamanders (one group of amphibians) have brightly colored tails. Hand the tail to the volunteer and say "Oops! Some predator pulled your tail off. But not too worry – you can grow a new one!" Scientists are studying the tail regeneration ability of salamanders to see if they can use this for human limb or organ regeneration in the future.
- i. **Long tongues (= birthday noise maker).** Frogs have long tongues that are usually attached at the base of their jaw and then folded in a way that the tip of the tongue points back towards their throats. Their tongues can be flipped out very quickly and accurately in order to catch an insect or other tasty treat. There are also glands in a frog's mouth that produces sticky mucus that helps to catch the prey.
- j. **Cold-blooded (= digital thermometer).** Amphibians are cold-blooded, which means their body temperature matches the temperature of their surroundings. They don't have to expend a lot of energy to keep warm (like humans and other warm-blooded animals). Therefore, they are less active and eat less when it is cold out.
- k. **Teeth (= fake plastic/rubber teeth).** Frogs and salamanders have teeth. Their teeth are usually cone shaped and are found on the upper jaw of the animals. Some amphibians also have specialized teeth, called *vomerine teeth*, which are found on the roof of their mouth and are used for holding prey.
- l. **Livers produce glucose (= bottle of antifreeze).** Some frogs, such as wood frogs, produce glucose in their liver, which circulates through their body. The glucose acts like antifreeze because it has a lower freezing point than water. This prevents a frog's organs from freezing during cold winters.

## Activity Extensions/Modifications

### Classroom Use Modification

For a classroom or camp setting, you would follow the instructions above for the whole group of students/ visitors. You would conduct the demonstration the same way for an audience of students or campers. You could also have the group of students work in small groups to design

their own frogs using household items to represent the animal's adaptations. They could then present their dressed-up "frogs" to the entire group.

### **National Science Education Standards**

This activity is aligned to the K-8 Life Science Content Standards.

- Structure & Function in living systems
- Regulations & Behavior
- Diversity & Adaptations of organisms

*Note: Activity materials adapted from and used with permission of the It's Not Easy Being Green Curriculum for the Alaska Department of Fish & Game.*