
Find That Frog



Objectives

The learner will be able to explain how herpetologists search for frogs following a post-activity lesson on this subject.

The learner will be able to state the important roles frogs play following a short discussion on the subject after the participatory activity.

The learner will be able to differentiate frog calls from one another by matching their call with another classmate that is making the same call.

Appropriate Grade Level: 1st – 6th

Time Required: 30 minutes

NGSS and Common Core Standards:

K-ESS3-3, 2-LS4-1, MS-LS2-2

Materials

Provided in Kit:

- One tin can
- One bottle containing rocks
- Small bag of pennies
- 25 pieces of cloth blindfolds
- 2 pictures of frog vocal sacs
- Cards of all frogs native to southern Oregon and northern California

Not Provided:

- One computer with speakers
- Two small rocks
- Additional noise-making devices (ie. marbles, small drum, block of wood, whistle)

Background Information

Frogs and toads are amphibians. This means that they live part of their lives in water and part of their lives on land. Toads have bumpy skin and are usually found further from water than frogs are. Oregon has twelve native frog species and one invasive species, the American Bullfrog. Most frogs and toads breed in large groups on rainy spring nights at certain ponds, lakes, ditches, or streams. Frog species typically time their calls so that they do not completely overlap, making it easier for each one to be heard. Frogs of the same species will overlap, however, with the strongest call usually getting the female. Frogs and toads call by closing their noses and mouths, squeezing their lungs, and forcing air over their vocal sacs. When air enters their vocal sacs, the sacs bulge out. Large frogs call at low frequencies and have deep voices. Small frogs call at high frequencies and have high-pitched songs. Cold frogs call at slower rates than warm frogs. Frogs do not just call to attract mates. Some frogs also have territorial calls and others have calls for when they feel threatened.

Herpetologists study reptiles and amphibians. Some herpetologists specialize in frogs and toads. To find these animals, herpetologists go out on rainy nights in spring and listen for different frog calls. They wade into water, listen carefully, and try to match a call with an actual frog. Frogs usually call from hidden locations and project their voices so that their calls can sound like they are coming from somewhere other than where the frog is. That makes finding them extremely difficult, even for professionals.

People study frogs because they are very important. Frogs are sensitive to pollution so an area has to be healthy for frogs to live there. Some important medicines come from frogs and toads. Many animals feed on frogs and toads, both as young and as adults. **Frogs and toads are going extinct faster than any other animal group.** Most herpetologists agree that a third of frog species will be gone in fifty years.

Activity

Part 1

1. Use background information for the following: Introduce frogs/toads, why they are amphibians, and explain the difference between the two. Tell students that male frogs/toads call on wet spring nights to attract females. Describe the basics of how frogs/toads call and that different species have different calls.
2. Split the class in half. One group will be the 'males' making mating calls and the other will be 'females' who will be blindfolded and trying to find their mate (Use your best judgment as to whether to use the female and male group labels for your class!).
3. Count off the 'male' group up to the number 8 and provide them with materials and/or instructions to imitate different frog calls, as listed below. Some students will use the 'instruments' provided, while others will need to imitate calls using their voices. You can play these calls for the class from **www.californiaherps.com**.
 - (1) Bottle with gravel (Spadefoot toads- not species native to Oregon)
 - (2) Tin can with pennies (representative of many species mixed together)
 - (3) Comb with a penny to scrape it (Upland chorus frog- not native)
 - (4) Snoring sound (Leopard frog- native)
 - (5) Low chuckle (Northern red-legged frog- native)
 - (6) Two rocks hit together (Blanchard's cricket frog-not native)
 - (7) Cow sound (imitate Bullfrog- invasive)
 - (8) Ribbit (Pacific treefrog- native)
4. If two students are making the same call, let them know that they need to make an effort to sound as similar to one another as possible. Make clear that the sounds made from materials are meant to imitate frog calls from the U.S. outside Oregon. The reason more calls are not representative of Oregon

species is due to the fact that many Oregon frog species have calls that are hard to imitate.

5. Assign each female a call to head towards. Blindfold the 'female' group and tell them to find their mate or mates by walking carefully towards their assigned mates' sound. Have the non-blindfolded group go as far from the blindfolded people as is reasonable, but have them stay still once they are in their location. Tell the blindfolded people to take off their blind folds and stand still once they touch the person that they think is their match.
6. Ask the blindfolded group to move slowly to be safe and oversee the activity to make sure students are not bumping in to each other. If there are any students not blindfolded, they should be designated as safety overseers and should help the blindfolded not bump into each other.
7. Continue game until all blindfolded people take off their blindfolds.
8. Ask the students what worked and didn't work. Did certain sounds stand out? Was it easy to find a match when all calls were going at once? Do they think frogs and toads usually all call at the same time?
9. Tell students that frogs and toads of different species usually do not overlap their calls, but those of the same species will often overlap with the loudest call being preferred by a female.

Part 2

10. Next, take out one pair and make them biologists. If you had extra people originally, make two of them the biologists. Separate the biologists from the rest of the group. Have the entire rest of the class develop a set of four unique calls. Assign four of them to represent one of each of the four calls. Tell the rest of the group that they can do any of the four they want. Blindfold the biologists and have them walk around for one minute, trying to guess how many species of frogs are calling. Allow the callers to move around within the activity area, to make it harder.

11. After one minute, have the biologists take off their blindfolds and say how many species they think there are and what different calls they heard.
12. Explain that this is similar to how herpetologists actually survey for frogs by voice, and explain how frogs often hide and “throw their voices”. Explain the conditions that herpetologists must endure.
13. Tell students why herpetologists put up with the challenge. Use the background information to explain a couple examples of how frogs are important. Tell students that many frogs are in danger of being gone forever, so it is important that we learn as much about them as we can. Finish by asking them for ideas on how they can help frogs.

Extensions

- a. The teacher can ask students about any experiences they may have had with frogs, and begin a discussion about what they may have seen and why it may have been there.
- b. The teacher can play additional frog calls from californiaherps.com. Special focus should be on the different types of calls within the same species. Why might they be different? What advantages and disadvantages do multiple types of calls present for a species?
- c. The students can go out and look for frogs (tadpoles or adults) if they are near any source of water. They can use the i.d. cards in the kit for help with identification.

Glossary

Amphibian: A cold-blooded vertebrate comprised of frogs, toads, salamanders, newts, and caecilians. Young are usually born in water and have gills, then transform into a separate adult stage.

Herpetologist: A person that studies reptiles and amphibians.

Invasive Species: A widespread species found in an area it is not native to.

Additional Information

Additional information on local frog species and their calls can be found at:

<http://www.californiaherps.com/frogs/frogscalls.html>

For information on frog declines, please visit:

<http://www.savethefrogs.com/index.html>

Frogs are likely to be found in most permanent water sources during warmer parts of the year. Field trips to the wet areas of Denman Wildlife Area, Lithia Park, Ashland Pond, Touvelle State Park, or the Deer Creek Center are almost guaranteed to turn up frogs of several species.

Inspiration for activity found at:

http://www.aza.org/uploadedFiles/Conservation/Commitments_and_Impacts/Amphibian_Conservation/Amphibian_Resources/Caller_ID.pdf