

Science: Echolocation and Creating Presentations

Library Media Skill Objectives:

Students will demonstrate the ability to retrieve and manage information.
 Manipulate information using electronic sources.

Students will demonstrate the ability to create print and nonprint media.
 Demonstrate knowledge of the process used in developing various types of media.

This lesson is meant to integrate science learning with the use of electronic media and should be taught to students who have some familiarity with computer programs but who haven't mastered use of multimedia. Students who finish early may be asked to help those who are less computer literate.

Curriculum (Subject Area) Objectives:

The student will explain that organisms best suited to an environment will survive and reproduce.
 Explain that organisms have different structures and systems that serve various functions in growth, survival, and reproduction.
 Describe examples of organisms and their adaptations that demonstrate that organisms best suited for their environment survive and reproduce.

This lesson should be taught during the unit on life and environmental science. It includes controlled resources that could be modified by individual teachers to suit students' needs. All Web links included in this lesson have been previewed for appropriateness, ease-of-use, and up-to-date links but also should be reviewed by teachers using this lesson, as the Web changes constantly.

Grade Level: 4

Resources:

Equipment: a lab with computers that have Microsoft PowerPoint, Internet access, and speakers (There should be 1 computer for every 2 students.); teacher computer with LCD projector for modeling

Websites:

"AltaVista Image Search with Family Filter" <http://www.altavista.com/image/default>

"FindSounds" <http://www.findsounds.com/>

Student handout: "What's That Sound?: Studying Animals with Some Unusual Noises"

Media specialist/teacher resource: "Step-by-Step Script for Modeling How to Create the PowerPoint Presentation"

A list of pairs of students who will work together created by the teacher or media specialist (Grouping may be best done as mixed-ability regarding students' computer skills.)

List of animals that use echolocation to assign to student pairs:

Pygmy Shrew	Oilbird
Leopard Seal	Bottle Nose Dolphin
Whippoorwill	Swift
Minke Whale	Sperm Whale
Brown Bat	Egyptian Fruit Bat
Orca	Porpoise

Instructional Roles:

To begin the unit, the media specialist and teacher will work together to teach two 50-minute lessons involving researching, presenting, and drawing conclusions and help students to manipulate and combine information to create presentations. The students create presentations in the media center with the help of the media specialist, teacher, and aides.

Activity and Procedures for Completion:

- Before students arrive, have the computer lab and LCD set up to model the procedure for creating a PowerPoint presentation.
- When students come into the library, ask them what they have been studying in science. Explain that today they will be studying many different animals that all have one thing in common.
- In order to get them interested, ask these kinds of questions:
 - “We humans are very different in many ways, right? In what ways are we different?”
 - “Okay, great! So, in what ways are we the same?”
- Help the students brainstorm some ideas about good strategies for working with a partner on the computer.
- With the teacher, pass out the handout “What’s That Sound?: Studying Animals with Some Unusual Noises,” assign students their partners and animals, and seat students at computers.
- Using the computer with LCD, model for the students the procedure for completion of the following tasks: (For step-by-step instructions to help you, see the attached script.)
 - 1) Find a picture of the animal and a clip of the sound it makes.
 - 2) Identify it as a land mammal, marine mammal, or bird.
 - 3) Come up with 2-3 sentences about why you think it makes that noise or what that noise might mean. (There are no wrong answers!)
 - 4) Tell where you got the picture and sound.
 - 5) Put your picture and sound onto the first PowerPoint slide. Create a second slide that tells what kind of animal it is and why you think it makes the noise it does. Make one more slide that tells where you got the information. (3 slides total).
- Once students have begun working, move among the pairs with the teacher, assisting the students when necessary and asking additional questions of the students who are moving quickly. It should take students one class period to complete this lesson.
- Once students have completed their presentations, the media specialist and the teacher should show students how to present the show.
- When all students are ready, ask one partner from each student pair to rotate to the computers of six of the other pairs (this can be done in clock-wise fashion or whatever order is suitable). As this happens, the students at the computers should present their information. Each “station” should take no more than 1-2 minutes, and the teacher or media specialist can keep a timer to tell students when to switch.
- Then, the pairs should flip so that the other half of each pair has a chance to view the remaining six stations. Circulate with the teacher, encouraging students, keeping them on task, and evaluating the

presentations (See attached check sheet.) At the end of a half-hour, each student should have had the opportunity both to present his/her information and to view the information of six other pairs.

- Following, engage students in conversation about their observations of the different animals and start a group inquiry into what they might have in common (When students mention that “they all make noises,” encourage them to look deeper into the noises. Why do you think they make noise?)

Evaluation:

Rubric for evaluating students' presentations:

Points	Criteria
_____/ 10	Includes a picture of the animal
_____/ 10	Includes the sound the animal makes
_____/ 10	Includes a classification: land mammal, marine mammal, or bird
_____/ 30	Includes a 2-3 sentence explanation of the sound the animal makes
_____/ 20	Includes the web addresses of the picture and the sound on the “Sources” slide
_____/ 20	Neatness and organization (each slide includes titles, grammar is clean, and the slides are visually pleasing)

Follow-up:

This lesson should immediately precede lessons on echolocation and/or organisms and their niches and adaptations. It could be followed by an echolocation lab, such as the one found at:

http://www.accessexcellence.org/AE/AEC/AEF/1995/mills_echo.html



What's That Sound?: Studying Animals with Some Unusual Noises



Your science teacher has asked me to help you make a short PowerPoint. You are going to research one of the animals below in pairs. (Your teacher and I will tell you which animal is yours.)

You will:

- 1) Find a picture of it and the sound it makes.
- 2) Identify it as a land mammal, marine mammal, or bird.
- 3) Come up with 2-3 sentences about why you think it makes that noise or what that noise might mean. (There are no wrong answers!)
- 4) Tell where you got the picture and sound.

You will put your picture and sound onto a PowerPoint slide. Your second slide will tell what kind of animal it is and why you think it makes the noise it does. You will make one more slide that tells where you got the information. (3 slides total).

Circle your assigned animal.

Pygmy Shrew

Oilbird

Leopard Seal

Bottle Nose Dolphin

Whippoorwill

Swift

Minke Whale

Sperm Whale


Brown Bat


Egyptian Fruit Bat

Orca

Porpoise

Step-by-Step Script for Modeling How to Create the PowerPoint Presentation

1. First, you want to find a picture of your animal. Do this by clicking on [this link to the Altavista image search](#) with family filter on (<http://www.altavista.com/image/default>)
2. Type in the name of your animal, and see what comes up.
3. Click the small images to see the pictures on their original Web sites.
4. Use the back button on the top left to return to your search.
5. You might get pictures that are very, very large or very, very tiny.
6. If you get many results, you might want to use the menu on the right to tell the computer to look for a specific size.
7. Once you find a picture you want, open Microsoft PowerPoint by clicking icon on the desktop. It is a red and white square.
8. Go to the insert menu and select "New Slide." Do this three times.
9. Delete the first slide by clicking on it and pressing delete. (It has a "1" next to it on the right where you can see all slides.)
10. You now have three slides, which is all you'll need. (Why? Because the first slide has a different format that you don't want for this project.)
11. Type the name of your animal in the title box at the top of your first slide and go to file, save, and save your file as your last name and the name of the animal in the Z:/ folder. For example, if John Smith is doing dogs, he will save his file as Smithdog.ppt.
12. Click in the top box of the second slide and type "Explanation."
13. Now click in the top box of the last slide and type "Sources."
14. Go back to the Web page that has the picture you want and use the right mouse button to click on it. You will get a list of things you can do. Click "Copy."
15. Go back to your PowerPoint and use the right mouse button to click in big the box on the first slide, and when the list comes up, click "Paste." (If your picture does not come up the size you thought it would, see your teacher for help.)
16. Go back to your Web page and click once in the space where it says the address of the page (This starts with "http://".) The address should highlight in blue with white letters.
17. Go to the edit menu and select "Copy."
18. Go back to your PowerPoint.
19. Click in the big main box of the last slide and type "Picture" and a space
20. Then, click with the right mouse button and select "Paste" from the list.
The address of the Web page should now be on the slide.
21. Click at the end of the address and press enter.
22. Now you should be on a new line. Type "Sound" and a space.
23. Go to File and select Save.
24. CONGRATULATIONS! YOU ARE ABOUT HALF WAY DONE!
25. Close your Web page.
26. Click on [this link to FindSounds.com](http://www.findsounds.com/) (<http://www.findsounds.com/>).
27. Type the name of your animal.
28. Our computers can't play ".AU" files, so click in the box with the check next to ".AU" click so that the check mark goes away.
29. Click "Search."
30. When the list of sounds comes up, there will be a megaphone next to each that looks like this: 
31. Click them, and when the box comes up asking to "Open" or "Save," click open.
32. Listen to several sounds until you find one that you think is clear and a good length. (You don't want one shorter than 3 seconds or longer than about 15 seconds.)

33. If you don't find enough, think of different ways to search. For example, do you know another name for orca?
34. When you find the one you want, click the  again and this time, click "Save."
35. Save the file in the Z:/ folder as your last name and audio. (For example, John Smith's will be Smithaudio.wav.)
36. The address of the sound is next to it. Highlight it and go to the edit menu at the top.
37. Select "Copy."
38. Go to your PowerPoint.
39. Go to the last slide, and click with the right mouse button next to where you typed "Sound." Select "Paste."
40. Go to the first slide and click on your picture.
41. Go to the insert menu.
42. Go to "movies and sounds."
43. Select "sound from file."
44. Go to the Z:/ folder and find the file you saved with your last name and audio.
45. Select it.
46. When it asks if you want the sound to play automatically, press "no."
47. A blue Megaphone will appear in the middle of your picture.
48. Click and drag it to the bottom left corner of your picture.
49. Now, you're all done with the Internet and can close that.
50. Now, you need to identify your animal as land mammal, marine mammal, or bird and think of your explanation as to why your animal makes that kind of sound or what the sound might mean.
51. Type your identification and explanation in the big main box on the second slide. Be sure to use complete sentences and check your grammar!
52. Go to the file menu and select save.
53. You're DONE!