

# Sounds of the Wild (and not so Wild) – Indoor lesson

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<b>Grade</b>	Third Grade (3 <sup>rd</sup> )
<b>Lesson</b>	Fall Indoor – NOTE: happens AFTER the Outdoor lesson
<b>Time</b>	Min. 30 minutes; max 60 minutes (adjust according to how much time you have)
<b>Materials</b>	From the Portable <ul style="list-style-type: none"><li>• Large Laminated Decibel Chart</li><li>• Small Laminated Decibel Charts</li><li>• Grease pencils – 1 for each group</li><li>• Index cards or pieces of paper for writing on – 2 for each group</li><li>• Markers or pens – 2 for each group</li><li>• Scotch or masking tape for taping the index cards or pieces of paper to the large decibel chart and if necessary for taping the large decibel chart to the wall or whiteboard.</li><li>• Group sound inventory sheets containing the results from outdoor lesson</li></ul>

## **Objective:**

3<sup>rd</sup> grade students will already have been learning about Sound in their science unit. They should be familiar with some basic concepts of sound from their science lessons, and they will have completed the outdoor watershed lesson, the purpose of which was to observe, measure, and document the sounds in the watershed environment and around the school.

The objective of the indoor lesson is to take the data and observations from the outdoor lesson and

- chart the sounds they observed on a decibel chart
- compare the noise levels in the two environments
- identify sources of “noise pollution”
- discuss how noise pollution can impact wild life

Much research has been done on the impact of human encroachment and environmental pollution into wildlife habitats. Less is known about the impact of human-induced noise pollution on wildlife in their natural habitats.

Some limited field research and laboratory studies suggest that that the wildlife population may be affected by noise pollution in several important ways

- 1) Hearing loss
- 2) Masking – the inability to hear important environmental cues and animal signals
- 3) Stress – increased heart rate and respiration and other general stress reactions

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- 4) Behavioral –changes in mating, predation and migration behaviours, abandonment of territory

## At Least 1 day before the lesson:

1. If the lesson is going to be conducted in the teacher’s classroom, you may want to obtain the needed materials from the watershed in advance of the lesson day if possible so that you don’t disturb any classes that have the watershed portable reserved at that time.

## On the day of the lesson, 30 minutes before start:

1. You will group the students together in the same groups they were in for the outdoor lesson. Make sure the indoor space you will be using is set up to allow the children to work in their groups.
2. Place the following at the center of each group work area:
  - a. 1 grease pencil per group
  - b. 1 small laminated decibel chart per group
  - c. 2 index cards or pieces of paper per group
  - d. 2 markers or pens per group
3. Obtain the sound inventory sheets containing the results that were collected from the outdoor lesson and place one at each table.
4. Have the Large Decibel Chart pinned or taped up at the front of the classroom. This will be used for the groups to make comparisons. Have the tape available at the front as well for taping the index cards to the large chart.

## The Lesson:

1. Have the students sit at tables in the groups they were in for the outdoor lesson.
2. Introduce yourself to the class and ask the students some questions to get the lesson started.
  - a. *(If the indoor lesson is on a different day from the outdoor lesson)* Who remembers what we did in our recent watershed outdoor lesson?  
*We observed, measured, and documented sounds in the watershed environment and around the school*
  - b. Who remembers what unit of measurement we used to measure the sounds outside? *Decibel*
  - c. We are now going to chart our results from our outing on decibel charts.
  - d. Each group has a decibel chart at their table. Take a look at the decibel chart in your group. What does it remind you of / look like?  
*Number line*

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- e. What can we use number lines for?  
*Comparing numbers; finding the highest and lowest numbers; rounding numbers*
- f. What do you think we can use this decibel chart for?  
*We can use it to identify which sounds were the loudest, and which were the quietest, and so that we can compare the different sounds we heard.*
3. Point out the group sound inventory sheets from the outdoor lesson.
4. Ask the children to work together as a group to plot their results on the decibel chart at their table. Have them take turns writing each result on the chart using the grease pencil.
5. Once each group has finished plotting their results, Go around to each group and ask them to share and discuss the following:
  - a. What was the loudest sound and the quietest sound your group heard?
  - b. How many decibels was each sound?
  - c. Where did you observe each sound
  - d. Was it a sound from nature or was it a human-made sound?
6. Have each group pick one person to write the loudest sound, and the decibel measurement, on one of the pieces of paper.
7. Have each group pick another person to write the quietest sound, and the decibel measurement, on another of the pieces of paper
8. Once all the groups have identified and written down their loudest and quietest sound,
  - a. Have one person from each group come up and plot their group’s loudest sound on the large class chart
  - b. Have another person from each group come up and plot their group’s quietest sound on the large class chart.
9. Discuss what all the loudest sounds have in common and how they differ. Compare the sounds on the large class chart.
10. Ask the group “What is ‘noise pollution’?”  
***From the EPA:** The traditional definition of noise is “**unwanted or disturbing sound**”. Sound becomes unwanted when it either **interferes with normal activities** such as sleeping, conversation, or **disrupts or diminishes one’s quality of life**.*  
***From Wikipedia:** Noise pollution is the disturbing or excessive noise that may harm the activity or balance of human or animal life.*
11. Are any of these sounds “noise pollution”? If not, can you give some examples of sounds that are “noise pollution”?
12. How might “noise” pollution impact wild life in their natural habitat?
  - a. **Hearing loss & Masking** – animals might not be able to hear important cues and signals that help them survive. Like the sound of a predator, or the sound of prey, or the warning sounds of other animals. **Ask:** How can not being able to hear those sounds affect animals?

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- b. **Stress & Behavioural** - Increased heart rate and respiration and other stress reactions. Changes in predation and migration behaviours, abandonment of territory **Ask:** Who has ever been to a really, really loud sports event or concert? Who has been woken up suddenly by a really loud sound? How did that noise make you feel? Did it make your heart beat harder and faster? Did it hurt your ears? Did it make you feel stressed? Nervous? Frustrated? How do you think loud noises make animals feel? **Ask:** When you are surrounded by really loud noises what does it make you want to do? Do you feel like wanting to go somewhere else? Do you feel like hiding? Does it make you feel angry? How do you think it affects animals?
13. Have another person from each group come up and plot their group's quietest sound on the large class chart
  14. Discuss what all the quietest sounds have in common and how they differ. Compare the sounds.
  15. Discuss any surprising results – sounds that measured louder than expected; sounds from nature that were louder than human-made sounds; etc.

### Finishing Up:

1. Return all materials to the portable or their original location.
2. Wipe the laminated Sound Inventory sheets and the laminated Small Decibel charts clean so that they can be used by the next class.
3. Remember to fill out the Lesson Feedback form on the website.

### Lesson Resources / Information Sources

- U.S. National Park Service Web Site: Effects of Noise  
<http://www.nature.nps.gov/sound/effects.cfm>
- U.S. National Park Service Web Site: Annotated bibliography of Impacts of Noise on Wildlife  
[http://www.nature.nps.gov/sound/assets/docs/Wildlife\\_AnnotatedBiblio\\_Aug2011.pdf](http://www.nature.nps.gov/sound/assets/docs/Wildlife_AnnotatedBiblio_Aug2011.pdf)
- Energy Times: Noise in Nature  
<http://www.energytimes.com/pages/features/0309/noise.html>
- Nature Sounds Society: Effects of Noise on Wildlife  
<http://www.naturesounds.org/conservENW.html>