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Lesson Plan: Comparing Our Results

Center for Urban Resilience

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LESSON 9: COMPARING OUR RESULTS

OVERVIEW:

The purpose of this lesson is for students to compare their findings to that of other similar studies. The goal of the lesson is two-fold. First, students should understand the big idea that organisms living in urban ecosystems have modified their behavior in response to the impacts of the humans that live there. Second, this lesson should reinforce the concept of sample size as well as help students understand that we still have many gaps in our understanding of animals in cities.

Ways of Knowing Urban Ecology:



Students will...

Understand

- Understand that organisms living in urban ecosystems have modified their behavior in response to the impacts of the humans that live there. (*ecosystem change, ecosystem state and structure, human impact*)
- Understand that sample size is important to consider when doing research. (*ecosystem state and structure*)
- Understand that we still have many gaps in our understanding of animals in cities. (*ecosystem state and structure*)

Talk

- *No specific goals connected with acting on urban ecology in this lesson.*

Do

- Identify two examples of birds which have modified their behavior in response to the living in an urban ecosystem.
- interpret graphs to describe how birds have modified their song in response to urban noise.

Act

No specific goals connected with acting on urban ecology in this lesson.

SAFETY GUIDELINES:

There are no specific safety concerns associated with this activity.

Time:

1 class period

Materials:

- Copies of the student sheets
- Copies student's data from Lesson 7

INSTRUCTIONAL SEQUENCE

Introducing the lesson:

1. Introduce the lesson by explaining to students that they are going to compare their results to a similar study of song sparrows in Oregon.

Connect Back.

Remind students that they learned about song sparrows in the opening story for module 6.

2. Ask students: Why would we want to compare our findings to that of other similar studies?

Activity 9.1: A Study of Song Sparrows and Urban Noise

1. As a class read through the student sheet for Activity 9.1

Teaching Strategy

Predictions 1 and 2 are likely similar to what students have done in their own research. Students may need some help understanding the second prediction. In essence, the researchers were interested in whether the birds were putting more energy into singing the higher notes than the lower notes since these higher notes were less likely to be masked by the urban noise.

If students are struggling with this idea, it may be helpful to project a spectrogram of one of the students' recordings and point out how they split the high and low parts of the bird songs.

2. In pairs or individually, have students work through interpreting the graphs
3. Once students have had an opportunity to answer questions 1-4, bring the class back to discuss their responses.

Activity 9.2: Comparing Research

In this activity students compare their findings to that of the study described here.

1. In pairs or individually, have students should respond to questions on the student sheet for Activity 9.2
2. Once students have had an opportunity to respond, bring the class back together to discuss their responses. You may want to flag particularly for students
 - The sample size of this study compared to their own
 - There are still only a handful of studies which examine noise
 - These few studies suggest some birds are *behaviorally modifying* their behavior in response to noise. However we still know very little about how birds deal with urban noise.
3. Next, remind students that one of the most important parts of a scientific study is identifying the new questions and research ideas which emerge. Have students work in pairs or discuss as a class what the next study might be if they were to continue their research.

Concluding the Lesson

1. Conclude the lesson by having students share their ideas for future research.