Community Science

Urban Wildlife

Lesson 7: Observational Mapping

Duration: 40 minutes **Location:** Outdoor & Indoor

Overview

In this lesson students will use their senses to reflect upon the biotic and abiotic components in their school grounds.

Learning Objectives

By the end of the session, participants will be able to:

- Create sound maps of the schoolyard and global ecosystems; and
- Summarize in a group discussion how cities have negatively impacted species around the world through extirpation and extinction of native species.

Curriculum links

Grade: 9

Science, Biological Diversity

- Identify impacts of human action on species survival and variation within species, and analyze related issues for personal and public decision-making.
    - Describe the relative abundance of species on Earth and in different environments.
    - Describe ongoing changes in biological diversity through extinction and extirpation of native species, and investigate the role of environmental factors in causing these changes

Equipment required

- [ ] A journal/notebook and writing utensil for every student
- [ ] Sit upon (optional)
- [ ] Clipboard (optional)
- [ ] Computer (with internet connection)
- [ ] Speakers

Additional information

This activity is ideal to complete before the field study lesson plan because it attunes students how to utilizing all of their senses and adds a deeper sense of place. A sense of place is also described as how someone perceives and experiences a place or environment. Students that are both familiar and unfamiliar with the schoolgrounds will be able to see their surroundings through a different lens with the help of this activity.

This lesson can be an introduction-to or follow-up activity for lessons on human environmental impact.

This activity is facilitated both inside and outdoors. You can switch the order and begin with the indoor mapping or start outside as it states below.

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Lesson plan

Time	Activity	Equipment Needed
15 minutes	Take your group outside, dressed for the weather. Your group will need to find a spot within the designated boundaries that is within sight of the facilitator but away from other students. It is ideal to have the students near trees or forested areas for this exercise. Sense maps are a quiet, individual activity. They need to be as quiet as possible and not interact with other students. Participants can choose to sit however is comfortable for them. They begin by drawing a dot in the center of the paper to represent them. Space at the top of their paper represents space in front of them. Space at the bottom of the paper represents space behind them. The right side of the dot represents space to their right and so on. Before starting to draw, have all participants do a breathing or meditative activity (e.g., 5 finger breathing or 5 senses meditation) to settle their nerves. When the facilitator gives the signal to start, students close their eyes and record everything they hear using a symbol they create. Students can use letters or shapes to represent what they hear. Each time they hear something they record it using the same symbol (if experienced multiple times, they will record it multiple times). For example, if they heard a bird chirp in a tree to their left, they could draw a musical note as close the chirp felt between their "X" and the left edge of their map. Tell them they can choose any symbols they want to represent sounds, e.g., pictures,	• Writing utensils • Journal or notebook • Clipboard (optional) • Sit upon (optional) • Weather appropriate clothing

	shapes, words, squiggly lines, etc. Instruct the students to try and incorporate all elements of the natural area into their sense map including plants, trees, animals, birds, insects, etc. while paying close attention to their unique characteristics. Participants keep listening and recording until the time is up. Participants will finish by creating a legend to accompany their sound map. They do not need to know what the sound they experienced was, students need to use their imagination to create the legend.	
10 minutes	Take students inside and repeat the mapping activity in the classroom playing the following clips from various locations around the globe. Do not tell students where the clips are from and play without showing the videos (only auditory). Play each clip for a few minutes to give students time to complete their map. After each clip is finished, have students label their map with where they guess the landscape is. Play all, or some, of these locations and during the debrief reveal the locations to the students. • Rainforest • Grasslands • Wetland • New York City Each of these locations can be found by YouTube or Google searching "__location__ audio". At the end, have students share their location guesses and reveal the answers.	• Pencil • Journal / notebook • Computer (with internet connection) • Speaker
15 minutes	As a class, debrief the mapping. You can utilize the following suggested questions.	• Pencils • Journal / notebook

	• Out of all of the maps, which one did you record as having the highest species diversity, or number of different species? *Several of the sound clips are examples of intact, wild ecosystems. Compared to the city and our schoolyard, we could infer that their biodiversity was significantly higher just by listening. Now, that doesn't mean that quiet ecosystems are without diversity, but it is a good indicator. For example, clip number 1 was of a rainforest. Rainforests are champions of biodiversity, with approximately 480 tree species in 2.5 acres or 2.5 football fields. In comparison, the province of Alberta has approximately 28 tree species.* • Out of all of the maps, which one did you record as having the lowest species diversity, or number of different species? *City landscape, New York City.* • What caused the disparity (difference) between these two ecosystems? *City ecosystems, built by humans, traditionally were not built to accommodate a diversity of species. Rather to house a high density of people.* • Is there an issue with this disparity? Why or why not? *As human impacts on Earth increase and cities continue to grow in size, global diversity is decreasing at a frightening rate. It is estimated that by 2050 66% of Earth population will live in cities. Human activities in urban, rural and industrial areas have caused extirpation and even extinction of species. For instance, Erica Capensis, a flowering plant only found in the city of Cape Town South Africa has been driven to near extinction due to urban expansion.* • If there is an issue, how could urban landscapes change to increase their diversity?	

	Today, citizens, scientists and city planners know the importance of having a healthy biodiversity (clean air, water, soil, etc.) As such, cities are now changing how they build to encourage more nature into our neighbourhoods with more parks, green roofs, urban gardens, living walls, storm ponds, etc.	

Extension

1. Have students create a new map using their imagination. This map will be a re-imagining of their schoolyard/community. Their goal is to incorporate the 'eco' additions or 'green buildings' which city planners and scientists are incorporating into cities to help bolster urban biodiversity. Students can use their imagination or do a little research first to come up with ideas or examples of 'eco' additions and 'green buildings'. Ensure students label their maps and write to clearly communicate their adaptations and how these adaptations positively impact urban biodiversity.

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Columbia Basin Estuary Partnership (n.d.)