

*Exploring the Outdoor Environment: A Field Study Around Your School***Table of Contents**

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Activity B

Exploring the Outdoor Environment: A Field Study Around Your School

Overview

Environments are complex systems. At first glance they seem simple to describe or even comprehend. Yet, the more we study them, the more we appreciate what we need to learn to really understand them. Small biotic factors in the environment such as the mushrooms that live on the forest floor may appear to be of little consequence. Yet without their ability to break down and recycle dead organic matter and perhaps assist trees in obtaining nutrients, a forest environment would become unstable. The entire environment might change if no other organism could take over the mushrooms' **niche**.

You are beginning to learn about the interrelationships that exist between the biotic and abiotic factors within an environment and to identify characteristics that help you to describe it. In this activity, you will step into the roles of field biologists to perform an assessment of actual field sites around your school. Practice collecting data in the field and organizing it into a mind map to start uncovering the inner-workings of your local environment. Good luck and enjoy!

Learning Objectives

- ✓ Identify at least FIVE different characteristics representative of various environments
- ✓ Collect initial data characterizing TWO specific environments
- ✓ Compare factors characterizing TWO specific environments
- ✓ Identify abiotic and biotic factors in an environment
- ✓ Classify a variety of factors as abiotic or biotic

Relevance

We live in a world that is made up of many different objects, factors and conditions. Many, we depend on and interact with to live our daily lives. So it is not unusual that several present-day problems and their solutions in some way concern our local surroundings. Just consider a few decisions that you or elected officials may make in the future. What kind of car to drive? What refrigerator to buy? Do we need to build power plants? How good is our sanitation and waste management? Before we can make informed decisions, it is necessary to begin to understand the complex conditions and interactions that exist in our local environment. With this greater understanding, we can begin to understand the characteristics of a stable ecosystem. This kind of perspective can also help us make assessments about the costs and benefits of different alternatives that can impact the quality of our air and water and the general health of our population.

*Seek and You Shall Find***Materials**

Zip-lock bag of measuring ‘tools’ (including a straw, protractor, string, water, matches, marking tape, candle, marble, graph paper and ruler), post-it notes, strips of paper

Methods

Period 1 – In this period the class begins collecting field data to describe an environment.

Preliminary Activity

Brainstorm the variety of environments there are directly outside the school building. Write a list of the different areas on a piece of paper. Compare your list with the person next to you highlighting similarities and differences between your lists. Make one master list that you both agree upon as having all of the different types of areas listed. Be prepared to share your list with the class.

Conducting the School Field Study

1. Each group will share their list of areas outside the school. From the presentations create a list of all of the different areas on the board.
2. Identify pairs of two very different sites. Prepare a new list organized by the pairs identified.
3. Form small groups. Each group is assigned one pair of sites from the list so they can report back on TWO very different environments.
4. Go to your TWO sites and compare the TWO environments by using the list of conditions you compiled on your Data Sheet 1: Observing & Describing Central Park’s Environment (Activity A). Be sure to answer the Investigation Questions as you conduct the study.
 - ✓ Describe the characteristics of Site ONE.
 - ✓ Describe the characteristics of Site TWO.
 - ✓ How are these areas similar?
 - ✓ How are these areas different?
 - ✓ What types of measurements can you take using the items from your Zip-lock bag collect evidence of these differences and similarities?
 - ✓ How can you use the items to collect environmental data?
 - ✓ Compile a list of at least FIVE factors that are similar and a list of FIVE factors that are different.
 - ✓ Classify each factor as biotic or abiotic. Your list should include at least TEN different factors.

Seek and You Shall Find

1. Describe the characteristics of Site ONE.
2. Describe the characteristics of Site TWO.
3. How are these areas similar?
4. How are these areas different?
5. What types of measurements can you take using the items from your Zip-lock bag collect evidence of these differences and similarities?
6. How can you use the items to collect environmental data?
7. Compile a list of at least FIVE factors that are similar and a list of FIVE factors that are different.
8. Classify each factor as biotic or abiotic. Your list should include at least TEN different factors.

Seek and You Shall Find

1. List the data that is important for each group to collect when identifying the different environments.
2. What data do you think would be most useful in describing your two sites to other groups?
3. What data do you think would be least important in describing your sites to the other groups?
4. What information helps you to better understand another group's site during the Central Park environment presentations?
5. List ways that you can be sure that your data is easily compared to the other group's data.

Mind Mapping

Materials

Post-its or note cards, linking strips made by cutting paper or note cards length-wise, large sheets of poster paper and markers

Period 2 – The class organizes the factors identified in The School Field Study into a mind map.

Methods

Preliminary Activity

First discuss the question - What's a mind map? Next, choose TWO words from the list that follows that are related to each other.

Cat	Water	Scales	Fish
Dog	Land	Fur	

Write the two words on a piece of paper with a line connecting them. Write a phrase that describes the relationship on the line. Choose another word that you think is related to one of the first two words. Write this word next to the word all ready on the page and a line to represent the relationship between them. Write the relationship on the line. Continue until all of the possible relationships are identified.

Preparing an Environmental Area Mind Map

1. Obtain a stack of post-its or index cards and strips of paper.
2. Write out all of the factors that you have identified in the different areas around the school onto individual post-its or use index cards, adding any additional factors.
3. Use the paper strips to connect the factors that you think have some kind of relationship.
4. If possible, write what the relationship is on the paper strips connecting the two terms.
5. Once you are comfortable with your mind map and believe it is complete, reconstruct the mind map using the poster board and other materials provided.

