TEACHING KATE
TEACHING KIDS ABOUT THE ENVIRONMENT

THE IMPACT OF A BIRD FEEDER ON THE ENVIRONMENT

Grade Level: 6+ **Time Required:** One school year

SC Science Standards

This lesson plan was correlated with only the grade level specified unless otherwise noted.

Grade 6:
- I. A. 1. a. 1
- I. A. 1. c. 1, 2
- I. A. 2. f
- I. A. 8. a

Grade 7:
- I. A. 1. a. 1
- I. A. 1. c. 1, 2
- I. A. 2. f
- I. A. 8. a

Grade 8:
- I. A. 1. a. 1
- I. A. 1. c. 1, 2
- I. A. 2. f
- I. A. 8. a

Purpose

Determine the changes in the surface area of one square meter of soil, the animal population and plant population of this area, if any, caused by the installation of a bird feeder filled with thistle seeds and suspended ± 1.5 meters above tile ground.

Skills

Graphing, interpretation of data, mathematics, measurement, observation, prediction, recording of data, understanding cause and effect relationship.

Materials Needed

Bird Feeder
20 lbs. Thistle Seeds
Meter Stick
Scissors
Pencils
Graph Paper
Small Pieces of Wood to Use as Stakes (can be pencils)
Pole and Nails, or Two Poles and Wire
String
Sheet of Heavy Paper Such as a Folder
Calendar
Paper
Individual Rulers

Terms

No new vocabulary.

Before the Meeting

Assemble the materials. Select the general area of the site; a uniform grassy area away from trees and without squirrels and cats would be ideal. Use an enclosed courtyard if possible. It should be an area where the grass is mowed fairly regularly and kept at a more or less uniform height.

Background Information

Anything that a person does, large or small, has an effect on the environment. Walking across a field, breathing air, consuming food and water, dying and decomposing, all these things effect the environment of the organism/person living it.

While erecting a bird feeder may seem like a simple and innocuous act, one designed to attract, feed and aid the birds, it can have a profound impact on the immediate environment. It will introduce seeds to the soil, add natural fertilizers to the soil, bird droppings will attract insects to the area, and insects can attract animals such as moles into the area. It is possible that larger birds will be attracted by the concentration of small birds, and that they'll eat the small birds. It may be possible to find small bird feet in the grass, which would definitely indicate that the small birds had been eaten.

Suggested Lesson Plan

1. Class will participate in a discussion. Ask for the following information:
    a. Types of birds common to area.
    b. Which of these birds would eat thistle seeds (pass around seeds).
    c. Which students have had a bird feeder?
    d. What type of changes would occur if a bird feeder were introduced to an environment?
2. Teacher will explain the activity by informing class they are going to:
    a. Hang a bird feeder.

b. Mark off an area of exactly one square meter directly below the bird feeder.

c. Describe the plant and animal life in this square meter.

d. Select an area of 10 square cm at random and place a template on the area.

e. Count all the plants and animals within this area.

f. Record this data on the data sheet.

g. Multiply the number of plants and animals found times 100 to find the total number in the square meter.

h. Repeat steps 5 through 8 every month (or once every 2 weeks).

i. Do exactly the same process in a control area without a bird feeder to determine whether the changes, if any, are seasonal or are caused by the installation of the bird feeder.

3. Within classroom the teacher will:

a. Pass out individual rulers.

b. Have students place a dot approximately in the center of the paper.

c. Demonstrate how to construct perpendicular lines with the dot at the center - use compass, protractor, or side of text book.

d. Demonstrate how to construct area 10 cm on a side from these lines.

e. Have students practice several times.

f. Have students construct this on a folder and cut out the center area leaving a template.

g. Demonstrate how this will be done outside with a square of one inch for each side.

h. Demonstrate/explain how to pound in/insert stakes and tie strings to create the boundaries of an area.

i. Give students 1 cm graph paper.

j. Explain a scale of 1 cm = 10 cm.

k. Have students create and outline a grid of 10 cm on a side.

l. Repeat on another paper; label one control and one experimental.

m. Number each square from 1 to 100 or do coordinates using alphanumerics.

4. Teacher will lead students outside where they will:

a. Select site for the feeder.

b. Hang bird feeder.

c. Drop weighted line from bird feeder.

d. Construct and mark off area of one square meter directly below bird feeder.

e. List in detail any plant and animal life in area.

f. Have two/three students place template at random on area and count every plant and animal inside the template.

g. Record data.

h. Have two other groups repeat steps 6 and 7.

i. Repeat the preceding steps in the control area.

j. Fill bird feeder with thistle seeds.

5. In classroom, teacher will instruct the students to:

a. Average the data for plants found inside template.

b. Average the data for animals found inside template.

c. Alow the students to explain why they are calculating an average for plants and animals.

d. Date data sheets and save.

e. Write paragraph describing/summarizing plant and animal life in area.

f. Repeat steps 5 through 8 (outside activity) at periodic intervals.

g. Repeat inside data recording and paragraph writing after each.

6. Bird feeder will be filled as needed.

Extension

Additional bird feeders using other seeds such as sunflower seeds can be used. Then a comparison can be made of the effects on the plant and animal activity below each bird feeder. List the types of birds which frequent each type of feeder.

Various soil tests could be performed, as equipment permits.

Play recordings of various song birds. Note if any of these have been heard.

Worksheets

There are no worksheets as such. Each student must maintain a periodic file of the changes in plant and animal life in the control and experimental areas. After the experiment is completed, the students will construct graphs depicting the changes in plant and animal life in each area. The students will also write a paper (one page) explaining each graph and any other observations. A summary paragraph will tie all the data together.

References

Plant/agricultural guides — to identify types of the plants in the area.

Insect guides — to identify types of insects in the area.

Soil survey for area.

Bird identification guides.

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DATA SHEET

Name: Date: Group:

I. At bird feeder.

A. List in detail any plant and animal life in area.

B. Number of plants within template area.

C. Number of animals within template area.

II. At control area.

A. List in detail any plant and animal life in area.

B. Number of plants within template area.

C. Number of animals within template area.

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DATA SHEET — CONTINUED

Name: Date: Group:

III. Average data on plants acquired by the different groups.

A. Bird feeder area.

B. Control area.

IV. Average data on animals acquired by the different groups.

A. Bird feeder area.

B. Control area.

V. Write a paragraph describing/summarizing plant and animal life found in the area.