

A Line Transect

Surveying Biodiversity on your Club Site

A GEN Eco- Standards Check Activity

Essential Question(s):

What is a line transect?

How is it useful in understanding the Biodiversity

Department at my school site?

At A Glance: In this activity learners participate in counting species along an line transect.

Background Information

A community is a group of interdependent organisms inhabiting the same region and interacting with each other. One way in which scientists record data regarding communities in an ecosystem is to sample an area using a technique called a line transect. This method of sampling involves only a small section of large natural area, yet produces an accurate representative sampling of the biotic and abiotic parts of that community. In this activity, learners will use the line transect sampling method to examine the ecological communities of your GEN club site. An inside demonstration prior to establishing a line transect outside will help clarify many questions and has been included here.

Getting Ready: Constructing the line transect

A handle for the line transect can be made from scrap wood or cardboard. Use heavy string for the line and a large nail for the anchor. Measure 5 meters of heavy string, tie it to the handle and wind up. Tie the nail to the other end of the string. Marking the string at every meter with colored yarn or a magic marker is helpful for quick measuring outside.

Location: school site

Objective: Learners will

- 1) use a line transect as a method for obtaining a representational survey of a community.

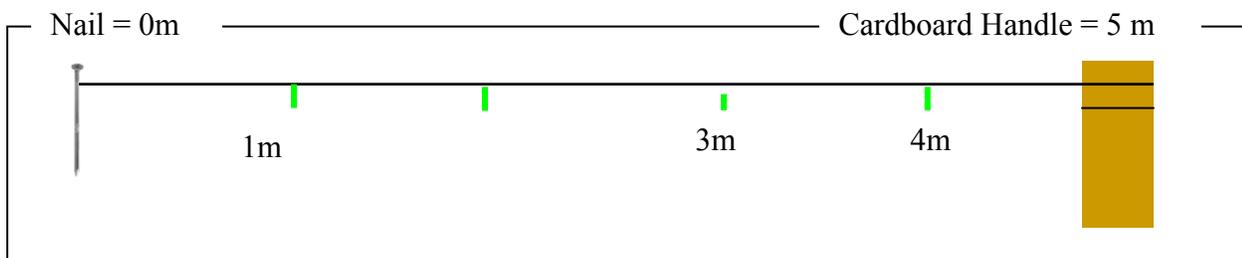
Skills: measuring, data collection, listening

Supplies:

- line transect -5 meters of heavy string, large nail, thick cardboard
- Worksheet - Line Transect: A Method for Surveying a Small Community
- pen/pencil
- plain paper
- Standards Checks data sheet

Subjects: science, math

Time: 30 minutes



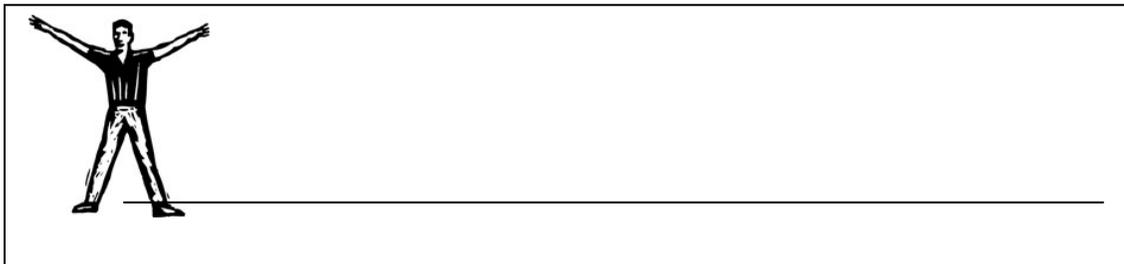
Procedure:

1. Explain to students that there are two common methods that scientists use to complete a biodiversity study of organisms in one local habitat: plot studies and line transects. A transect is a long, narrow sampling area, while a plot study is a square area that can be divided into subplots. Transects extend over a longer portion of a study area than a plot does, resulting in a larger sample of different plant species. However, plot studies are useful for small areas that have a great variety of plant life.
2. Tell students that in this activity they are going to conduct a line transect.
3. Hand out *Line Transect Data Sheet*.
4. Describe how to set up the line transect. This may be demonstrated inside prior to going outside.
 - a. The nail is the zero meter mark of the line transect. Outside, the nail is pushed into the ground.
 - b. Unroll the string and place on the ground. The handle end is the 5-meter mark.
5. Making a map of a community
 - a. Use the *Line Transect Standards Check data sheet*.
 - b. All items along the line transect should be identified, counted and then mapped. If the species' name is not known for a plant or animal, learners may use more generalized descriptions (i.e. shrub, yellow flower, black beetle, etc.).
 - c. Discuss various methods for identifying items with a symbol. Pictures, letters, shortened words may be used. 10m

6.

Before separating into learner teams, demonstrate the technique. Give a brief introduction on the line transect sampling technique.

- a. Go to the zero meter mark on the line. Standing on the line, stretch your arms out to both sides. All organisms found within arm's length on either side of the line are included in the survey population from the zero meter mark to the 1 meter mark (then 1-2m, 2-3m, etc).



- b. Identify the first group of organism at 0 meters with the learners. It may be helpful to survey the entire line transect, first recording plant information, and then returning to look for animal information.
- c. Divide learners into four groups. Give each group a direction to go from the checkpoint (N, S, E, W). They will set out their line transect from this point.
- d. Familiarize learners with the *Standards Checks Data Sheet* and allow time to perform their line transect survey.
- e. Check to make sure learners have recorded all information on their *Standards Checks data sheet*. Review using the discussion questions below.

Discussion/Assessment:

What organisms did you find?

Do your findings truly represent the local organisms?

What does this tell you about the biodiversity on our club site?

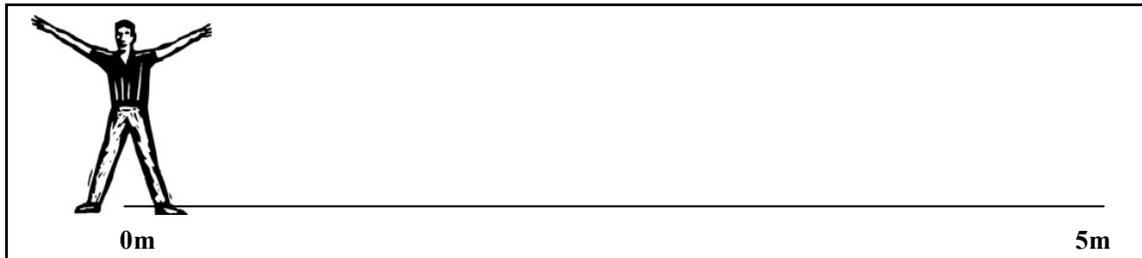
What problems did you encounter using this method?

How could you improve the biodiversity on your club site?

SAMPLE

Line Transect Datasheet

Below is sample completed worksheet. Complete the other side of this datasheet with data from your site..



| Names or symbols of plants & animals to the left of the string | M | Names or symbols of plants & animals to the right of the string |
|--|----------|---|
| Mosquito, green bug, deer scat | 0 | 2 kinds of grasses, 3 weeds |
| Grass, brown spider | 1 | Grass, a weed, 2 yellow flowers |
| spider, frog, thistle | 3 | worm, 2 weeds, 1 goldenrod, |
| | 4 | 4 grasses, mosquito, dock |
| Little green bug, moss | 5 | Moss, mushroom, 5 ants |

If available, use a digital camera to photograph all organisms, ID them and archive them in your Club Log.

Biodiversity Department
ECO-STANDARDS CHECK

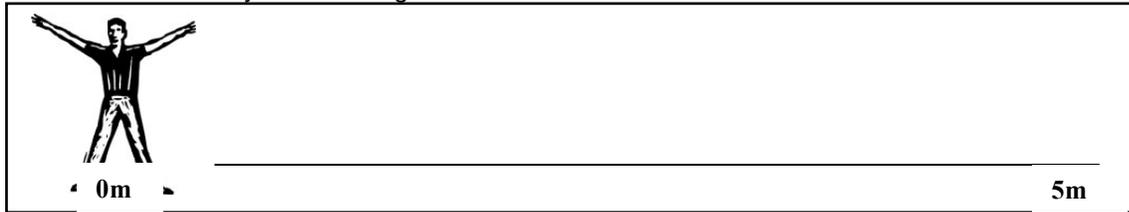
LINE TRANSECT: SAMPLING BIODIVERSITY IN A CLUB SITE COMMUNITY

Team Members _____ Date _____ Time _____

Checkpoint # or Name _____ Direction (circle): N NE NW S SE SW E W

Weather Conditions: Temperature _____ Cloud Cover/Sun _____ Wind _____

INSTRUCTIONS: Survey organisms within an arm's length on either side of your 5 meter sampler. Write a description (such as -small shrub) or name (such as - blueberry) of each organism in appropriate blocks. See sample data sheet. If available, use a digital camera to photograph all organisms, ID them and archive them in your Club Log.



| Names or symbols of plants & animals to the left of the string | M | Names or symbols of plants & animals to the right of the string |
|--|----------|---|
| | 0 | |
| | 1 | |
| | 2 | |
| | 3 | |
| | 4 | |
| | 5 | |

