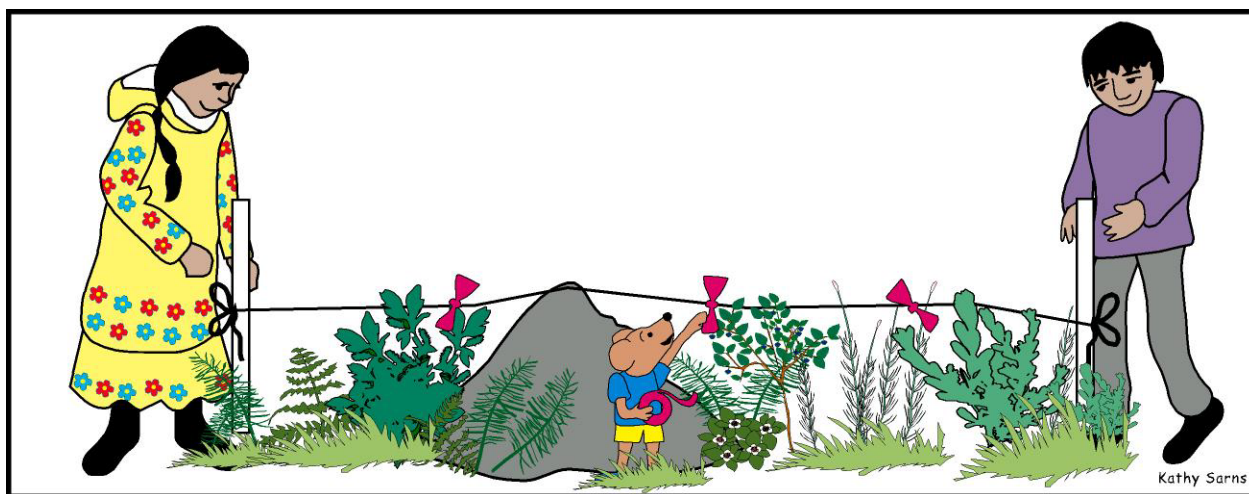


TRANSECT STUDY



Grade Level: 6-12

Alaska State Content Standards: MA2, MA3, MA6, ME2, ME3, SA15, GeoC3, IV4

Subject: Science, Math

Skills: Classification, Generalization, Observation, Research

Duration: 2 class periods

Group Size: 4

Setting: outdoors

Vocabulary: transect

OBJECTIVE

Students set up a transect and observe/classify plants found on it.

TEACHING STRATEGY

In this outdoor activity, students prepare transects following their field notebook guidelines. Students then identify those living and non-living items on their transect.

MATERIALS

- 24' length of string for every four students (marked into four equal sections)
- 2 stakes for every 4 students (sticks, rulers, or pencils can also be used)
- 12" ruler for each student orange, green, red, or yellow flagging tape
- Transect Study Field Worksheet

- "Don't Tear Me Apart or Crush My Home"
- 1 field guide to the plants in your area for every 2-4 students (see references)

TEACHER BACKGROUND

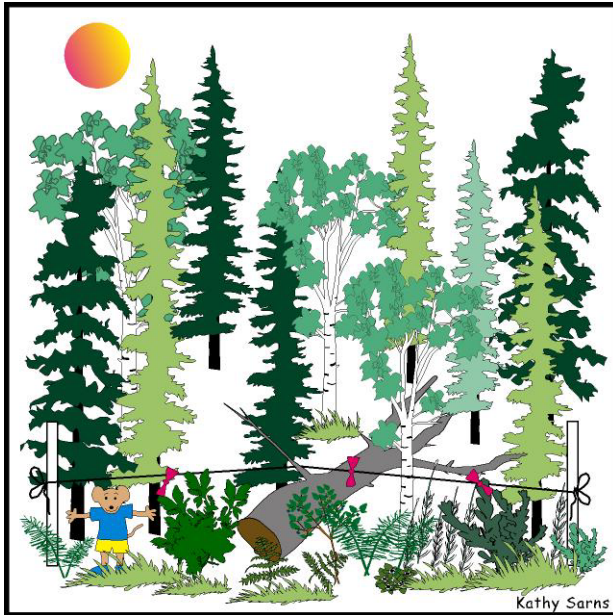
A **transect** is a straight line profile that creates a cross-section of an area to study plants. Transects are used by botanists and biologists to get representative samples of an area's vegetative cover. The following transect protocol is an accurate, easy tool for students to use.

ADVANCED PREPARATION

Choose a site to visit which has a large enough area for 8-10 25 foot transects.

PROCEDURE

1. Review "Don't Tear Me Apart or Crush My Home".
2. Show students how to set up a transect by stretching their string into a long line along the ground and staking it at either end. The string is then divided into 4 equal sections, marking the string with flagging tape. Those plants touching the string are identified and recorded. The non-living components that fall directly under the string are also identified.



3. Divide the class into teams of 2. Explain that the students will be following the directions on the Transect Study Field worksheet , looking at both the living and the non-living components. Encourage them to take accurate notes for the evaluation portion of the lesson.
4. Take students outdoors and have them follow the directions on the worksheet pages.

5. Back in the classroom, have each team make a bar graph to represent the number of herbs, shrubs, mosses, lichens and trees along the transect.
6. Have each group present their data to the class and add it to a large whole class graph on the board.
7. Following the graphs, ask the students the following:
 - a) What is the average number of plants everyone found?
 - b) How many different species did the class find?
 - c) Did everyone find the same things or were transects different? Why?
 - d) (If appropriate) Why do you think different plants were found in different areas? Why aren't (or are) they the same?
 - e) Did any of the results surprise you?
 - f) What was the most interesting thing you observed?
 - g) Do you think if you made a longer transect, maybe 96 feet long (4 times what you did) would you find different things? Why or why not?
 - h) Why do you think transects may be important tools scientists use when studying tundra or boreal forests?

EVALUATION

Leave transects in place on the study site. After you have completed your follow-up discussions, have each team trade their notebooks and graphs with another group. Revisit the area and have each group identify another group's transect based on what they

reported. Ask the following questions again:

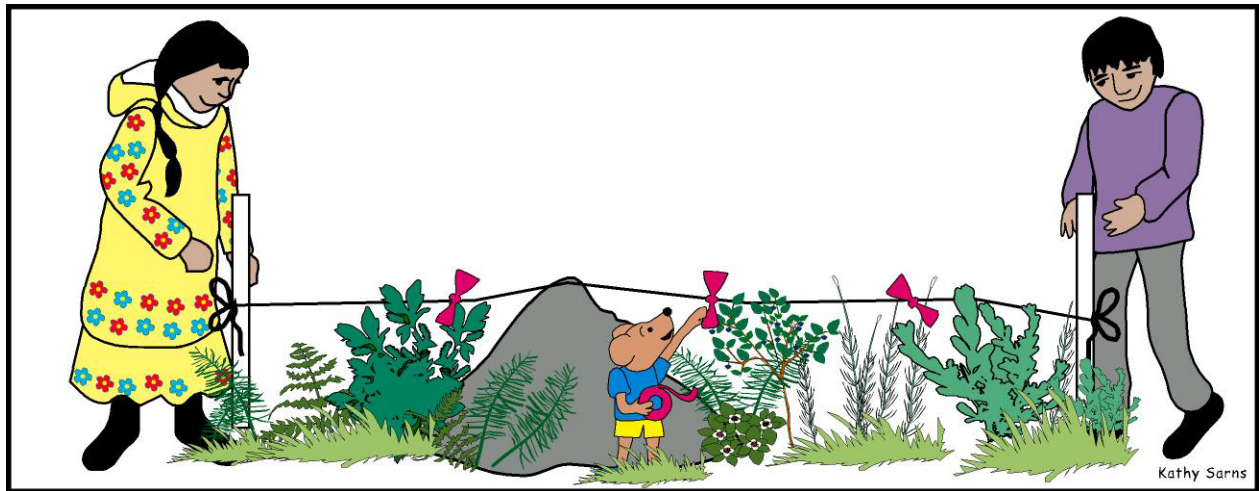
- a) Did anything surprise you?
- b) What was the most interesting thing you observed?
- c) Do you think if you made a longer transect, maybe 96 feet long (4 times what you did) would you find different things? Why or why not?
- d) Why do you think transects may be important tools scientists use when studying tundra or boreal forests?

REFERENCES

Adapted with permission from Alaska Wildlife Week Unit 5 Alaska's Forests... More Than Just Trees, by Susan Quinlan, Alaska Department of Fish and Game, 1987 and Alaska Wildlife Week Unit 6: Alaska's Living Tundra, by Susan Quinlan, Alaska Department of Fish and Game, 1988.

TRANSECT STUDY FIELD WORKSHEET

1. Choose an area that has a wide variety of plant types. Set your transect. You need to place your string on or close to the ground in a straight line. Stake both ends making the string as tight as you can. Mark your string into four equal parts by tying a piece of flagging tape onto the string.



Sketch your transect here

2. Observe the plants touching your string. Using your field guide, try to identify the different species. In the boxes below, draw the plant (include only the feature used to identify it such as the leaves or bark). Count the number of identical plants along the transect.

Plant name: _____
Draw it here
quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____
Draw it here
quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____
Draw it here
quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____
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Plant name: _____

Draw it here

quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____

Draw it here

quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____

Draw it here

quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

Plant name: _____

Draw it here

quantity in section 1: _____
quantity in section 2: _____
quantity in section 3: _____
quantity in section 4: _____

3. Observe the soil carefully. Using at least four (4) descriptive words, thoroughly describe the soil in each of your transect sections.

a) _____

b) _____

c) _____

d) _____

"DON'T TEAR ME APART OR CRUSH MY HOME"

GUIDELINES FOR INVESTIGATING AN ENVIRONMENT



"Yikes! Watch Out! You almost stepped on my home! **Ouch!** You just crunched me with your big foot!"

If plants and animals could talk, this is what they might say to someone who is carelessly tromping through their home. It is important to be aware of your actions when going out to explore wildlife habitat. Here are several guidelines to follow so that minimal damage will be done to the environment as a result of your visit.

1. When visiting private property or public lands, it is your responsibility to know the rules and to follow them. Be sure to get permission from the owner before you visit private land.
2. Stay on the trail whenever possible. If it is necessary to go off the trail, try to avoid stepping on plants and well-camouflaged ground nests.
3. Do not eat any plants or fruits (berries) before asking your teacher or an adult who can positively identify that it is edible.
4. When collecting samples for the classroom, take as few samples as possible and share them.
5. When taking a sample, take from the ground before taking from the plant. If you do take from the plant, take only a leaf or a small branch from the side of the plant, not from the top. Some plants have compound leaves, so get a whole leaf and not just a leaflet for identification.
6. Carefully remove the branch or leaf to avoid tearing the bark or damaging the remaining plant.
7. Take bark from dead trees only.
8. Do not take any live eggs for classroom samples; however, broken eggshells are OK.

9. When collecting samples, carry the samples carefully so they will be good specimens when you return to the classroom.
10. If collecting a whole plant, loosen the soil around the plant and roots with a digging tool, so roots can be easily removed. Try to collect the entire root or at least a representative portion. Fill in the hole with loose soil to protect plants nearby.
11. If you are interested in viewing wildlife, you must be very quiet and move slowly so you won't frighten the wildlife away before you get a chance to see it!
12. A safe distance should always be kept from any animal for your protection and theirs.