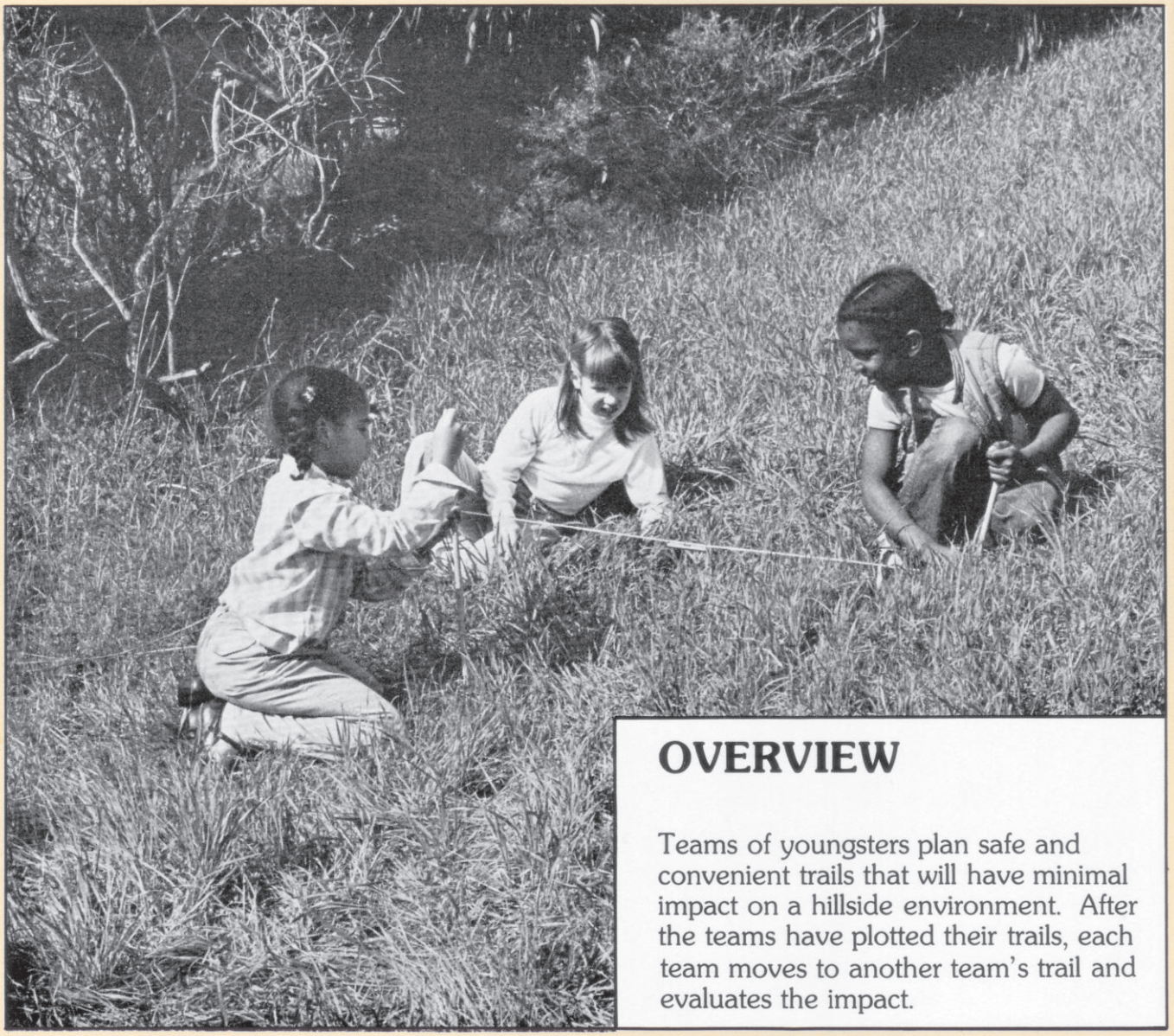
TRAIL IMPACT STUDY

BIO
KEY

Environmental Impact Study
Trail Planning
Role Playing



OVERVIEW

Teams of youngsters plan safe and convenient trails that will have minimal impact on a hillside environment. After the teams have plotted their trails, each team moves to another team's trail and evaluates the impact.

BACKGROUND

We live in a time of ever-increasing demands for land development. Our needs for housing, transportation, energy, and recreation have led us to rush into new projects with little regard for the consequences. In the past, the land, air, and water have suffered. But now major development projects must include comprehensive planning on all levels. One part of such a plan is an ***environmental impact study***.

Environmental impact studies are required in most cases before the natural environment can be altered. Trained environmental impact experts anticipate the effect that a proposed project will have on the resident flora and fauna, the terrain, and any cultural or aesthetic features of the site. In cases where an endangered species is found in an area, development plans may be discontinued. In other cases, plans might be revised in response to impact study findings.

Youngsters don't have the power or experience to influence decisions

Published by
Delta Education
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concerning the construction of hydroelectric plants, highways, and condominiums. They can, however, be influential at their schools, in their neighborhoods, and at camps. This activity introduces the youngsters to the methods and tools used to assess the impact a proposed trail-building project would have on the environment.

CHALLENGE: PLAN A SAFE, CONVENIENT FOOT PATH THAT WILL HAVE MINIMAL IMPACT ON YOUR ACTIVITY SITE.

MATERIALS

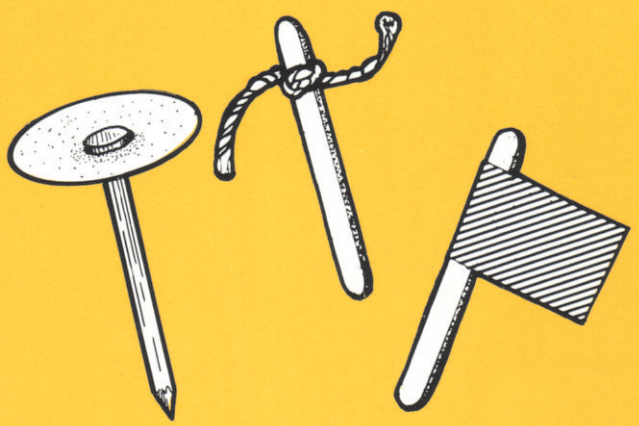
For each team of 3 or 4:

1 set of 25 small flags* (a different color for each team)
1 slope-measuring device consisting of:
- 1 meter stick* or other stick marked off in centimeters
- 1 piece of string*, 150 cm long
- 1 pencil or short stick
- 1 line level*

For the group:

1 data board* and marking pen*

* Available from Delta Education.



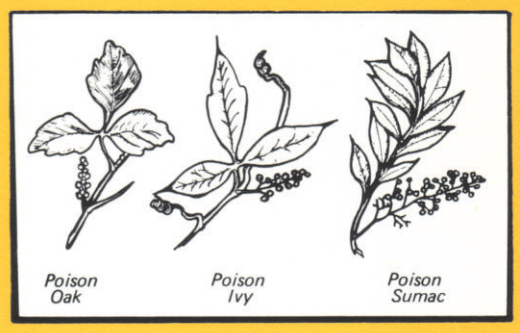
PREPARATION

Group Size. This activity works best with groups of twelve to sixteen youngsters.

Time. Plan on one hour for this activity.

Site. This activity must be conducted on a hillside or wooded slope. An area fifty to one hundred meters long, either up or downhill from your starting position, should be sufficient for the activity.

Safety. Check the site for hazards such as cliffs, streams with slippery banks, and poison oak or ivy. Caution the kids to avoid trouble spots, and help them identify poisonous plants.



Materials

1. Flags. Each team will need 25 flags with which to mark their trail. Use colored cloth, yarn, paper, or plastic tied or attached to popsicle sticks, soda straws, or large nails. The flags should be large enough to be easily seen from 10 meters away.

2. Slope-Measuring Device. To assemble the slope-measuring device, tie one end of the string around the meter stick so that the loop is free to slide up and down the stick. Tie the other end of the string to a pencil so that the distance between the meter stick and the pencil is exactly one meter. Then, fasten the line level to the middle of the string.

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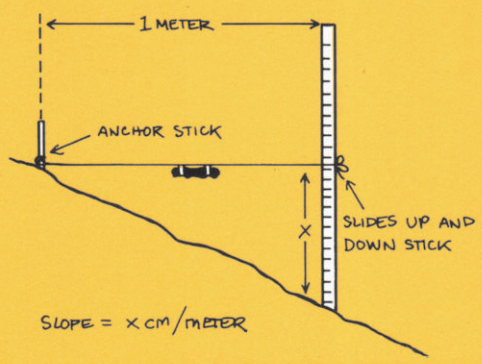


To use the slope-measuring device, stick the pencil into the ground at the upper part of the slope (anchor point) and push the string on the pencil to the ground. Pull the string taut and stand the meter stick straight up. Slide the string up or down the meter stick until the string is level as indicated by the bubble in the line level. The number under the loop indicates the number of centimeters per meter in the slope you are measuring.

Slope Slope is the amount of rise, or gain in altitude, per unit of travel. A rise (or fall) of 1 to 15 cm for one meter of travel is a *gradual slope*; 16 to 40 cm per meter is a *medium slope*; and 41 cm or more per meter is a *steep slope*.

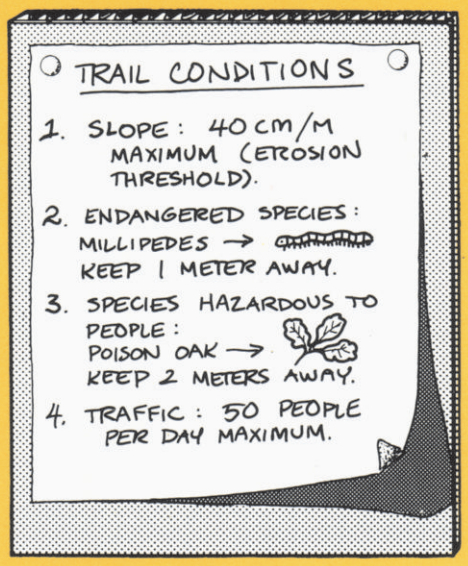
Erosion Threshold. You will need to determine an "erosion threshold" before conducting the activity. The erosion threshold is the slope of the ground at which the soil is seriously washed away by rain. Go to the site and determine the steepest portions of ground with a slope-measuring device. Then arbitrarily set an erosion threshold that is somewhat less than the greatest slope.

Impact Points. Make up a list of four Impact Points and write them on the data board before meeting with the kids. Here is a model to follow:

1. Erosion Threshold: 40 cm per meter.
2. Endangered Species: Millipedes. Arbitrarily select an organism—plant or animal—to be "endangered." (Don't select the most common organism.) Neither it nor its habitat may be disturbed by the trail. The trail must stay at least one meter away.
3. Hazardous Organism: Poison Ivy. If there is a hazardous organism in your site, use it in this role. If not, arbitrarily pick an organism and say that the trail must stay two meters away from it at all times.
4. Traffic: 50 people per day.

ACTION

1. At the activity site, set the stage for action with a story: "This area is being considered for a new nature/recreation area. A trail is needed between this area and that area up (or down) there. We are going to decide where the trail should be built."



2. Tell the group that there are four Impact Points that they must consider when they plan their trails. Hold up the data board. Show the youngsters examples of the "endangered" and "hazardous" species. Explain that the "erosion threshold" is the slope of the ground at which the soil is seriously washed away by rain. Demonstrate the

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use of the slope-measuring device, and explain that no portion of the trail may exceed the erosion threshold. Explain that a proposed trail must satisfy all four Impact Points if it is to have minimal impact on the environment.

3. Divide the group into teams of three or four members. Give each team a bundle of flags (all one color) to mark their trail every 3 to 5 meters. You can now refer to the teams by color. Give each team a slope-measuring device and challenge the teams to plot a trail that is both safe and acceptable. The teams can use the slope-measuring device to measure the critical distances (one meter or two meters) from hazardous and endangered species. Allow one-half hour for this part of the activity.

4. After the teams have plotted their trails, ask each team to play the role of an Environmental Impact Agency evaluation team by inspecting the proposed trail laid out by another team. It may be useful for one member of the plotting team to guide the evaluators along the trail. Evaluators should check to see that erosion thresholds are not exceeded, endangered species not disturbed, and so forth.

ON THE RIGHT TRAIL

1. Tell the youngsters that an Environmental Impact Report (E.I.R.) is a document prepared by knowledgeable investigators that tells how a proposed project (such as a trail) will affect the environment. Have each team give a short verbal E.I.R. that summarizes the impact of the trail they evaluated, and why they think the proposed trail would be a good or bad choice. Let the plotting team respond to points in the report.

2. Ask some of the following questions to stimulate thinking about other problems associated with environmental impact:

- Can a safe trail with little or no impact on the environment be built between the two points?
- What would happen if a trail were not built? Would there be more or less impact on the area?
- In addition to the four stated conditions, are there other factors (for example, water to cross, trees to remove) that you should study when plotting the trail? Would the construction expense then be too high? The job too difficult?
- If human foot traffic were four times as heavy, would the trail have to be changed in order to support the traffic? Would you need a larger trail? More trails? A special surface?

BRANCHING OUT

1. There may be a nearby camp or recreation center that could use assistance with trails. Perhaps your group could help them perform an impact study, or help with trail planning or construction.

2. If there are animal trails in or near your activity site, evaluate the impact of a trail made by rabbits, deer, or cattle.

3. Roads are basically large trails. Evaluate some roads near your study site. How much of the plant and animal habitat do you think was lost in the road construction? Would another route have caused less disruption to the local community?