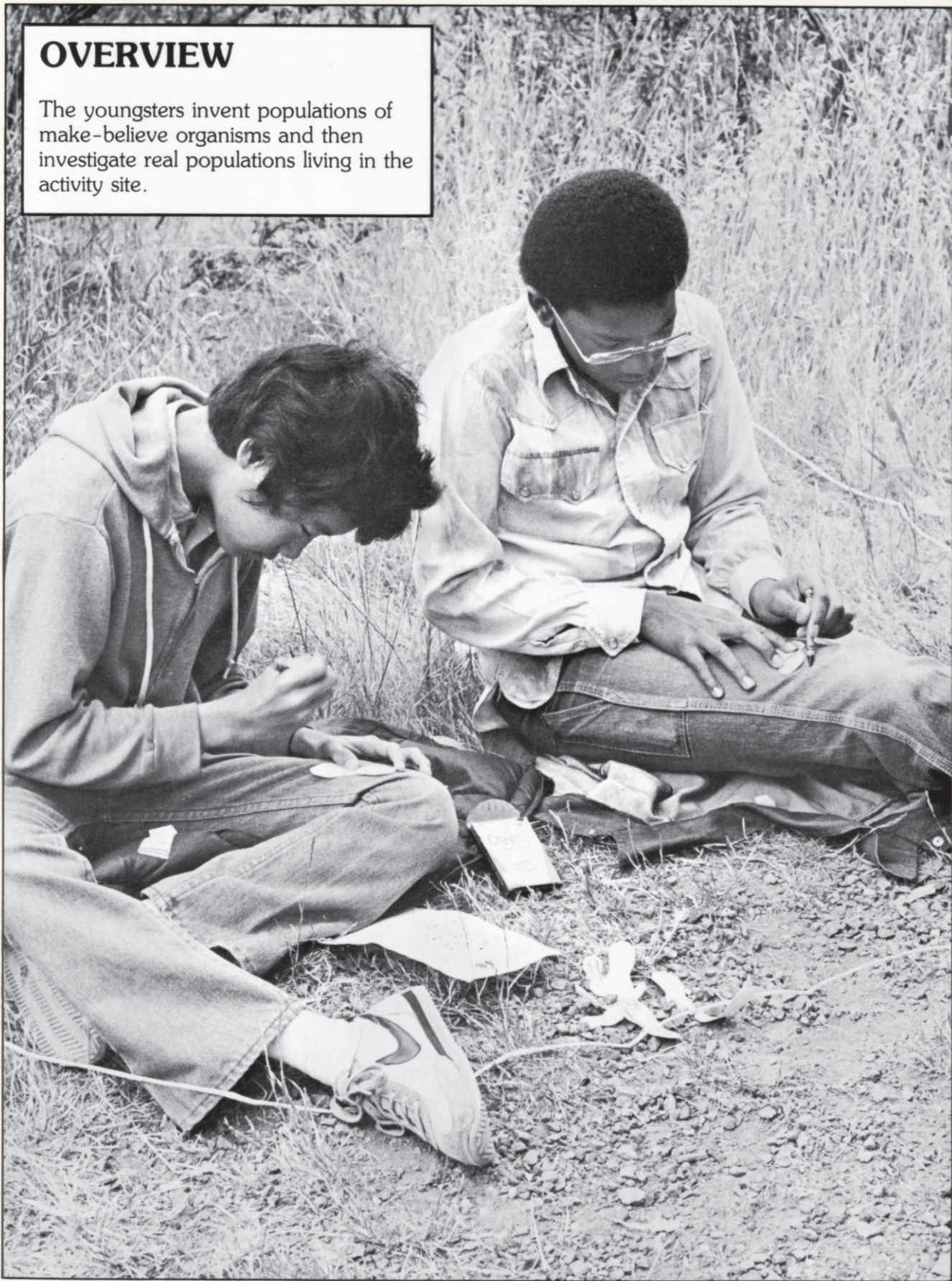


OVERVIEW

The youngsters invent populations of make-believe organisms and then investigate real populations living in the activity site.



BUGS, WORMS & OTHERS

BIO Simulation/Game
KEY Population
Variation

BACKGROUND



A **population** is a group of organisms of one kind that lives in the same area. Every living organism is a member of some population. Adult members of a population are similar in most ways, but a close look reveals that each is unique—just a little different from every other individual in that population. These small differences are called **variations**.

The rainbow trout in a mountain lake make up a population. While these fish are all rainbow trout, some are larger than others, some have more spots on their fins, some have darker coloration on their backs, and some have longer lower jaws. The Eastern brook trout in the same lake make up another population. The brook trout also display size and color variations, but they are all members of the brook-trout population. Rainbow trout and Eastern brook trout are two of the many populations of organisms that live in the mountain lake.

CHALLENGE: MAKE A POPULATION OF ANIMALS AND PLACE THEM IN AN AREA WHERE THEY CAN LIVE.

MATERIALS



For each team of three or four:

- 30 or more shapes cut from index cards*
- (See the "Preparation" section.)
- 8 colored pens or crayons* (2 black, 2 red, 2 blue, 2 green)
- 1 copy of "Inventor's Natural History Record"
- 1 copy of "Observer's Natural History Record"
- 1 15-meter length of string*
- 1 paper or plastic bag*

For the group:

- 1 sheet of Natural History Records*
- extra Observer's Natural History Records
- * Available from Delta Education.

PREPARATION



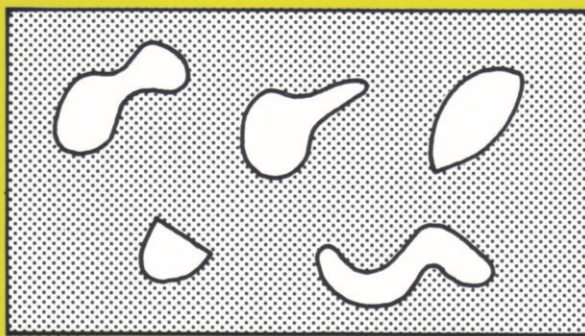
Group Size. This activity is suitable for medium to large groups. (Four teams of three or four youngsters is best.)

Time. Plan on fifty to sixty minutes for this activity.

Site. A site with a variety of habitats is best (e.g. a park that has lawns, trees, a pond, etc.), but a less diverse site will work if the team areas are separated by 10 to 20 meters.

Materials

1. From index cards make thirty or more cutouts of the *same shape*, but in two or three sizes for each team. Make a different shape of cutout for each team. You might make ovals, worms, peanuts, spoons—use your imagination! Stack six to eight index cards, and cut them all at once to reduce your preparation time.



2. Wind a 15-meter length of string on a small piece of cardboard for each team.



3. Make one copy of the Inventor's Natural History Record and one copy of the Observer's Natural History Record for each team.

4. Pack the thirty or more cutouts of one shape, the eight colored pens or crayons, one length of string, an Inventor's Natural History Record, and an Observer's Natural History Record in a small bag for each team. The bags of materials should differ only in the *shape* of the cutouts. Save a few cutouts to show the youngsters when you introduce the activity.

ACTION



1. Tell the youngsters that a **population** is a group of animals or plants of one kind that lives in the same area. Explain to the youngsters that they are going to introduce new populations into the site.

2. Hold up samples of the cutouts. Show the youngsters how drawing some eyes, a mouth, and so forth can turn the figures into animals. Show the kids the Natural History Records and go over them with the youngsters.

3. Divide the group into teams of three or four youngsters and give the teams these instructions:

- Select a site for your population and surround it with your string. Don't set up too close to another team. The area you select will be your population's **habitat**—the place where the organisms live.
- As a team, decide what kind of critter you want to make. You may make a real animal, or a completely imaginary one. Use your pens to turn your set of cutouts into a population of animals. While you work, think about how your population will survive in your area. Place the population in its habitat when all of the critters are completed. (Don't *hide* the critters.)

c. Then, fill in an Inventor's Natural History Record with information about your population. Keep the other sheet blank.

Bugs, Worms & Others

INVENTOR'S NATURAL HISTORY RECORD

(Fill out this sheet after you have placed your population in its habitat.)

These organisms are members of a population called CLINGWORMS

They make their home in BUSHES & SHRUBS

They eat APHIDS and ANTS

They are eaten by LIZARDS. They protect themselves by WRAPPING AROUND BUSH STEMS

They look pretty much alike except SIZE

Other notable features of this population are HUNDREDS OF TINY LEGS FOR CLINGING

This is a picture of one member of the population:

4. Give each team a bag of materials, and send the teams off to create their populations. Circulate among the teams and remind them that a population is made up of one kind of organism—no worms and lady bugs in the same population. Be sure the teams fill out their Inventor's Natural History Records and keep them secret. Remind the teams that when they place their populations in their habitat areas, the critters should not be hidden, because other youngsters will have to find and observe them. Allow twenty to thirty minutes for this portion of the activity.

5. When the populations are all placed in their habitats, call the teams together. Tell the youngsters that each team will go to one of the other team's sites. When they get there, they should follow this procedure:

- Locate all the members of the invented population.

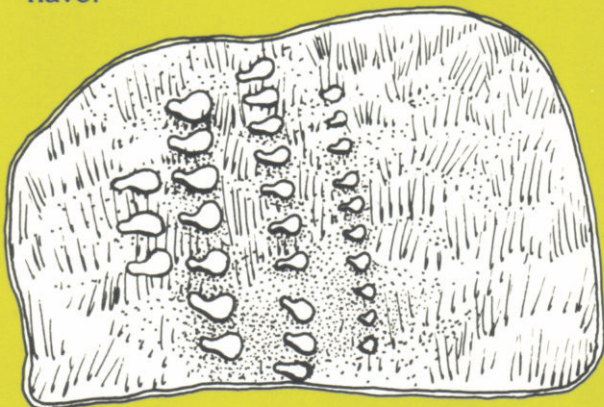
- b. Fill in your Observer's Natural History Record with information you get by observing the population. Do *not* move any of the critters until the Natural History Record is completed.
- c. Collect all the members of the introduced population and arrange them by size or color for easy viewing. Leave the arranged population in the center of its habitat.

6. Let the teams begin. When the teams have finished, call them back to a central location. As a group, go from site to site. At each site, have the team that filled out the Observer's Natural History Record for that population read the Natural History Record. Ask the inventors of that population to compare the Observer's Natural History Record with their Inventor's Natural History Record.

GETTING THE BUGS OUT

As the group visits each site and looks at the created populations, initiate discussions.

1. Introduce the term **variation** as the differences between individuals within a population. The toads in a population have a different number of warts; dairy cows have different patterns of spots; black-eyed Susans have different numbers of petals; people have different faces. Did each team create one population? What variations do the created populations have?



2. Have the youngsters turn their attention to themselves. Are they all members of one population? What variations can they find?

3. What living populations (animals and plants) share space with the paper cutouts? Which population has the most members? The fewest members? Ask the students to look for the largest and the smallest member of each population. Can they find variations other than size in these real populations?

Note: Remember to collect all your strings and papers when you are through.

BRANCHING OUT

Have each of the kids identify a population living in the activity area and fill out an Observer's Natural History Record for it. Then let some of the youngsters read their natural histories and let the others guess what populations they described.



Bugs, Worms & Others



OBSERVER'S NATURAL HISTORY RECORD

(Look carefully at the invented population. Fill in as much information as you can.)

These organisms are members of a population called _____

They make their home in _____.

They eat _____ and _____.

They are eaten by _____. They protect themselves by _____.

They look pretty much alike except _____.

Other notable features of this population are _____

This is a picture of one member of the population:

Bugs, Worms & Others



INVENTOR'S NATURAL HISTORY RECORD

(Fill out this sheet after you have placed your population in its habitat.)

These organisms are members of a population called _____

They make their home in _____.

They eat _____ and _____.

They are eaten by _____. They protect themselves by _____.

They look pretty much alike except _____.

Other notable features of this population are _____

This is a picture of one member of the population: