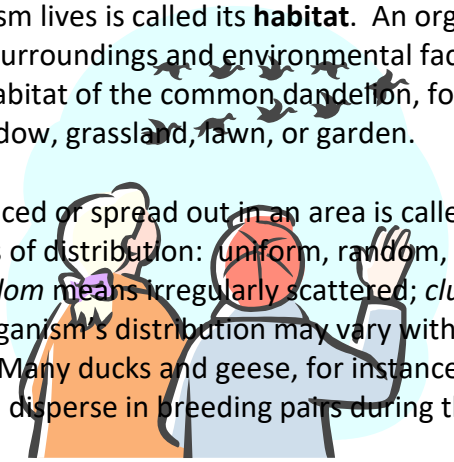
STICKLERS

Overview

Sticklers is a simulation game that introduces students to the concepts of **habitat** and **distribution**. After the game, the students discover where real organisms live and how they are distributed.

Background

The place where an organism lives is called its **habitat**. An organism's habitat includes its physical and biological surroundings and environmental factors such as temperature, moisture, and light. The habitat of the common dandelion, for instance, is a moist grassy area, such as a meadow, grassland, lawn, or garden.



The way organisms are spaced or spread out in an area is called their **distribution**. There are three basic kinds of distribution: uniform, random, and clumped. *Uniform* means evenly spaced; *random* means irregularly scattered; *clumped* means bunched in one or more places. An organism's distribution may vary with the seasons or during different stages of its life. Many ducks and geese, for instance, gather in large flocks during the winter and then disperse in breeding pairs during the spring and summer.

Challenge

Find sticklers and determine their habitat and distribution.

Materials

For the group:

Sticklers:
1 box of flat toothpicks or 100-200 popsicle sticks, or 100-200 beans. (Gather three different types of sticklers if you plan to set up all three distribution patterns.)
1 data board (see Tool Box 1)
1 large felt-tip marker (for drawing site outline)
1 fine-tip marking pen for every four participants (For three different distribution patterns, make sure you provide three different colors of pens.)

Optional, for each participant:
1 map board (large blank index card or a cardboard square, 20 cm x 20 cm covered with paper)
1 pencil

PREPARATION

Group Size:
This activity is suitable for both small and large groups.

Time:
Plan on forty to sixty minutes for the activity.

Site:
Choose a grassy area, field, or other fairly open area. For every ten participants, you will need about forty square meters of work area.

Recording Map:
Draw an outline of the activity site on the data board. The students will be recording the locations of their sticklers on this map. Include landmarks (trees, sidewalks, buildings) that the students can use as reference points when they record.

Sticklers:
Set out the sticklers BEFORE you take the group to the site. Pick a distinctive feature of your site to be the stickler's habitat, for example under dead leaves, at a lawn's edge, in clumps of crab grass, or under dandelion leaves. Follow one of the distribution patterns as you place the sticklers in their habitat.

Example:
Let us assume that you are using the lawn's edge as the stickler's habitat.

- For *uniform* distribution you might place a stickler every 50 cm along the lawn's edge.
- For *random* distribution you could place sticklers in an uneven pattern around the lawn's edge.
- For *clumped* distribution you might place bunches of two to four sticklers along the lawn's edge.

Distribute five to ten sticklers for every participant. Sticklers should be fairly well hidden so the students have to search for them.

For more of a challenge:
For older participants (seventh grade and up) or for a second round with younger students, you may want to set up all *three distribution patterns* at the same time. Use three kinds of sticklers, for example beans, popsicle sticks, and toothpicks, in one area,

but in three different habitats. When you show the students the three sticklers, tell them which color of pen to use in recording the locations of their sticklers. Split your group into thirds and have each subgroup search for only one kind of stickler.

ACTION

Searching for Sticklers:

1. Hold up a stickler so that everyone can see it. Introduce it as an animal that lives in the area. Tell the students that they are going to search for sticklers and find out what they can about this "organism.
2. Point out the boundaries of the stickler site. Display the outline map on the data board. Explain to the students that during the stickler search you would like each of them to record (mark with an X) on the map as accurately as they can where they find each stickler. You may want the students to record where they find sticklers on individual maps and then have them transfer their map data to the large, data board. (See the "optional" section under "Materials.")
3. Challenge the students to search for sticklers and to find out as much as they can about where the sticklers live. Ask the students to collect the sticklers they find.
4. Let the students begin their search. Orient the data board so that it is properly aligned with the site, and set it and the fine-tip marking pens in the stickler site. Remind the group to record where they find each stickler. Help the students with orientation as they record. Allow ten to fifteen minutes for the stickler search.
5. Call everyone back, and let the group finish recording where they found sticklers. As the group looks over the stickler map, ask them what they found out about sticklers.
6. Introducing the terms *habitat* and *distribution*.
    a. Write "HABITAT" on the data board and explain that *habitat* is the place where an organism lives. Ask: "What is the habitat of our organism, the stickler?"
    b. Write "DISTRIBUTION" on the data board, and explain that *distribution* is the way organisms are spaced or spread out in an area. Describe and illustrate the three types of distribution on the data board. Ask: "How were the sticklers distributed in this area?" (Have the students refer to the display map.)

Searching for Real Organisms:

1. Point out the boundaries of the area to be used for the organism search.
2. Divide the students into three teams.
3. Challenge one team to find an organism (plant or animal) that has a uniform distribution, another team to find an organism with clumped distribution, and the third to find an organism with random distribution. Ask the teams to

also determine the habitat of their organisms and to keep the *identity of their organisms* a secret from the other teams. The teams should not collect any organisms.

4. Give the teams five to ten minutes to search for their organisms.

The Organism Game:

1. Have one team at a time describe the habitat and distribution of their organism. Give the other teams two minutes to guess the identity of that team's organism from the description of its habitat and distribution.
2. Repeat the game by letting the teams search for new organisms. This time don't limit the teams to just one type of distribution.

BRANCHING OUT

1. Investigate the habitats and distribution of organisms in other areas. Spiders, isopods, ants, snails, trees, dandelions or other weeds are good organisms to investigate.
2. Set out sticklers for other groups.
3. Play the Organism Game with your family or friends.