

OVERVIEW

The youngsters first establish home territories with scent markers and then use their sense of smell to locate the territories established by other members of their "family."



BACKGROUND

Many animals rely on a keen sense of smell and the ability to produce specific scents to communicate with others. These scents attract mates, keep potential enemies away, and mark home territories. A **territory** is an area that an animal defends against other animals of the same kind.

Mammals use urine, feces, or substances from special scent glands as "property signs" to outline their territories. House mice, rats, and dogs are some of the animals that mark their territories with urine. Male

rabbits deposit a scented secretion from chin and anal glands on the ground and bushes. The marking secretion a deer uses comes from leg glands. These "scent markers" make the territory familiar to the occupant and warn others to stay away. The survival of an individual animal, or even a family group, may depend on its ability to sense and interpret scent messages.

CHALLENGE: IDENTIFY YOUR FAMILY'S "SCENT" AND LOCATE YOUR TERRITORY.



FOLLOW THE SCENT

BIO
KEY

Game/Simulation
Scent Communication
Territory

MATERIALS



(Note: The materials listed here are for a group of sixteen participants.)

For flags:

96 small sticks* (e.g. popsicle sticks) or nails*, 10 cm long
colored construction paper*, contact paper, or yarn* (four different colors)
masking tape*
1 pair of scissors

For scent markers:

6 kitchen sponges* (9 cm x 12 cm x 2 cm)
4 small bottles of liquid flavor extracts* (four different flavors, e.g. anise, coconut, peppermint, almond)
10 plastic bags* (bread-loaf size)
10 plastic zip-lock bags* (sandwich size)
4 paper bags*

For the group:

2 large flags* (for marking start/finish points)
4 plastic vials* (7-dram size)
1 liter of water

Optional:

1 ball of string* (at least 150 meters long)
paper towels

* Available from Delta Education.

PREPARATION



Group Size. This activity can be used with up to thirty-two youngsters. Adjust the amounts of materials to suit the size of your group. For more than sixteen youngsters, we recommend using two leaders.

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

Site. Select a lawn for this activity. The site should be large enough so that you set up two game areas at least 20 meters apart.

Materials

1. Flags. Prepare four sets of 24 flags each from sticks or nails and colored paper or yarn. Use a different color for each set. Place half of each set into each of two large plastic bags. In addition, make two large flags for marking territories. Write "Team One" on one flag, and "Team Two" on the other.



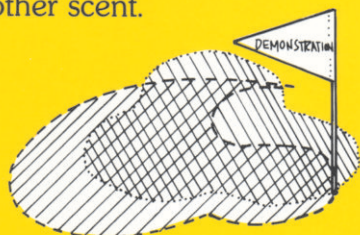
2. Sponges. Cut the sponges into cubes about 2 cm on a side. One sponge makes about 30 cubes. Place 13 sponge cubes into each of 10 plastic zip-lock bags.

3. Packaging the Materials. Put a bag of sponge cubes into each bag of flags. Then, in a paper sack for each "family" of four, place one bottle of liquid extract (a different scent for each family) and two plastic bags of sponges and flags. (Make sure all the flags for each family are the same color.) You should have two bags of sponge cubes left over for the demonstration.



Setting up the Demonstration

1. Scenting the Sponges. (At this time, scent only the sponges for the demonstration game. The youngsters will scent their own sponges later.) Place two capfuls of a liquid extract and a half a vial (15 ml) of water into one of the zip-lock bags containing the sponge cubes. Seal the bag, and squeeze to saturate the sponges. Scent the other bag of sponges in the same way with another scent.



2. Establishing Territories. Just before the youngsters arrive, set up two overlapping scent territories using the two sets of sponges you prepared. The area encircled by sponges of one scent is a territory. Mark the start and finish point for *both* territory boundaries with one of the large flags. Place the sponges one to two meters apart. Leave one sponge in each bag as a reference sponge. Wipe your scented hands off with a wet paper towel.

ACTION

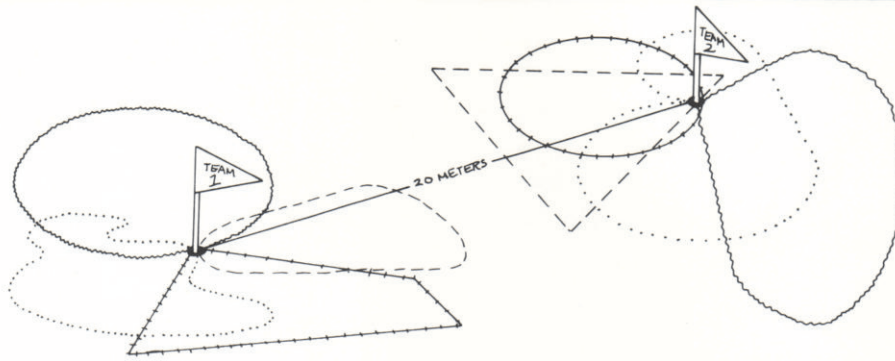
Tell the kids that many animals use their keen senses of smell to “read” the scent messages left by other animals. Some animals set up invisible “fences” by marking a certain area with their specific scent. This is the animal’s **territory** (the area that the animal will defend against others of its own kind), and other animals know to stay away. Mention a few examples from the “Background” section. Explain to the participants that they will play a game in which they mark and then find a family territory.

Demonstration Game

1. Divide the group into two temporary teams. Give each team one reference sponge in a bag and a set of 12 flags. (Borrow two sets of flags of different colors from the “family” materials.)
2. Show the youngsters the starting point (large flag) for the two territory boundaries that you set up before they arrived. Challenge the youngsters to follow the scent by sniffing out the sponges that have their group’s scent. The youngsters should mark the sponges with the flags as they follow the trail. Tell them not to touch the sponges with their hands (or noses). Encourage them to get down on their knees and sniff the sponges.
3. When all the small flags are in place, pace out the outlines of your two territories as the youngsters watch. Explain that the youngsters are now going to set up and locate territories of their own.
4. Collect the two sets of flags and return them to the two “family” group bags. Collect all the sponges and set them aside.

The Game

1. Divide the group into “families” of four and then divide each family into teams of two, designating a Team One and a Team Two in each family.
2. Give each family a complete set of materials.
3. Have the families scent their sponges as you describe the procedure. Position the two large start/finish flags at least twenty meters apart.
4. Explain that each team will set up a scent territory that the other team in the family will have to find. Point out the two flags and designate one as the Team-One flag and one as the Team-Two flag. All Team Ones will establish territories in the area around the Team-One flag and all Team Twos will establish territories in the area around the Team-Two flag. Explain that each flag should be both the starting and ending point



for the territory boundary. Each team will set out twelve sponges one to two meters apart to mark its territory and will keep the thirteenth sponge for reference.

5. Clear up any procedural problems and let the teams begin.

6. After the territories have been marked, ask the teams to switch areas. Challenge them to follow their scent, marking each of their sponges with a flag. Remind the youngsters to use their reference sponges to get the scent and not to pick up the sponges as they search out their territories.

7. After all the territories have been marked, survey the flagged territories as a group. The teams might want to connect all the flags of the same color with string to get a better outline of each territory.

8. Have the group collect all the flags and sponges.

Note: To prepare the sponges for reuse:

- Wash them in soapy water and rinse.
- Then, soak them in a pan of water to which you have added a capful of bleach.
- Rinse the sponges thoroughly and let them dry.

MAKING “SCENTS” OF IT ALL

- What sorts of problems, if any, did your family have in following your scent?
- Which scents were the easiest to recognize?

3. How do you think your sense of smell compares to that of a dog? A cat?

4. Are there any special scents around your home that make you feel comfortable? Can you recognize homes of friends by means of any particular scents?

5. Do humans set up territories? How do they mark them?

BRANCHING OUT

1. Challenge the kids to find the sources of other distinctive scents in the activity site or along a hiking trail. Then ask the kids to pair up in buddy teams. One buddy closes her eyes while the other buddy guides her along the trail. The buddy being led tries to determine where she is by using only her sense of smell.

2. Obtain a few more extracts or other strong scents (e.g. cologne, after-shave lotion). Divide the group into pairs, and invite each pair to put a small amount of scent on their chins. Each pair should have a different scent. Scramble the group. Have everyone wear blindfolds or close their eyes, and challenge them to “sniff” out their partners. No talking and only slow walking is permitted.

3. Onion smears on tree trunks or other objects make great territory markers. Set up a territory this way and challenge the youngsters to find it.