



## Outdoor Biology Instructional Strategies

### FOLLOW THE SCENT

#### CHALLENGE

Follow your group's "scent" to locate your territory

#### BACKGROUND

Many animals, unlike humans, rely on their keen sense of smell and their ability to produce specific scents to communicate with others. Scents are used to attract males and to keep potential enemies away. Some animals use scents to mark home territories. A **territory** is the area an animal defends against others of its own kind. The area may be the possession of a single individual or a family group. Mammals use urine, feces, or substances from special scent glands as property signs to outline their territories. House mice, rats, and dogs mark their territories with urine. Male rabbits deposit a scent from chin and anal glands on the ground and bushes. The marking scent a deer uses comes from leg glands. These scent markers make the territory familiar to the owner and warn others to stay away.

In this activity, the students explore their own sense of smell by following scent markers outlining their group's home territory.

#### MATERIALS

**(For sixteen participants)**

**For Flags:**

120 small sticks (popsicle) or nails (10-cm long)

Colored construction paper, contact paper, or yarn (four colors)

Masking tape

1 pair of scissors

**For scent markers:**

6 thin kitchen sponges of two colors (e.g. 3 yellow sponges, 3 blue sponges)

4 bottles (29-ml size) of liquid extracts (four different scents, e.g. anise, coconut, peppermint, almond)

10 plastic bags (bread-loaf size)

10 plastic sandwich bags

1 liter of water

**For the group:**

- 3 large flags (for marking start/end points)
- 1 ball of string with at least 150 meters of string (optional)

**PREPARATION**

1. Site: Select a lawn for this activity
2. Prepare four sets of 24 flags each. Use a different color paper or yarn for each set. In addition, prepare for the demonstration two sets of 12 flags, each set of a different color. (It's OK to use two colors used in the previous sets.)
3. Cut the sponges into squares approximately 1.5 cm on a side. Keep the two colors separate. One sponge makes about 30 squares.
4. Package the flags and sponges in the larger plastic bags.

**Each group of four participants receives:**

1. 1 liquid scent
2. Bag 1. containing:
  - 1 sandwich bag with 13 blue sponge squares
  - 12 flags (all same color)
3. Bag 2 containing:
  - 1 sandwich bag with 13 yellow sponge squares
  - 12 flags (same color as in Bag 1)

**For the demonstration game you will need:**

- 2 sandwich bags, each containing 13 sponge squares (all the same color).
- 2 sets of flags (each set a different color.)
- 2 liquid scents (any 2 of the 4 you have).

5. Scenting the sponges. (scent only the demonstration sponges; later you will show the students how to scent their own.) Place your sponge squares (only one color), 2 capfuls of an extract, and 8 capfuls of water in the sandwich bag. Squeeze the bag so the liquid saturates the sponges. Repeat the process with another scent, using the second bag and its 13 sponges.
6. Setting up the demonstration. Just before the students arrive, set up two overlapping scent territories using a different scent for each territory. Place the sponges about 1 meter apart. (Save one sponge of each scent for a reference sponge.) Flag one of the common points of the two overlapping territories. This will be the common starting point.
7. Select two areas at least 20 meters apart for the game. Each area will contain four overlapping territories. Place one large flag in each area to mark the common starting and ending point for the four territories.

## ACTION

Introduce the idea that many animals use their keen sense of smell and specific scents to communicate. Some animals set up invisible fences by marking a certain area with their scent. In this way an animal knows the boundaries of its **territory** (the area which the animal will defend against others of its own kind) and other know to stay away. Offer a few examples. Explain to the participants that they will play a game in which they mark and then find a group territory.

### *Demonstration:*

1. Divide the group into two temporary teams. Give each team one reference sponge and a set of 12 flags. Show them the starting point (flag) for the two territories you set up before they arrived. Challenge them to follow the scent, marking the outline of the territory 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.
2. When all the flags are out, walk the outlines of your two territories as the students watch. Clear up any problems and move on to the game.

## THE GAME

1. Divide the large group into groups of four and then divide each group into teams of two. (these numbers can be changed to accommodate more or fewer players.)
2. Introduce the materials by giving one group its scent and bags of materials: yellow sponges to one team of two and blue sponges to the other team. Demonstrate how to scent the sponges.
3. Distribute the rest of the materials and scents. After the students have scented their sponges, describe the challenge.
4. Challenge each team to set out a scent territory that the other team with the same scent will be able to find. All blue-sponge teams establish territories in one area (point to "blue" flag); all yellow-sponge teams set up in a separate area (point to "yellow" flag). These flags mark the common starting/ending point for the territories. Each team uses 12 sponges, retaining the reference sponge. Tell the teams to place sponges about one meter apart.
5. After the territories have been marked, have the blue and yellow teams switch areas. Challenge them to find their scent and outline the territory with their flags. Encourage the teams to use the reference sponge to get the scent. Remind them not to pick up the sponges.
6. As a group, survey the flagged territories. Teams might want to connect all the same color flags with string to get a better outline of each territory.
7. Now have the group collect all flags and sponges. (You can wash the sponges for reuse by adding a cupful of bleach to a pan of water and soaking the sponges. Rinse thoroughly.)

## MAKING “SCENTS” OF IT ALL

1. What sorts of problems, if any, did your group have in following your scent?
2. Which scents were 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 any particular scents?
5. Do humans set up territories? How do they mark them?

## FOLLOW UP

Challenge the students to find the sources of other distinctive scents in the activity site or along a hiking trail. Then ask the students 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.

## WHAT TO DO NEXT

*Ants*

*Leapin’ Lizards*

*Silent Stalking*

*Attention!*

*Sound Off!*