


Activity 3

Plants Count

PUT ON A NATURALIST'S HAT AND EXPLORE THE WORLD AROUND YOU.

Naturalists study animals and plants in the wild and have sharp observational skills. They can spend hours in the field observing and recording data to understand how plants and animals live. This activity challenges girls to take a close look at local habitats, determine if area animals have enough resources, and make a difference in their communities.



SMART START: Decide on an area in your community to survey. Make sure this area has a significant portion of plants, trees, grass, flowers, etc. You will be surveying the resources in three habitats within the area and using the data to make some conclusions about the amount of resources in the whole area. You can also survey planned gardens, such as your local community garden, arboretum, conservatory, butterfly garden, or farm.

The area can be any place that is accessible and safe. Avoid areas that are next to busy highways, cliffs, or hazards such as electric fences.

Here's how:

1. Introduce animal habitats. Begin a discussion about what types of resources animals need to survive (food, water, shelter) and where they could find them. (See table on right for examples.)

You'll Need:

For each pair

- ◆ paper and pencil
- ◆ clipboards
- ◆ aerial maps of your survey site with street names (Use Google Maps or Google Earth.)
- ◆ optional: camera, field guides (Many can be found at a local library or online. Free guides may also be available from your state's department of natural resources or extension services.)



Resources Animals Need

Food	plants (flowers, nuts, leaves, seeds, roots, shoots) other animals (insects, arachnids, small rodents, worms)
Water	rain streams or lakes leaves
Shelter	trees (hollows, branches) smaller plants underground (dirt) dead logs



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2. Identify animals. What are the animals in your neighborhood?² Decide on a few to study. (Include birds, mammals, and insects.) Why do we care if the animals in our neighborhood have enough resources? [They help us by aerating the soil (earthworms), keeping the small rodent population down (hawks, birds of prey), making life more interesting, etc.]

3. Plan. Divide girls into small groups¹ and introduce the **SciGirls Challenge**: Design a survey to figure out if there are enough resources for the animals you chose in your selected area.³

4. Define the boundaries. Using a satellite map (Google Maps or Google Earth) of your neighborhood, determine how large an area you will survey. (Limit the size of the area to four acres or less so you aren't overwhelmed with information.)

5. Identify the human-made features. On the map, ask your girls to locate features in your survey area that are completely human-made and would provide very little resources for the animals (swimming pools, parking lots, large buildings).

6. Identify habitats. Find places in your survey area that could make good habitats. (Make sure there is food, water, and shelter!)⁶

7. Predict. Are there enough resources for the animals in your area? Why or why not?

8. Survey. Have each group share some locations they identified on the map (areas with human-made features and/or good animal habitats) and as a large group choose three for everyone to survey together. Each girl should record her observations on paper or, if you made them, in her naturalist journal. (See how at sierraclub.org/education/nature_journal.asp.) Decide what information to collect. (It's also helpful to bring along a map of the area to mark interesting features.)

★ **Water sources** Are there spots where water could collect for animals to drink? Remember that small animals can drink out of flowers or leaves.

★ **Shelter** Are there places where different animals can find shelter? Animals need shelter from the rain, cold and heat and protection from predators.

★ **Number of plants** Come up with a creative way to count the plants in the locations you have chosen. What types of plants are you counting? Are you going to count each one?

★ **Diversity of plants** Determine the variety of plants in the different locations. Create a rating system for the amount of diversity (e.g., a scale of 1 to 3, where 1 is no diversity, 2 is somewhat diverse, and 3 is very diverse).

To see how the SciGirls surveyed their neighborhood, watch the *SciGirls Explore* DVD. (Select *Bee Haven: Data Collection and Analysis*.)



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¹⁻⁷ See **SciGirls Seven** strategies on page 3.

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POINTER: If the girls see animals, have them describe, draw, or take a photo of them and note where they saw them (on a flower, flying around, drinking water, etc.). Remind your girls not to pick up any creatures, plants, or leaves. They should also stay off private property unless you have permission. And they should try not to run, not only for safety's sake, but so they don't scare off creatures.

9. Analyze. After surveying, each group should find a way to share their information with the class using a chart, graph, or drawing. Be creative!⁴

To see how the SciGirls displayed their data, watch the *SciGirls Explore DVD*. (Select Bee Haven: Share.)



10. Share. Have each group share its findings. Were the girls surprised by what they found? (Compare the results to the predictions.) Are there a lot of resources for animals in your selected area? What types of resources are missing? What could be done to increase the number of resources?⁶

11. Continue exploring. If you found that your area needs more resources, do something about it!² Your girls can work with their neighbors to plant native species that provide animals with food, shelter, and/or water. The National Wildlife Federation has great tips on

how to create a Schoolyard Habitat at nwf.org/Get-Outside/Outdoor-Activities/Garden-for-Wildlife/Schoolyard-Habitats.aspx.



Mentor Moment

Dr. Omayra Ortega is a math professor at Arizona State University who helped the girls to survey the plants in their neighborhood. In her job, she uses mathematical models to understand biology. For instance, she studies how infectious diseases move through a population of people. In her free time, Omayra enjoys knitting, sewing, singing, and practicing *capoeira* (cap-oh-way-rah), a Brazilian martial art that combines self-defense, dancing, music, and acrobatics all in one.

