



girl scouts



DESERT
BOTANICAL
garden

BRILLIANT BUGS

RECOMMENDED GIRL SCOUT LEVELS:

Daisy, Brownie, Juniors

INTRODUCTION:

Ever wonder what it's like to be a bug? By completing this virtual bug patch, you will learn about bug homes, where to find bugs, bug characteristics and their life cycles. In order to complete the patch requirement, Daisies complete the main project and two or more of the elective topics. Brownies need to complete the main project and four or more of the elective objectives. Juniors need to complete the main project and 6 or more of the elective objectives.

[You can purchase the \\$5 Desert Botanical Garden Patch by clicking here.](#)



RESEARCH:

Scientists use research to help answer questions. Below are websites to get you thinking like an entomologist or a bug scientist. Click on each link, and while exploring the websites, make observations about bug facts. After you have finished, write down a few questions you want to answer about bugs. Now use the internet to find scientific sources (hint: reliable sources usually have a web address that ends with .edu, .gov or .org).

- amentsoc.org/insects/
- scholastic.com/teachers/articles/teaching-content/general-facts-about-insects-and-bugs/
- askabiologist.asu.edu/explore/true-bugs

Answer these questions as you go through different sections.

- How many body parts, legs and antennae do insects have?
- How do bugs contribute to the ecosystem?
- How are bugs and insects different and how are they similar?
- What does it mean to be an arthropod?

MAIN PROJECT

In this activity, you will become an entomologist and complete a scientific survey to measure diversity (or a lot of different) and abundance (or a lot something) of bugs in habitats (its home).

Are you ready to find bugs? Make sure you are dressed, packed and ready for an adventure outdoors, which may include harsh sunlight, rocky soil and even potential stingers.

MATERIALS:

- Measuring tape
- Spool of yarn or string
- Spoon
- Lidded jar
- Pencil
- Make your own observation sheet or use the included printable observation sheet.
- Camera (optional)



DIRECTIONS:

Go on a walk and identify a habitat you think bugs would like to call home.

Take note of the following about the habitat:

- Date and time
- Description and picture or drawing of site
- Sun exposure
- Nearby plants
- Ground covering—grass, leaf litter, plants, bare soil, rocks, gravel etc.

MAKE A PREDICTION:

What kinds of bugs do you think you will find? How many bugs will you find?

Map out a square of your habitat to survey. Measure out each of the four sides to 3 feet long, and mark with string to connect an outline of your square. Starting at the top left corner, start searching for bugs, moving methodically left to right and then down to the next section as if you were reading lines of text in a book. Flip over rocks, remove leaf litter and loose soil or comb through grass to search. Use your spoon to help.

Tally the number of bugs found. If you are able to identify categories of bugs, such as ants, beetles, spiders, etc., tally those too. Only record bugs inside your square. How does your original prediction of the number and kinds of bugs compare to your results? Repeat steps with two more sites.

Analyze your findings. Which site had the highest abundance of bugs or recorded the highest number of individual bugs? Which had the most diversity or recorded the most different kinds of bugs? Compare your site description notes. Is there a difference? Are there any similarities?

EXTENSION:

Display your data and findings in a visual manner by creating a graph that compares the number of bugs at each site. Plot site 1, 2 and 3 along the x-axis and plot the number of bugs on the y-axis. Add colored bars to distinguish each site. Additionally, draw and label diagrams of interesting bugs found in your surveys.

LIST OF ELECTIVE OBJECTIVES:

- Create an insect with found natural materials and label the six traits of true insects
- Make an insect hotel to see what kind of ground and flying bugs live in your area
- Plant a native plant for your insect to enjoy
- Act out the life cycles of an insect
- Make an insect inspired snack
- Experiment with different bug snacks like sugar water or protein to see which species would be attracted to them
- Make a pitfall trap to see what kind of ground bugs live in your area
- Pretend you are a bug and draw any object around you from their perspective

OTHER INFO:

[After you have completed the activities you can purchase the \\$5 Desert Botanical Garden Patch by clicking here.](#)

Please share your results and bug hunt on the Garden's social media by tagging [@dbgphx](#).

If you have any questions or concerns, contact **John Bello** at jbello@dbg.org. If you choose to purchase a patch, you should receive it within 10-14 days.



PRINTABLE OBSERVATION SHEET

Site # _____	
Date:	Time:
Sun Exposure (Circle one): Full Parital Shady	Ground Cover (Circle all that apply): Leaf Litter Plants Bare Soil Rocks Gravel Other
Nearby Plants:	Site Description:
Sketch of Site:	
Bug Predictions:	

CHART:

Site:	#1	#2	#3
Total Number of Bugs			
Total Number of Bug Types			

GRAPH:

