CONSERVANCY of Southwest Florida
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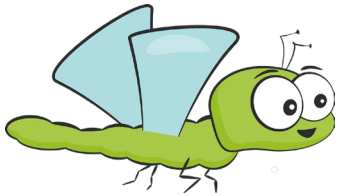
Backyard Quadrats



Grade Level: 4 - 8
Benchmark Standards:
SC.4.N.1.6: Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.
SC.5.N.1.3: Recognize and explain the need for repeated experimental trials.
SC.7.N.1.6: Explain that empirical evidence is the cumulative body of observations of a natural phenomenon on which scientific explanations are based.
SC.8.N.1.2: Design and conduct a study using repeated trials and replication.

Total Time (with accompanying video): 45 – 60 minutes

Summary
How many plants and insects live in your backyard? This may seem like an impossible question at first. There are probably thousands! We cannot count them all, but using scientific field methods, we can get an estimate of abundance – that is, the relative representation of a species in your backyard ecosystem. Biologists usually measure abundance with either transect lines or quadrats. Today, we will be conducting a simplified abundance survey using hula-hoops as quadrats and your backyard as our study site!

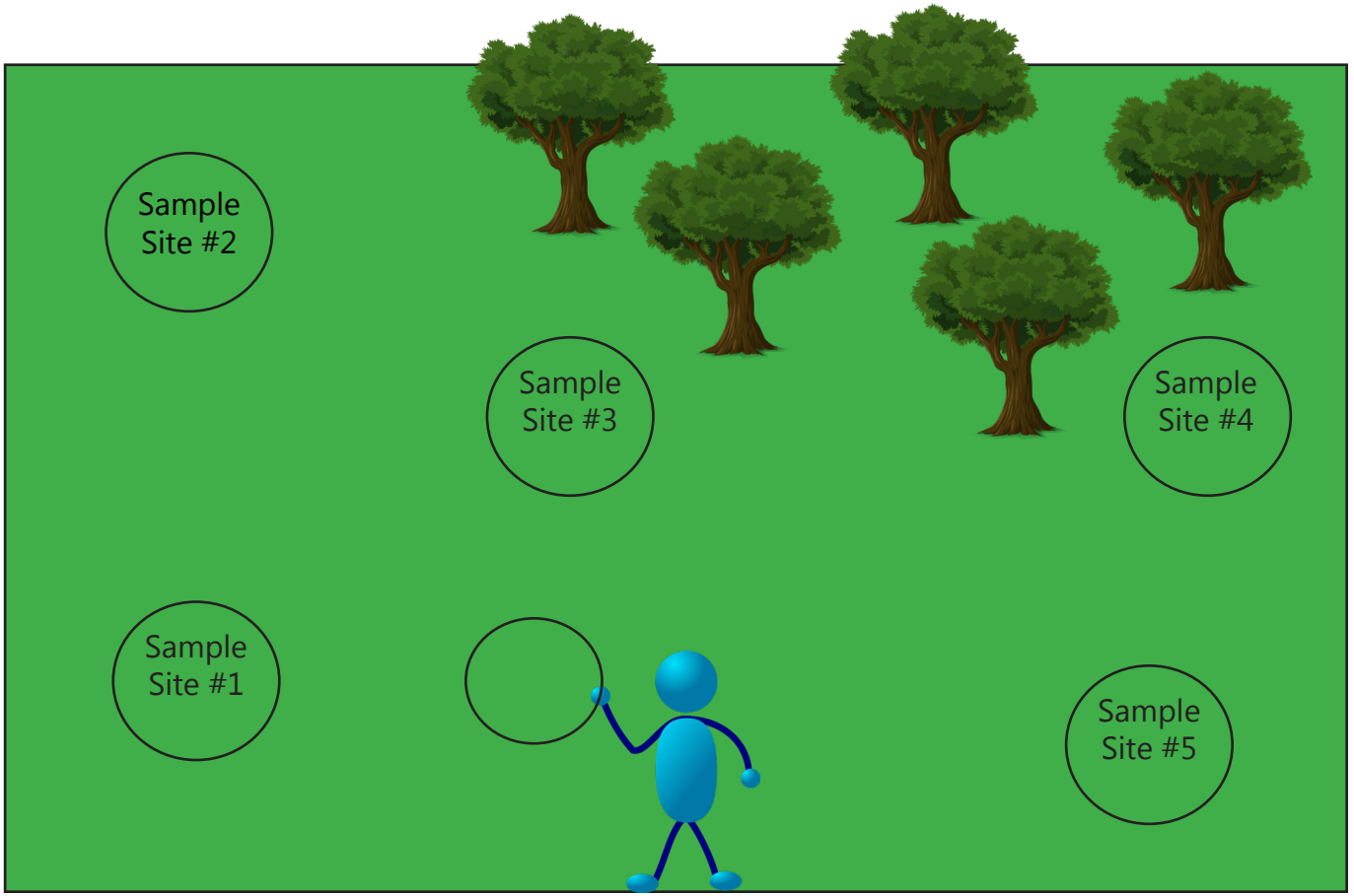
Materials
- Hula-hoop(s)
- Paper and a pencil
- White paper plate
- Magnifying glass
- Informational Video

Instructions
Ready to observe? Let's begin with insects!

1. First, prepare a tally sheet for each sample site (at least 5). You can use the example sheet posted below to help.
2. Pick a small area of your backyard that you will be using as your study site. The area should be no larger than as far as you are able to toss a hula-hoop.
3. Use a hula-hoop (or similarly shaped object) to toss randomly in your backyard study area. If you do not have more than one hula-hoop, you will need to re-toss the hoop each time you are done tallying insects.

Instructions (cont.)

4. Once the hula-hoop has landed, don't move it! That is your first sample site. You can now count and tally each individual insect you find within the hoop on your tally sheet.
   -If you know what the name of an insect is when you find it, write it down! If not, describe it in the first column. You can use the internet or field guides to help identify it later.
   -Sketch the insect, making sure to include any identifying features (color, wings, etc.) Make sure to place an insect on your white paper plate and use a magnifying glass to get a better look!Tally each individual of each insect species. It may be easiest to move methodically from one end of the hoop to the other in back-and-forth lines to get an accurate count.
5. Repeat for each sample site. Try to do at least 5 total to get a good measure of abundance!
6. After you have finished tallying the insects in each sample site, you are now ready to determine your backyard insect abundance! Add the number of insects from each species to get a total count.
7. Determine the average insect abundance by dividing the total number of individual insects by the number of hula-hoop sample sites.



Nice work! Let's try it again, this time with plants. When measuring plant abundance in grassy fields, estimate with percentages instead of tallies for each individual grass. For example, if your hula-hoop quadrat is nearly all grass with one clump of dandelions, you might estimate an abundance of 97% grass and 3% dandelions. You will save a lot of time this way!

Example Tally Sheet- Sample Site #1

Insect Name	Black Ants	Insect #2	Insect #3	Insect #4	Insect #5	Insect #6
Insect Sketch						
Insect Tally