

# Pre-visit Activity: All About Biodiversity

## Objective

Students will conduct an investigation of the plants and animals living in the schoolyard, compare their data with other groups, and understand that there are many different kinds of plants and animals that live in South Florida.

**Next Generation Sunshine State Benchmarks:** SC.3.N.1.1, SC.3.N.1.2, SC.3.N.1.3, SC.3.N.1.6, SC.3.P.8.3, SC.3.L.14.1, SC.3.L.14.2, SC.3.L.17.2, LA.3.1.6.1, LA.3.4.2.2, MA.3.A.4.1, MA.3.G.5.1, MA.3.A.6.2, MA.3.S.7.1

## Vocabulary

biodiversity	data	inventory
comparison	organism	ecosystem

## Materials

Hula hoops  
Clipboards  
Pencils  
Paper  
Magnifiers  
Rulers  
World map

## Procedure

1. In preparation for this activity, take some time to locate two areas in the schoolyard that differ in several aspects. For example, one site could be an area that receives full sunlight and the other is in perpetual shade. Another option would be to use the school garden as one area and the school lawn for the second. Both areas should have some amount of plant diversity, but must differ in environmental conditions. Be creative in your site selection, but don't explain why you chose the areas to the students.
2. The tropics support a large number of species. This results in rainforests being home to over half of the species on our planet, and having a high measure of biodiversity. Within the rainforest, there are different layers and each is influenced by environmental factors that affect plant and animal growth, which impacts biodiversity. Using a world map, ask the students to locate the Equator, Tropic of Cancer and Tropic of Capricorn. Explain that tropical rainforests are distributed around the world and are found between the Tropic of Cancer and the Tropic of Capricorn.
3. Next, ask the students to locate South Florida. Clearly state the although South Florida is not in the tropics (between the Tropic of Cancer and the Tropic of Capricorn), it is located in the subtropics and supports many different plants and animals.
4. Take the students outside and tell them they will be conducting a science experiment just like the experts do! Explain that sometimes we can overlook the little plants and animals that make up our ecosystem, but today they will zoom-in on their schoolyard.



5. Arrange the students into groups of four and give each group one hula hoop, one clipboard and pencil. At the first site, each group will lay down their hula hoop and will inventory every living and non-living thing within the hoop. This inventory is a measure of the biodiversity found in site #1. The students don't need to know the name of every plant or animal in order to count them, grouping organisms that look similar can be done by drawing a picture of a leaf, measuring the size of a leaf, or counting the legs on an animal. Give the students enough time to really focus on their area and observe subtle differences between the organisms within their hoop.
6. Repeat this process at the second site, asking the students to refer to the data they recorded at site #1 as a reference.
7. After the students have collected their data at both sites, gather the class together and compile the observations. Make a table with two columns and three rows. The column headings will be "Site #1" and "Site #2" (or descriptive names of the areas measured). Each group will have their own row, see the figure below for an example.
8. After the groups have reported their data, encourage a class discussion of the patterns apparent in the table. Use the following questions as a start.
  - \* What similarities did each group notice between the two sites?
  - \* What were some major differences?
  - \* Did some groups find totally different things?
  - \* Why don't all the plants look the same?
  - \* Why don't all the animals look the same?
9. Focus on the environmental conditions of the two areas. Ask the students to recall each area and the amount of sunlight, water, etc. each receives.
  - \* How were they different?
  - \* What was similar about them?
10. Review the layers of the rainforest and how they are different from each other. The understory is very shaded while the canopy receives full sun. Ask the students if the different conditions of the two sites could be a reason they found different plants and animals living in each.
11. As a math extension of this activity, the students could calculate the area of the hula hoop by measuring the diameter in both standard and metric units and multiplying by pi (approximately equal to 3.14). Comparing the area of the hula hoop with the schoolyard would yield a fraction which the students could incorporate into individual or group reports based on their investigations. Multiplying the number of species found in the hula hoop by the area of the schoolyard would yield a rough estimate of the total number of species found in the area.

Example Data Table:

	Site #1	Site #2
Group #1	Grass, worms, red flowers, white flowers...	Beetles, ants, grass, rocks, sticks, mulch...
Group #2	Etc.	Etc.
Group #3	Etc.	Etc.