Investigation of Plant Biodiversity in Your Neighborhood!

Name:_____

Local Habitat Definitions:

1. *Mowed grassy area-* area of grass that is consistently mowed/trimmed
2. *Non-mowed grassy area-* area of grass that is allowed to grow fully (undergo a full reproductive cycle) before being mowed. This would include the native plant plot at the high school, Oak Hill Park fields, and so on.
3. *Forest edge-* on the boundary between a forest habitat and another habitat such as a mowed grassy area of farm field
4. *Forest-* in a forest away from trails or edge habitat
5. *Farm field-* a cultivated field for agricultural purposes, such as a soybean field or cornfield.

Plant Categories:

Plant Type w/ Picture	Description and examples
Moss	Low-lying plant growth that does not have stems or roots. Moss can be found growing on rocks, tree bark, and forest floors—anywhere that has relatively high moisture.
Small, herbaceous plants	This would include grass, clover, wood sorrel, ground ivy, dandelion, plantain, and other similar plant species. They must by under 10 inches tall and have non-woody stems to be in this category.
Medium, herbaceous plants	This would include jewel weed, may apples, ferns, and other green-stemmed plants that are often found in woods or non-mowed areas. They must be at least 10 inches tall to be in this category.
Woody-stemmed plants	This would include plants such as honeysuckle that have a woody stem and grow relatively tall. These plants would not be found in mowed areas, but in relatively undisturbed habitats where they have time to grow.

Saplings	These are young trees with a trunk circumference of less than 13 inches* *Sapling circumference is based on defined diameter of saplings according to <http://www.merriam-webster.com/dictionary/sapling> Retrieved 20 September 2015
Large trees	This would include more mature trees with a trunk circumference of 13 inches or higher. Oak, maple, pine, spruce, locust and other trees would be in this category*

Data Collection Method: Meter Stick Random Sampling

1. Go to your assigned natural habitat on the school grounds and make observations on sunlight, moisture and other abiotic factors.
2. Close your eyes and randomly toss the meter stick into the habitat. Wherever it lands, this is where you will take your data.
3. Looking at a hand's width to each side of the meter stick, count all of the plants and categorize them appropriately. Mark how many kinds of each plant type you see. This is called **species richness**, or the total number of different species in an area.
    a. Note: due to the low probability of the meter stick contacting a tree, if the meter stick is <u>on the root</u> or <u>under the canopy of a tree</u>, count it.
4. Repeat this three times in the same habitat to get three sets of data.
5. *For extra credit, repeat this procedure in your backyard or local park. Find a specific habitat, and collect three trials of data!*

Data:
Local Habitat (from 1-5 listed at the beginning):

_____
Location: School grounds, backyard, or specific park? _

_____
Description of abiotic environment (amount of sunlight, moisture, temperature…)

Data Table to Determine Plant Species Biodiversity (# Types: # of Individual Plants per category)

Plant Category	Trial 1	Trial 2	Trial 3	Species Richness (Total # of Species)
Moss				
Small, herbaceous plants				
Medium, herbaceous plants				
Woody-stemmed plants				
Saplings				
Large trees				

Class Data:

	Average Species Richness				
	Mowed Grassy Area	Non-mowed grass area	Forest	Forest Edge	Farm Field
Moss					
Small, herbaceous plants					
Medium, herbaceous plants					
Woody-stemmed plants					
Saplings					
Large trees					

Data Analysis:

1. Explain how species richness and species evenness are used to define biodiversity.
2. Which habitats are most disturbed by humans, and which habitats are most natural?
3. Using the class data, which habitats had the highest plant biodiversity? Predict why these habitats are relatively diverse compared to the others.
4. Using the class data, which habitats had the lowest plant biodiversity? How does this relate to human disturbance of the habitat? What could be done to help restore plant biodiversity in these areas?
5. Recall some threats to biodiversity. Identify one potential threat to local biodiversity and outline a plan to combat this threat.