



Hula Hoop Sampling

Concept Objective: Plant Identification/Habitat

Time: 40 minutes

Setting: Outdoors (if possible)

Activity: Hula Hoop Sampling

Materials Needed:

- Clipboards
- Copies of Hula Hoop worksheet
- Pencils
- Measuring tapes/rulers
- Magnifying Glasses
- Identification books
- Hula Hoops



Procedure:

1. Take students to a grassy area or an overgrown area mostly grasses, or a garden.
2. Introduce activity. Talk about surveys, random sampling, plant identification.
 - An ecosystem is usually too large to study in detail. Therefore, dividing the ecosystem into plots provides a reasonable sample of the area. However, for most class situations, a plot is too large of an area for our student(s) to study. Breaking the plot into quadrants makes the area manageable.
 - In fields/grasslands you can work with 1 meter X 1 meter sampling plots. This can be done either by plotting the squares using stakes and string or using "Hula-Hoop Ecology." A standard Whammo Hula-Hoop has an interior diameter of 77 cm, so it will give you a good sampling of a meter square plot. If you choose the standard sampling scheme, measure the area and place the stakes at 1 meter intervals for roping off or marking. Each student or group will then follow the procedures within their quadrant.
3. Pair students in groups of 2-3. Give each group a hula hoop.
4. Give each student a clipboard, worksheet, pencil, magnifying glass.
5. Demonstrate tossing the hoop randomly and then demonstrate how to survey what is inside.

6. Have the groups throw their hoops and investigate what is inside the hoop. If they finished, have them toss the hoop again and compare findings.

Extensions

Density counts are a great way to integrate more math. The formula for density is the total number of plants within a meter squared. If you are using the hula-hoop technique, this gives you a wonderful opportunity to have your students hone up on their math skills to make the conversion from your circular area to a meter squared. Your students should measure the interior diameter of their hula-hoop. This will be important when converting your figures into square meters.

Another alternative for students would be to establish the density of a target plant or specific type of plant. (ex. Dandelions; although you might want to eliminate grass).

Formulas:

- **Abundance** Number of Target plant/Total number of all plants (not including grass) X 100% = the % of abundance of target plant.
- **Biomass** Grams Dry Weight/meter²
- **Density** Number/meter²
- **Diversity** Total number of different types of plants per plot.
- **Vegetation** Type of vegetation (grassland or field) and the average height structure

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The students can measure the abundance of the plants in their quadrat. You could also choose to have them calculate an abundance figure based on the actual count of their chosen plant compared to all of the other plants in their quadrat.

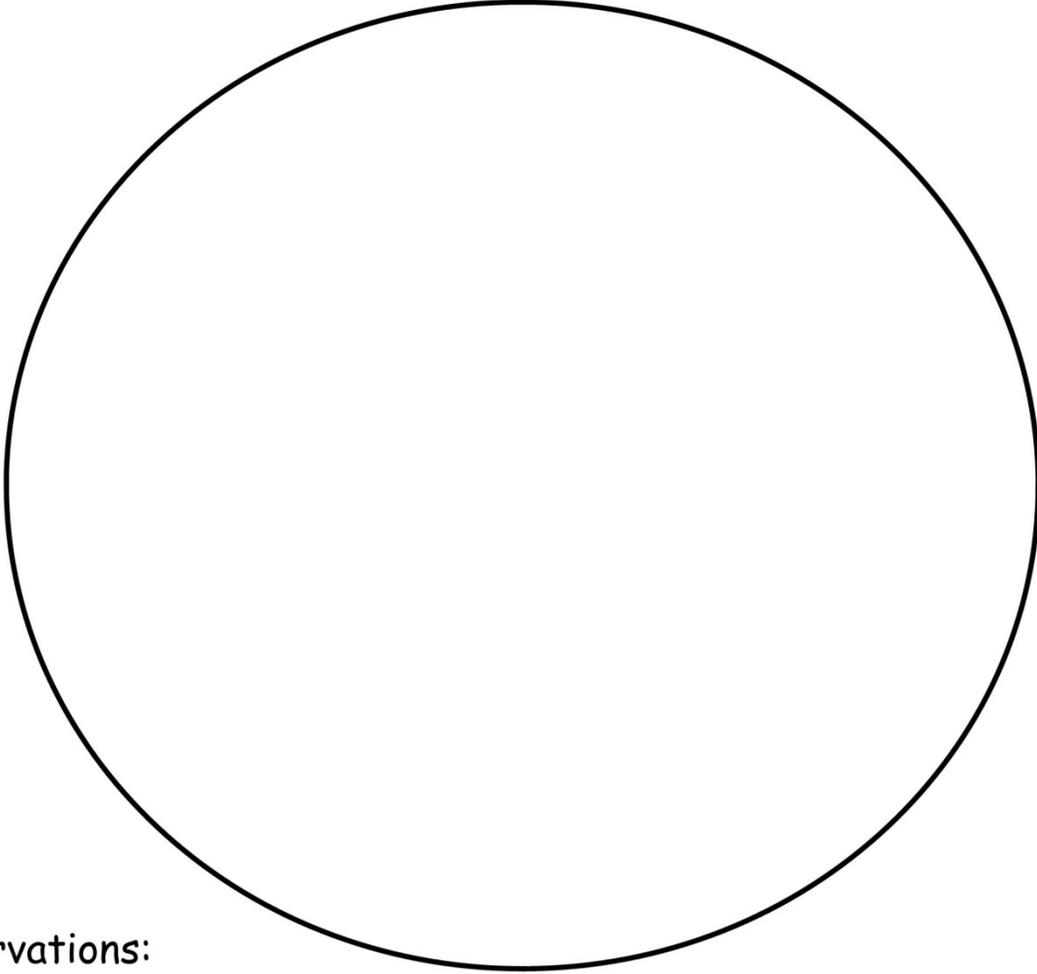
Students could also do a Inquiry project

They might include:

- Why do some dandelions have bigger leaves than others?
- Which pollinators regularly visit the plant?
- A photo essay of the plant throughout its life cycle could be constructed.
- Which components of the plant allow it to be a pioneer species?
- A comparison of seed dispersal between two of the same plants.

Hula Hoop Survey

Name _____



Observations:

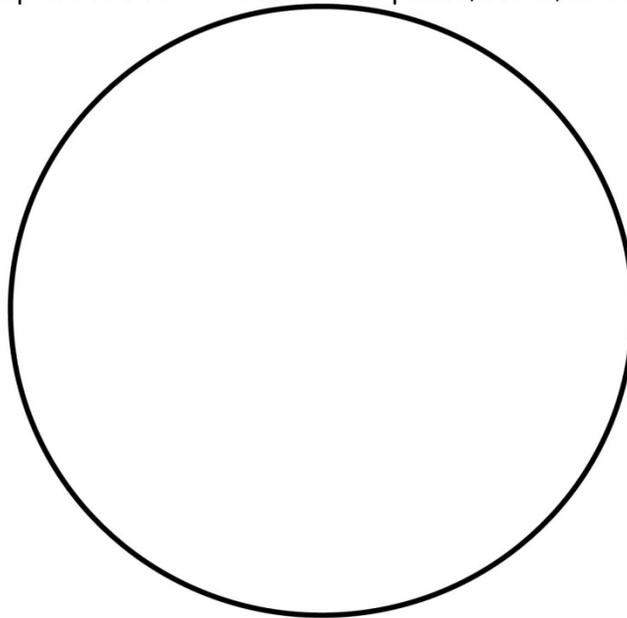
Hula Hoop Sampling

Name(s) _____

Directions: Take the hula hoop to a designated site and either throw it or place it on the ground.
Answer the following questions. Be sure to leave the site as neat as you found it.

1. Describe the site. Where is it located (in the woods, field, etc)? Is it the area full of plants, leaves, dirt patches? Is it in shade or full sun?

2. Draw a detailed map in the circle below. Include plants, rocks, sticks, dirt patches, etc.



3. Do you see any water within the hoop? _____

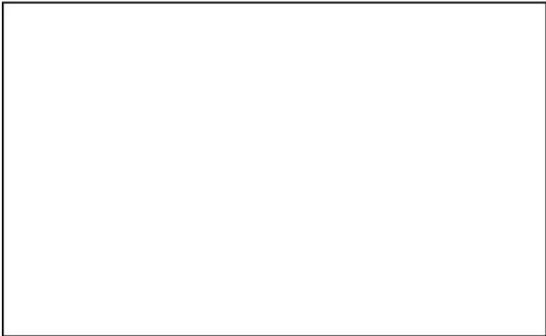
4. Carefully scrape up a small sample of soil. Roll it around between your fingers. Describe The soil. Is it wet or dry? Is it smooth soil or gritty? What color is it?

5. Do you see any animals inside your hoop (insects are animals)? What kinds? Describe.

Hula Hoop Sampling

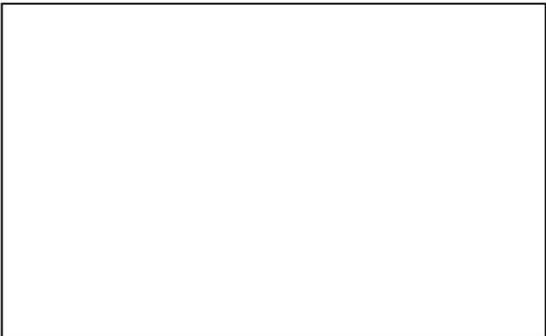
6. Look at the plants located within the hula hoop. Draw one of each different species of plant. Use more paper if needed. Determine type of plant, either woody or herbaceous. Count or estimate how many individuals of each species of plant within the hoop. Write down any observations regarding the plant such as measurements, insect damage, strange growth, etc.

Plant 1
Identification _____



Type _____
How many? _____
Observations _____

Plant 2
Identification _____



Type _____
How many? _____
Observations _____

Plant 3
Identification _____



Type _____
How many? _____
Observations _____

Plant 4
Identification _____



Type _____
How many? _____
Observations _____

