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Building a Quadrat Activity

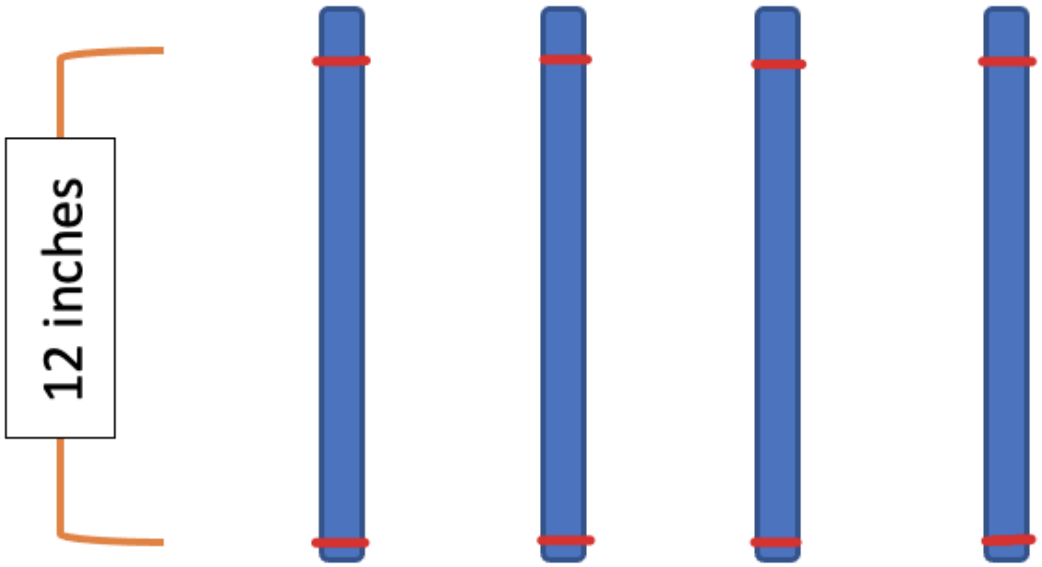
Directions: *Use the following instructions to develop your own quadrat! You will investigate the biodiversity of plant and animal life in your residential and naturally growing areas. Be sure to keep track of your investigation in your STEM journal!*

Materials Needed:

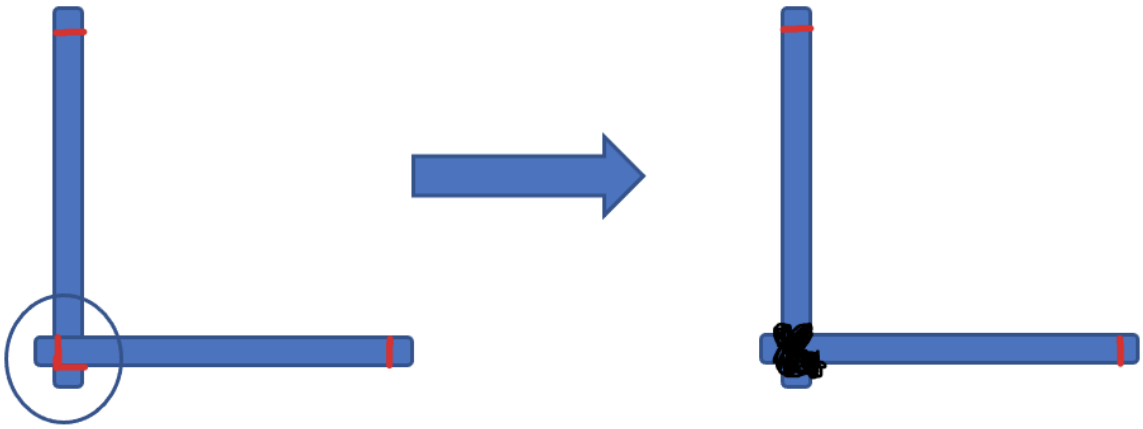
- 4 feet of yarn (or sturdier material, e.g., 4 foot-long sticks), ruler, tape or glue, STEM journal, camera, writing utensil

Part 1: Building your Quadrat:

1. Take your yarn, measure and cut 4 pieces that are about a foot long (or 12 inches). You should have 4 pieces of yarn that are the same size.



2. Take two pieces of yarn and tie them together at a right angle, as seen in the image below. ***Note: if using a sturdier material such as sticks, use tape or string to connect the corners as seen below.***



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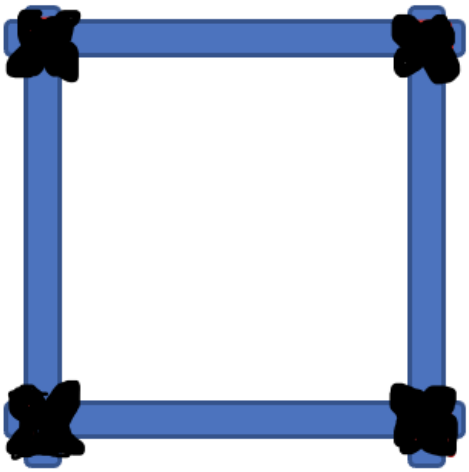
3. Repeat this process to make the other three corners until you have a square that looks like this, then your quadrat is complete! To use your quadrat, place one of the 4 weights on each of the corners to hold it in place.



Part 2: Measuring Biodiversity in your Backyard:
Note: Please complete the following under adult supervision! Proceed with caution when exploring plant and animal life. For assistance with plant species, refer to the Common Native Plant Species guide provided.

1. Take your quadrat, a camera, and your STEM journal to the closest area of grass near you (backyard, park, alongside a sidewalk, etc). Place your quadrat down using 4 weights, one in each corner, to keep it in place.
2. Once your quadrat is in place, and you have your STEM journal in hand, set a timer for three minutes and start making observations.
3. During this time, you want to record, either by writing down or drawing, every organism that you see inside your quadrat. Feel free to take pictures so you can share your findings with The Green Team. Make sure to put enough detail in your observations so you can refer back to them later in the activity.
4. Count the total number of species you found within your quadrat and record this number. Once you are finished with your observations and pictures, return home to wash your hands and get ready for the second adventure.

Part 3: Measuring Biodiversity at a Grassland:

1. Head to the closest local prairie, grassland or nature reserve/park near you (with parent permission).
2. Using your quadrat, repeat the same process as done in Part 2 to count and photograph the different types of species.

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3. Once you have counted all species within your quadrat and finish making your observations, it's time to compare our results.

⇒ **VIRTUAL ALTERNATIVE**: If you are not able to visit a local nature reserve/park, click here for a list of temperate grasslands, savannas and shrublands.

1. Select an option close to your location.
2. Read the description provided and write down the names of 5-10 of the given species.
3. Use a search engine on the Internet to find images of the different species that you chose and look over them while writing down observations of each in your STEM journal.

Part 4: Comparing the Biodiversity of the 2 Samples

1. Review the observations you made at both locations from Parts 2 and 3.
2. On a new page in your STEM journal, draw a line down the middle to make two sections: use one side to write down all the similarities you have noticed between the two and the other side to discuss the differences as seen in the table below:

Similarities Observed in Both Locations	Differences in Each Location

Part 5: Identifying Different Species

1. Use the Common Native Plant Species to identify the different grasses and plants you may have found.
2. Label each of the species in your data recordings. This may be useful in designing your own pocket prairie!

⇒ **OPTIONAL:** Be a Citizen Scientist with iNaturalist

Note: Children under 13 must have the consent of a legal guardian to create an account.

1. Download iNaturalist app or go to iNaturalist website and create an account.
2. Using your iNaturalist, upload your photos to see if you could identify some of your local biodiversity; only upload the grasses/plant species if you found other species such as pollinators or insects.
3. If you are doing the online alternative, make sure you only upload the pictures that you took close to your house. Avoid uploading images found online.

-End-