

The effects of trampling on an area of plants



**ASSIGN
BUSTER**

Preliminary work: - We went on a nature walk around the grounds of the school, to see the different varieties of plants and grasses in different areas. We noticed that in the area in front of one of the buildings where the children waited for the coaches, there were a lot less flowering plants, than in the area next to the football field where few people go. The differences between the sites, was due to trampling. We wanted to find out exactly how many more species of plants there were in the two areas, along with their abundance. In order to do this, we needed to carry out an experiment.

Involved, we needed to see, on average, how many of each plant were in the trampled and non-trampled area. We could then compare them. Prediction :
- There would be a greater range of plants in larger abundance, in an area that has rare trampling, as oppose to an area which is frequently trampled because the earth is less compacted so plants will lose air and nutrients. Also, in the area of less trampling, there would be more, of the taller growing plants and flowering plants and less little plants because less light is available to them. In the more trampled area, there would be more low growing grasses, and rosette plants.

This is because as they are stepped on, their meristem is not badly damaged because it is a basal meristem at the bottom of the plant. The meristem is the thing that helps the plant to grow. Without it, it would die. A tall flowering plant has an apical meristem at the top so as it is stepped on, it is badly damaged as it is crushed.

This going on continuously would kill the plant. As a result, I think this would contribute to a lack of the varieties of plants in the trampled area as oppose

to the non-trampled area
Apparatus: - a point quadrat
2 large tape measures at a 90 degree angle in the ground, a biological key, a pencil,
Method: - The variable in the experiment was the trampling and non-trampling, thus everything had to be the same. Both sites were looked at the same day so the weather was the same, they are quite near each other, so have the same soil, and are both south facing so have the same amount of sun light. I will visit site 1 by the football field first. I will take all the equipment.

The site has few people walking on it so the plants are not affected by human interaction. I will put the tape measures out on the ground, adjacent to each other at a 90 degree angle. The tape measures give us our X and Y axis', and with a set of numbers picked randomly (to avoid biased), I need find the coordinates and drop the ruler on the ground. At each ten-centimetre interval, find what plant is on the mark and with the biological key to identify the plants, I will tick the appropriate box.

After, I will make my way to outside the science building by the pavement. When it is hot, people sit, walk and talk there, and everyday, wait for the coaches. Again, I need to arrange the tape measures the same way as in site 1, and find the coordinates given previously. We will do this experiment ten times, in order to get the most accurate results.

They show the diversity of the plants. Meaning their abundance and how many of the same species there are. The graph shows the difference between the same types of plants in site one and site 2. Results:- After adding up the numbers of plants there are, we sort them into two tables, 1 for site 1 and one for site 2.

On a separate page is a graph showing the direct comparison between the plants in site 1 and 2. The low lying white clover, is the only plant in site 2 more in abundance than site 1. As well as the white clover, the grasses were most recorded. In order to find the true abundance, and variety of plants, we found the diversity with a simple formula. Diversity of site 1 - 5.

6067Diversity of site 2 - 3. 7641By these results, there is clearer a greater abundance and variety of plants in site 1. Evaluation: - Through this experiment we managed to get a good idea about the types of plants around the school, and one of the main reasons why there is a bigger diversity in one area than another. The method of the experiment, was the best way to find the results, however, the measuring ruler when put in the floor could easily have moved when we tried to find the plants, and when adding up the totals for the graph, it was very easy to accidentally miss count them. This is shown by the fact that: - dandelions are low growing rosette plants and are usually seen on heavily trampled on grass, however, in this experiment, more dandelions were found in site 1 than 2.

However, there was some amount of accuracy between the results, because altogether, we did 20 quadrats, to try to wipe out the scenario of luck and mistake.