
GCSE Biology required practical activity 9: Field investigations

Student sheet

Required practical activity	Apparatus and techniques
Measure the population size of a common species in a habitat. Use sampling techniques to investigate the effect of a factor on the distribution of this species.	AT 1, AT 3, AT 4, AT 6, AT 8

Investigating the population size of daisies in trampled and un-trampled parts of a school field

The size of a population of animals or plants in a habitat can be estimated by taking samples of the organisms from the habitat. The larger the sample, the more accurate your estimate of the population size is likely to be.

Plants can be sampled more easily than animals because they are unable to move around within the habitat. By sampling, population sizes can be compared between different areas.

In this experiment, you will compare the population sizes of daisies in trampled and un-trampled parts of your school field using a transect line and a quadrat.

Learning outcomes
1
2
Teachers to add these with particular reference to working scientifically

Method

You are provided with the following:

- a 1 m² quadrat
- a 30 m tape measure
- a clipboard
- a pen
- paper.

You should read these instructions carefully before you start work:

1. Place the 30 m tape measure across a well-trampled part of the school field to form a transect line.
2. Place the 1 m² quadrat against the transect line so that one corner of it touches the 0 m mark on the tape measure.
3. Count the number of daisy plants within the quadrat.
4. Record the number of daisies counted within the quadrat in a table such as the one here.

Distance along the transect line in m	Number of daisy plants per 1 m ² quadrat	
	Trampled	Un-trampled
0		
5		
10		
15		
20		
25		
30		
Mean number of daisy plants per m ²		

5. Move the quadrat 5 m up the transect line and count the number of daisy plants again. Record in the table.
6. Continue to place the quadrat at 5 m intervals and count the number of daisy plants in each quadrat.
7. Calculate the mean number of daisy plants per m² for the trampled area.
8. Move the 30 m tape measure to an un-trampled part of the school field to form the new transect line.
9. Place the quadrat at 5 m intervals as before and count the number of daisy plants in each quadrat. Record in the table.
10. Calculate the mean number of daisy plants per m² for the un-trampled area.
11. Compare the population size of daisies in the well-trampled and un-trampled parts of the field.