

## Investigation into factors affecting the abundance and distribution of a species

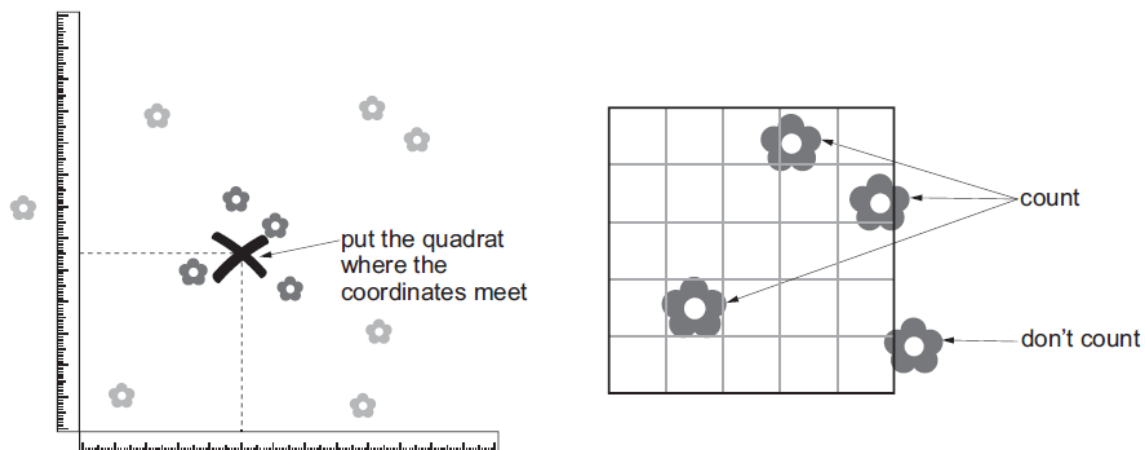
### Introduction

Daisies are a common plant species that can be found on a school field. Using quadrats for random sampling allows you to estimate the numbers of daisy plants growing in this habitat. This technique also reduces sampling bias. A simple calculation can then be used to estimate the total number of daisy species in the entire school field habitat.

### Apparatus

2 × 20m tape measures  
2 × 20 sided dice  
1 m<sup>2</sup> quadrat

### Diagram of Apparatus



### Method

1. Lay two 20m tape measures at right angles along two edges of the area to survey.
2. Roll two 20 sided dice to determine the coordinates.
3. Place the 1 m<sup>2</sup> quadrat at the place where the coordinates meet.
4. Count the number of daisy plants within the quadrat. Record this result.
5. Repeat steps 2-4 for at least 25 quadrats.

## Analysis

1. Use the following equation to estimate the total number of daisy plants in the field habitat:

$$\text{Total number of daisy plants in the habitat} = \text{total number in sample} \times \frac{\text{total area (m}^2\text{)}}{\text{total sample area (m}^2\text{)}}$$

Where:

total area = 400 m<sup>2</sup>

total sample area = number of 1 m<sup>2</sup> quadrats used