AQA Biology GCSE

RP9: Field investigation

Practical notes

Field investigation

Aim

A. Use random sampling to estimate the population size of a plant species.
B. Use continuous sampling with a transect line to investigate the effect of variation in a factor on the distribution of a plant species.

Equipment

- Frame quadrat (25 cm by 25 cm)
- Tape measures
- Clipboard
- Pen
- Paper

Method for part A

1. Use a random number generator to obtain 2 numbers, which are to be used as coordinates to find a location on the 2 tape measures set up.
2. Set down the quadrat at the coordinates.
3. Count and record the number of the required plant species in the quadrat.
4. Repeat steps 1-3 to take 9 more samples.
5. Estimate the population size using this formula:

   area sampled / total area x number of plant species counted

Method for part B

1. Write down a hypothesis of the effect of a change in an abiotic factor (eg. light intensity) on the distribution of the plant species.
2. Lay down a tape measure from the base of a tree to an open area of ground/ along a location with an ecological gradient.
3. Place the quadrat along the '0' end of the tape measure, with one corner touching the '0' mark.
4. Count the number of plants and record it in a table as seen below.
5. Place the quadrat 5 m up the tape measure and repeat step 3.
6. Repeat step 4 at 5 m intervals until you reach the end of the transect line.
7. Gather data from your class to find the mean number of plants at each point along the transect.
8. Plot a graph of 'number of plants' against the ecological gradient that is observed as the distance along the transect line increases. Compare your results to your hypothesis. [1]

Distance along the transect line in m	Number of plants	Light intensity

[1] AQA Practical Handbook

Sources of error

Without repetitions, the results from only one belt transect may be anomalous and not reliable.

Risk assessment

Wash hands thoroughly after the experiment.