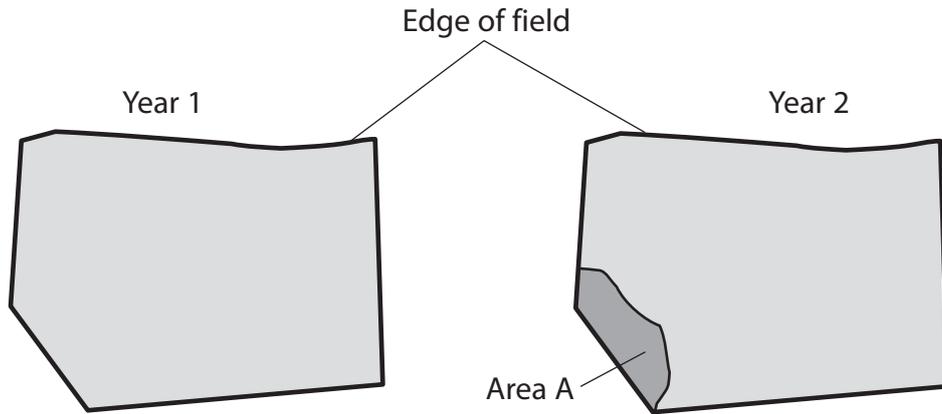


3 A student studied one field in two different years.
She recorded some information, shown in the diagram below.



25 different species of plant
found in field
All species abundant in field

18 different species of plant
found in field
4 species very abundant,
12 species abundant and
2 species rare

(a) Using the information in the diagram, suggest in which year the species richness was greater. Give a reason for your answer.

(2)

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(b) Buttercup plants were found in this field in both years. Buttercup plants can produce new plants by asexual reproduction.

(i) Name the type of cell division required for asexual reproduction.

(1)

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(ii) The genetic diversity of buttercup plants in the field is low.
Describe and explain why asexual reproduction results in low genetic diversity. (2)

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*(c) Another student noted that several species of plant did not grow as well in area A as they did in the rest of the field. He suggested this was due to a shortage of nitrate ions in the soil in this area.

The effect of varying nitrate ion concentration on the growth of one plant species can be investigated in a laboratory.

Describe how this investigation can be carried out to produce **reliable** results. (5)

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(Total for Question 3 = 10 marks)

