There are three species of small plant growing in an area, as shown on the map below. You are going to estimate the numbers of each species using 10 squares on the map as a sample.

To choose a sample square, shut your eyes and circle your finger over the text on this sheet. Drop your finger and write down a letter from **a–f** that is closest to your finger. Find that letter on the horizontal row of letters on the map. Then repeat this process to find another letter from **g–k** on the vertical row. Find the square that matches your two letters.

Take 10 samples. In each square, count the numbers of each type of plant. Any plant that is more than halfway into the square is counted; any plant that is less than half way in is not counted.

1 Draw a table to show each square you have sampled (identify them with your two letters) and the number of each type of plant in each square.

2 Count up the number of each plant in your total sample area (10 squares).

3 Count the total number of squares on the map.

4 Use your answers to questions 2 and 3 to estimate the population of each type of plant.

5 a Count up the number of thistle plants in the whole area. Use your answer to comment on the accuracy of your estimate for the thistle population.

b How could you improve the accuracy of your estimate?

c What is the disadvantage of trying to improve accuracy in this way?
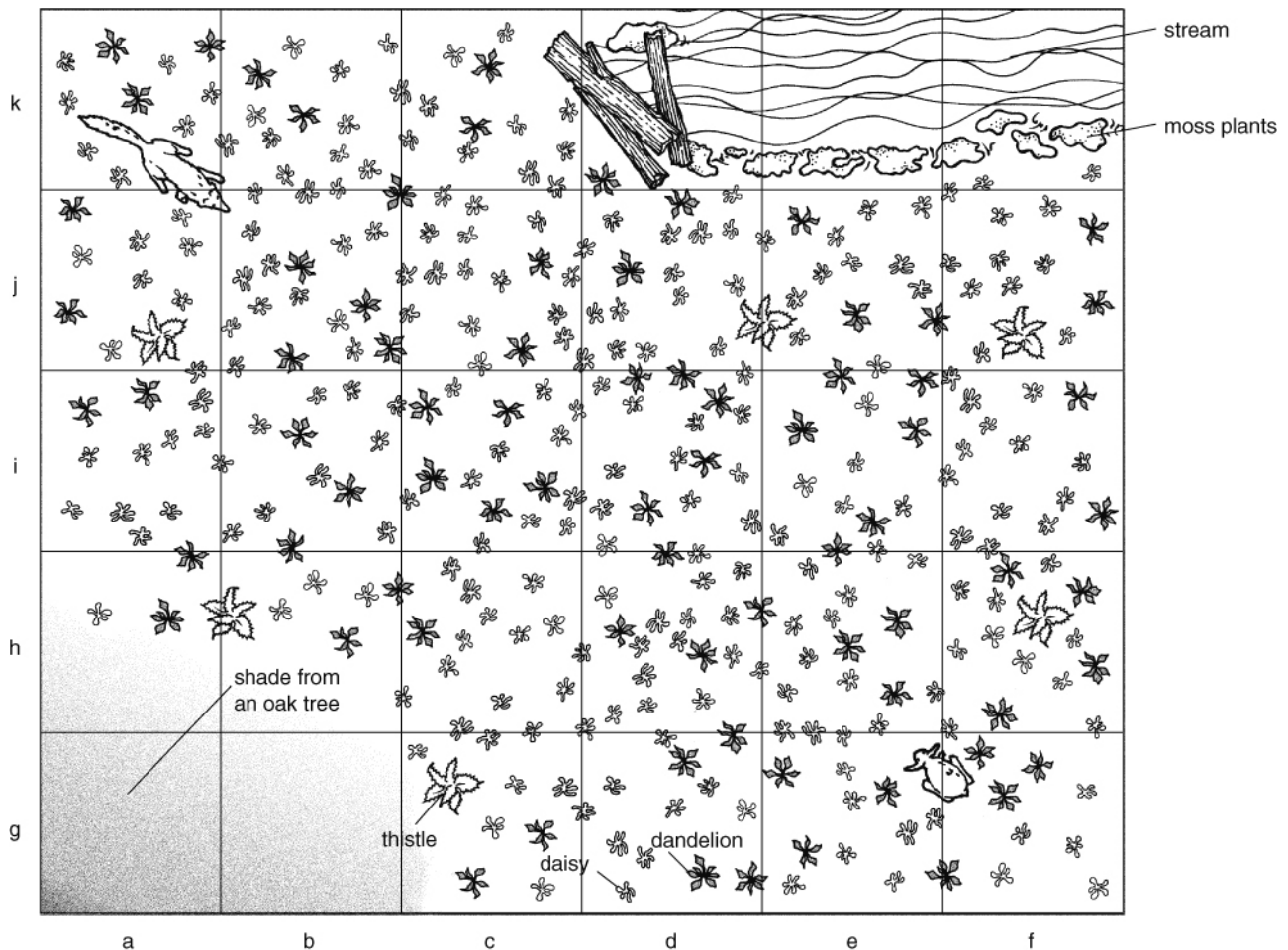
I can…

- use samples to calculate estimates
- use accuracy as a criterion for evaluation.