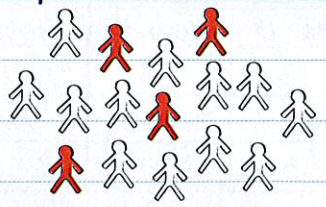
A* A B C D

Stratified sampling

Sample

A SAMPLE is a small group chosen from a larger population.

The red figures represent a sample of 4 from a population of 16.



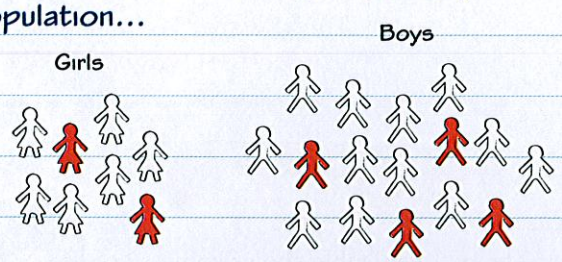
You can make conclusions about a population by collecting data from a sample.

It is usually cheaper and quicker to collect data from a sample.

Stratified sampling

A stratified sample is one in which the population is split into groups. A simple random sample is taken from each group. The number taken from each group should be in proportion to the size of the group.

There are twice as many boys as girls in this population...



... so you need twice as many boys as girls in a stratified sample.

Worked example

grade A

The table below gives some information about some students in a school.

Year group	Boys	Girls	Total
Year 12	126	94	220
Year 13	77	85	162
Total	203	179	382

Andrew is going to carry out a survey of these students.

He uses a sample of 50 students, stratified by year group and gender.

Work out the number of Year 13 girls that should be in his sample.

$\frac{85}{382} \times 50 = 11.12... \approx 11$

EXAM ALERT!

Only a quarter of students got full marks for this question. If you see the word 'stratified' in a question underline it.

Write the number of Year 13 girls as a fraction of the total population then multiply by the sample size. Round your answer to the nearest whole number.

This was a real exam question that caught students out – **be prepared!** ResultsPlus

Now try this

edexcel

grade A

1. There are two age groups in a competition. This table shows the number of competitors in each group.

Age group (years)	Boys	Girls	Total
11–16	105	136	241
17–20	62	90	152
Total	167	226	393

Niki is going to carry out a survey of the competitors.
She uses a sample of 60 competitors, stratified by age and gender.
Work out the number of boys in the 11–16 age group that should be in her sample. **(2 marks)**

grade A

2. The table gives information about the numbers of students in the two years of a college course.

	Male	Female
First year	399	602
Second year	252	198

Anna wants to interview some of these students.

She takes a random sample of 70 students stratified by year and by gender.

Work out the number of students in the sample who are male and in the first year. **(3 marks)**