Your teacher may watch to see if you can:

● measure accurately.

## Aim

You are going to measure the heights of the people in your class and plot a bar chart.

## Introduction

Your bar chart is a type of frequency diagram. It will allow you to see the range of different heights in your class and how common the different heights are.

## Method

### Apparatus

● metre rule or tape measure
● large sheet of blank paper
● pencil
● sticky tape or Blu-Tack®

**A** Find a wall that people can stand up against.

**B** Stick the large piece of paper onto the wall, so that people's heads can rest against it.

**C** Get each person in your group to take off their shoes and stand up against the wall in turn.

**D** Mark where the top of each person's head is, on the piece of paper.

**E** Measure from the floor to each mark and write down the heights. Round the heights up or down to the nearest whole centimetre. For example, a height of 125.4 cm is rounded down to 125 cm but a height of 125.5 is rounded up to 126 cm.

## Recording your results

**1** Copy the tally chart below. Put a '|' in the correct 'Tally for the height group' column for each person you measure. For example, if you have somebody with a height of 122 cm, you would put a '|' in the 120–124 height group.

| Height group (cm) | Tally for the height group | Total number of people in group |
|---|---|---|
| 100–104 | | |
| 105–109 | | |
| 110–114 | | |
| 115–119 | | |
| 120–124 | | |
| 125–129 | | |
| 130–134 | | |
| 135–139 | | |
| 140–144 | | |
| 145–149 | | |
| 150–154 | | |
| 155–159 | | |
| 160–164 | | |
| *Total number of people measured:* | | |

## Considering your results/conclusions

**2** Draw a bar chart to show you data. Put the total number of people in the height group on the vertical axis and the height groups on the horizontal axis. Your bar should look something like the one below. Remember that, because heights are in the form of continuous data, you do not leave gaps between the bars.

**3** What trend or pattern does your bar chart show?

**4** Now look at this bar chart. It shows the heights of 3193 12 year olds from around the UK. How does your bar chart compare to this one? What are the main differences in shape?
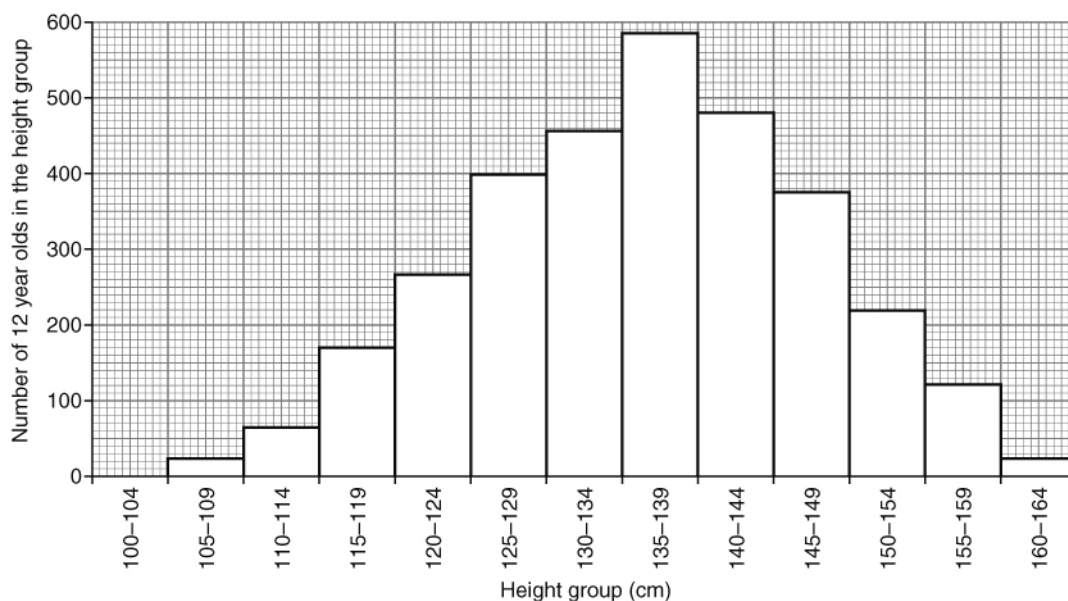


## Evaluation

**5 a** Why would it not be fair to add your teacher into your results?

**b** What would happen to the shape of your chart if only girls' heights were measured?

**c** Are there any other variables (factors) that might change the way your chart looks?

**6** The number of people that you measured is your sample size. What sample size did you use?

**7 a** If you measured the height of every 12 year old in the country and drew a bar chart, would you expect it to look more like the bar chart of your class or the bar chart of the 3193 12 year olds?

**b** Explain why you think this. Use the words 'sample size' in your answer.

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**I can...**
- record data in a tally chart
- present data as a bar chart.
- evaluate my method.