children should be able to make comparisons and create questions that require a calculation, such as: How many more people scored more than the mode? How many people scored more than 6 but less than 15?

carefully drawn, accurate graphs. Emphasise the importance of adding labels and a title. Ask questions to assess the children's level of understanding: *What is the x-axis showing? What about the y-axis? Why would this graph be unhelpful if it did not have titles and labels? Pretend that the titles and labels are missing – what could this graph be about?* (For example, shoe sizes, age, pets.) *What is the range? What is the mode?*

Lesson 3 (Teach)

Starter

Rehearse: Show the children the random measurements written on the board. Explain that each one has a matching equivalent. Ask for volunteers to come and link matching pairs using a coloured pen line (for example, linking 2 litres to 2000ml).

Main teaching activities

Whole class: Explain that the scale used on the *y*-axis of a graph is very important. Firstly, it has to fit on the page. Secondly, because graphs and charts present information visually, changing the scale can produce graphs that look very different, and this can be misleading.

Distribute the 'Lazy Larry's ice creams' activity sheet. Explain that the chart of figures shows the number of ice creams a van driver has sold over an eight-month period. He is hoping for a bonus, so he wants the graph that he presents to his boss to look as impressive as possible. On the first graph, the *y*-axis (representing the number of ice creams sold) is marked in 2s; on the second, it is marked in 20s. Ask the children to put the data onto both graphs in the form of a bar chart or bar line graph.

Independent work: The children complete both graphs from the information given in the chart, then answer the questions. Alternatively they could use a spreadsheet program such as *Microsoft Excel* or *Numberbox 2* to draw the graphs.

Review

Discuss the visual impact of each graph, emphasising that both versions display the same data. Ask the children which graph makes the salesman look more hardworking and successful. (Graph 1, because the upward trend of the graph is steeper.) Ask: *How many more ice creams did Larry sell in June than in January? Is this what you would expect? Why? Do you think he may have taken some secret days off during the summer? What excuses might he have for not increasing his sales more during the summer? Do you think his boss will be very impressed? How can you explain the difference between the two graphs?*

Differentiation

Less confident learners: Provide the support version of the activity sheet on which the second graph is already drawn; the children can draw the first graph and concentrate on answering the question.

More confident learners: Provide the extension version, which asks the children more challenging questions about the two graphs.

Lesson 4 (Practise)

Starter

Revisit: Use the 'Pictogram' interactive resource to create a pictogram as a class, using one symbol to represent two items. Add labels and a key and then use the pictogram to extract information and make statements. Ask: *What is indicated by half a symbol?*

Main teaching activities

Whole class: Explain that the children are going to investigate the probability or likelihood of making one total more often than any other when throwing two dice. Discuss which is likely to produce more accurate results: throwing the dice twice, ten times or 100 times. The dice throwing can be simulated using a program such as *NumberBox 2* (Black Cat Software). Explain that throwing the dice more times will increase the accuracy of the conclusions.

Explain that the children will then use a spreadsheet program (*Microsoft Excel* or *Numberbox 2*) to draw a bar chart to display their results. Discuss