

Reasoning and Problem Solving

Step 2: Bar Charts

National Curriculum Objectives:

Mathematics Year 3: (3S1) [Interpret and present data using bar charts, pictograms and tables](#)

Mathematics Year 3: (3S2) [Solve one-step and two-step questions \[for example, 'How many more?' and 'How many fewer?'\] using information presented in scaled bar charts and pictograms and tables](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Use the clues to work out the missing bars on the bar chart. Scale with intervals of 1, 2 or 10. No half intervals on bar charts.

Expected Use the clues to work out the missing bars on the bar chart. Scale with intervals with 1, 2, 5 or 10. No half intervals on bar charts.

Greater Depth Use the clues to work out the missing bars on the bar chart. Scale with intervals of 1, 2, 3, 5 and 10. Including half intervals on bar charts, with some different scales.

Questions 2, 5 and 8 (Reasoning)

Developing Use the bar chart to explain whether the statement is correct. Scale with intervals of 1, 2 or 10. No half intervals on bar charts.

Expected Use the bar chart to explain whether the statement is correct. Scale with intervals with 2, 5 or 10. No half intervals on bar charts.

Greater Depth Use the bar chart to explain whether the statement is correct. Scale with intervals of 2, 3, 5 and 10. Including half intervals on bar charts, with some different scales.

Questions 3, 6 and 9 (Problem Solving)

Developing Draw a bar chart from the given statements. Three clues and suggested scale with intervals of either 1, 2 or 10. No half intervals on bar charts.

Expected Draw a bar chart from the given statements. Four clues and independent choice of appropriate scale. No half intervals on bar charts.

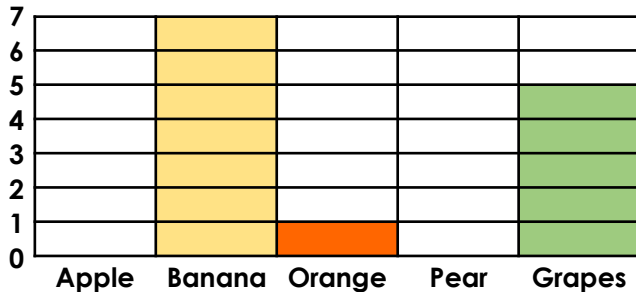
Greater Depth Draw a bar chart from the given statements. Four complex clues and independent choice of appropriate scale. Including half intervals on bar charts, with some different scales.

More [Year 3 and Year 4 Statistics](#) resources.

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Bar Charts

1a. Here is a bar chart to show Year 3's favourite fruits.



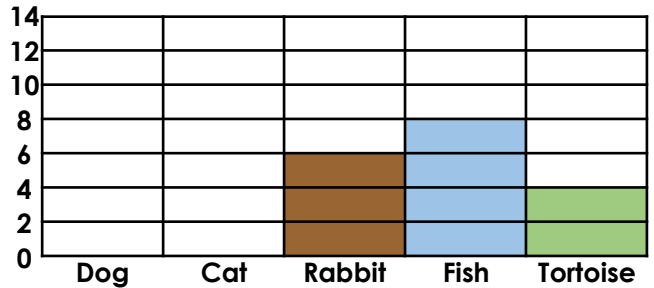
More children like apples than pears, but fewer like pears than grapes. Complete the bar chart showing how many children could like apples and pears?



3 PS

Bar Charts

1b. Here is a bar chart to show Year 3's favourite pets.

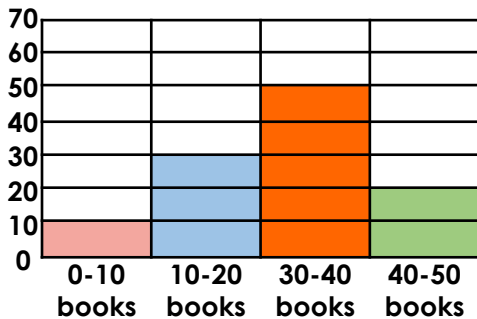


Fewer children have dogs than cats, but more children have dogs than fish. Complete the bar chart showing how many children could have dogs or cats?



3 PS

2a. Zain draws a bar chart to show the number of books Year 3 children read.



Zain says,

2 children read 40-50 books a year.

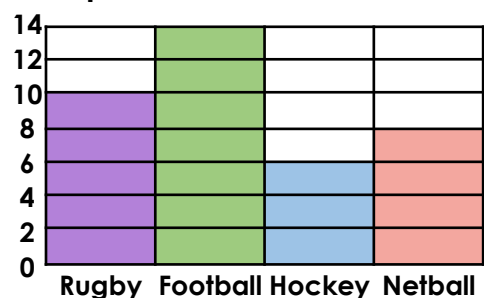


Is he correct? Explain your answer.



3 R

2b. Olivia draws a bar chart to show the favourite sports of Year 3 children.



Olivia says,

30 children like hockey.



Is she correct? Explain your answer.



3 R

3a. A class collects data about the traffic.



We saw 5 more cars than vans.

We only saw 2 motorbikes.



We saw 1 more van than bus.



We saw 3 buses.



Draw a bar chart to display this information. The scale should go up in 1s.



3 PS

3b. A class collects data about pizzas.



Only 4 children like ham pizzas.

6 fewer children like veggie than cheese pizzas.



10 children like cheese pizzas.



2 children like tuna pizzas.



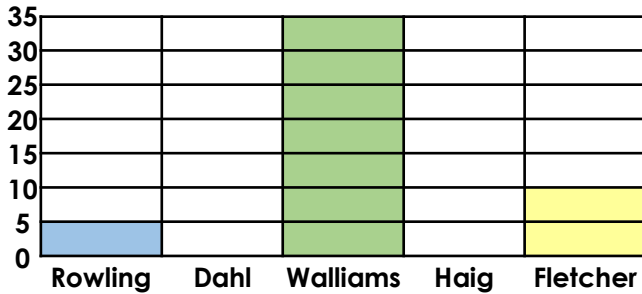
Draw a bar chart to display this information. The scale should go up in 2s.



3 PS

Bar Charts

4a. Here is a bar chart to show Year 3's favourite authors.



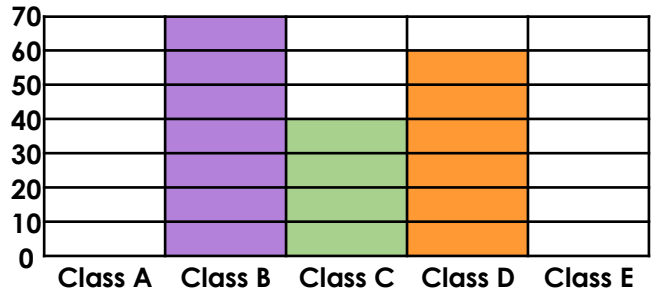
More children like Dahl than Haig, but fewer like Haig than Walliams. Complete the bar chart showing how many children could like Dahl and Haig?



3 PS

Bar Charts

4b. Here is a bar chart to show Year 3's house points.

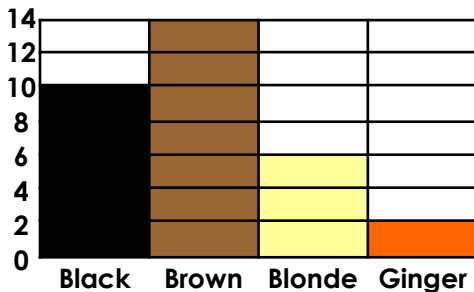


Class A have fewer points than Class E, but Class E has more than Class C. Complete the bar chart showing how many points Classes A and E could have?



3 PS

5a. Maleeha draws a bar chart to show the hair colour of Year 3 children.



Maleeha says,

3 children have blonde hair.

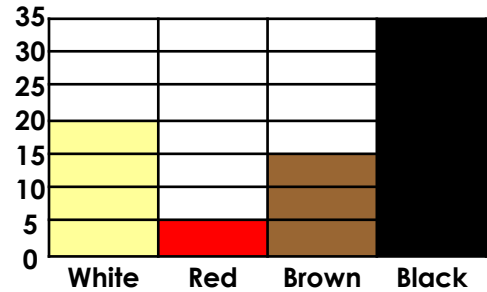


Is she correct? Explain your answer.



3 R

5b. Jakub draws a bar chart to show the shoe colour of Year 3 children.



Jakub says,

4 children have white shoes.



Is he correct? Explain your answer.



3 R

6a. A class collects data about pets.



There are 10 more cats than dogs.



Only 5 children have hamsters.



There are 15 more dogs than fish.



20 children have fish.

Draw a bar chart to display this information. Choose a suitable scale.



3 PS

6b. A class collects data about insects.



We only saw 2 butterflies.



We saw 6 fewer slugs than worms.



We saw 4 ladybirds.



We saw 12 more worms than ladybirds.

Draw a bar chart to display this information. Choose a suitable scale.



3 PS

Bar Charts

7a. Here is a bar chart to show Year 3's favourite stories.



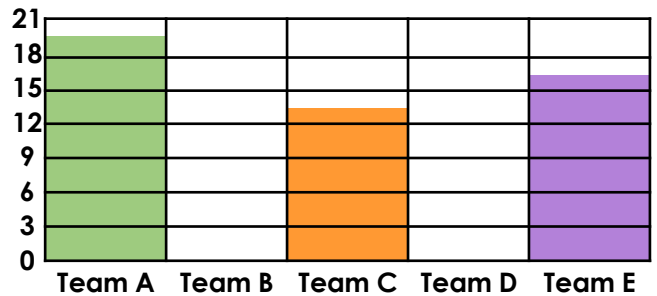
Fewer children like action than wizards, but more like action than comedy. Complete the bar chart to show how many children could like wizards and action?



3 PS

Bar Charts

7b. Here is a bar chart to show points scored in a quiz.

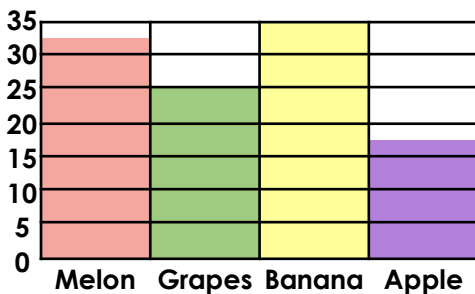


Team B have more points than Team D, but Team D has fewer than Team C. Complete the bar chart to show how many points Teams B and D could have?



3 PS

8a. Blake draws a bar chart to show the fruit sold by Year 3.



Blake says,

We sold 15 apples.

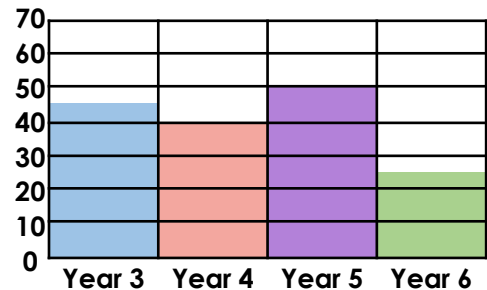


Is he correct? Explain your answer.



3 R

8b. Julia draws a bar chart to show the number of children having school dinners.



Julia says,

44 Year 3 children have school dinners.



Is she correct? Explain your answer.



3 R

9a. A class collects data about cakes.



We sold 3 more chocolate cakes than vanilla cakes.

We only sold 1 and a half red velvet cakes.



We sold 6 fewer vanilla cakes than carrot cakes.



We sold 10 and a half carrot cakes.



Draw a bar chart to display this information. Choose a suitable scale.



3 PS

9b. A class collects data about goals.



Team A scored 5 goals.

Team B scored 5 fewer goals than Team C.



Team D scored 10 goals.



Team C scored 10 more goals than Team D.



Draw a bar chart to display this information. Choose a suitable scale.



3 PS

Reasoning and Problem Solving Bar Charts

Developing

- 1a. Various answers, for example: 1 – 4 children could like pears and 2 - 7 children could like apples.
- 2a. No, because the scale goes up in 10s, 20 children have read between 40-50 books.
- 3a. An accurate bar chart. The scale should have intervals of 1.

Expected

- 4a. Various answers, for example: 5 - 25 children could like Dahl and 0 - 20 could like Haig.
- 5a. No, because the scale goes up in 2s, 6 children have blonde hair.
- 6a. An accurate bar chart. The scale should have intervals of 5.

Greater Depth

- 7a. Various answers, for example: 8 -14 children could like action stories and more children must like wizards than action.
- 8a. No, the chart shows that they have sold 17.5 apples.
- 9a. An accurate bar chart. The scale should have intervals of 3.

Reasoning and Problem Solving Bar Charts

Developing

- 1b. Various answers, for example: Between 9-14 children could have dogs and fewer children must have cats than dogs.
- 2b. No. because the scale goes up in 2s, 6 children like hockey.
- 3b. An accurate bar chart. The scale should have intervals of 2.

Expected

- 4b. Various answers, for example: Class E could have 50 - 70 points and Class A must have less than Class E.
- 5b. No, because the scale goes up in 5s, 20 children have white shoes.
- 6b. An accurate bar chart. The scale should have intervals of 2.

Greater Depth

- 7b. Various answers, for example: Team D could have 0-13.5 points and Team B must have more than Team D.
- 8b. No. 45 Year 3 children have school dinners.
- 9b. An accurate bar chart. The scale should have intervals of either 5 or 10.