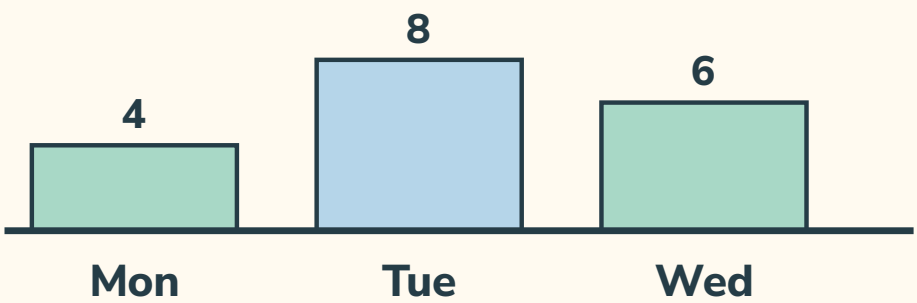
MATHS FIELD GUIDE · GRADE 5

Ask a question, collect data, choose a display

OPENING PROBLEM

How many records altogether?



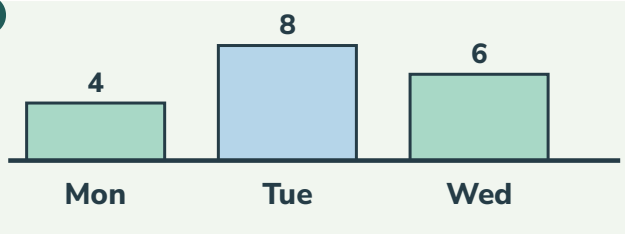
02 Read totals, gaps and scale
03 Rules and worked cases
04 Choose a display for rainfall
05 Compare the models
06 Read a display one mark at a time
07 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Read totals, gaps and scale

Check the key and the starting point before comparing heights.

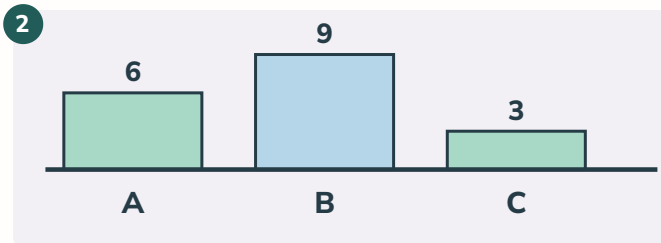
1



How many records altogether?

4 + 8 + 6 = 18. The tallest bar alone cannot give the total.

2



How many more in B than in C?

Nine minus three gives six. B also has three times C.

3

Key	Symbols	Votes
2 votes	4	8
4 votes	2	8

Which drawing represents more votes?

They represent the same eight. The number of symbols depends on the key.

4

Group	Total	Yes
A	10	6
B	20	8

Which group has more yes votes? Which has the greater share?

B has more yes votes. A has the greater share: 6/10 exceeds 8/20.

Totals 12 and 18
difference 6.

Totals 12 and 18
ratio 2:3.

CHAPTER PROBLEM

Each star means three students. What do four stars represent?

Twelve students.

MATHS REFERENCE · GRADE 5

Ask a question, collect data, choose a display

A statistical question expects varied answers from a group or repeated observations.

Data are the observations we collect to answer it. A display helps us see comparisons or change.

Cases to recognise

Situation	What to do and why
Compare four class sizes	Separate labelled bars let readers compare their heights.
Track temperature each hour	Plot time horizontally and temperature vertically to show the trend.

Read the model

Ask a question that allows variation

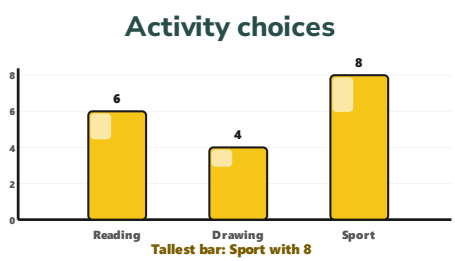
“How many books did students read this month?” can produce different counts.

“How many books did I read?” asks for one person’s fact, rather than a group’s variation.

Choose categories clearly

These bars show how many students chose each activity.

Read the title, activity labels and number scale before comparing. The categories all come from the same survey.



Bar graph

statistical question A question expecting variation in its data.
observation One recorded piece of information.
scale The values represented by graph intervals.
key A rule linking symbols to amounts.

What is the mean?

Scores	2	4	9
Total	15		

Redistribute fifteen points equally across three scores. Each gets five.

WORKED INVESTIGATION

Choose a display for rainfall

A rain gauge records 8, 12 and 4 mm on Monday, Tuesday and Wednesday. Bars make the separate daily totals easy to compare.

Look at this part	What it tells you
Monday	8 mm
Tuesday	12 mm
Wednesday	4 mm

Work it through

With one grid interval worth 2 mm, draw bars four, six and two intervals high. Tuesday has three times Wednesday's rainfall.

Catch the mistake

An axis starting at 6 mm would hide Wednesday's total and exaggerate apparent bar heights. Use a zero baseline for comparing bar lengths.

Compare the cases

Read a scale, not just a height

Each interval on that vertical scale represents two students.

A bar four intervals high represents eight students, not four. Start from the stated baseline.

A pictograph needs its key

Here each star stands for two students.

Three stars therefore mean six students. The pictures are not necessarily one object each.

Pictograph

Each ★ stands for 2

Reading	★ ★ ★	6
Drawing	★ ★	4
Sport	★ ★ ★ ★	8

Change one condition

A line joining daily readings can emphasise change across time. It does not give measured readings between those days.

2 **4** **9**

Which score is the median?

Four is in the middle of the ordered list. It differs from the mean of five.

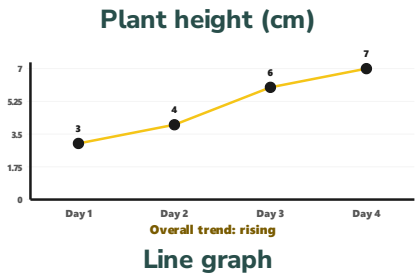
ASK A QUESTION, COLLECT DATA, CHOOSE A DISPLAY

Compare the models

Use a line for ordered change

A line graph can show a plant's measured height over successive days.

The day order matters. Joining unrelated category bars with a line would imply a sequence that is not there.



Line graph

Keep comparisons fair

Use a labelled consistent scale and show the key when symbols stand for amounts.

A graph that hides its starting value can exaggerate a small difference.

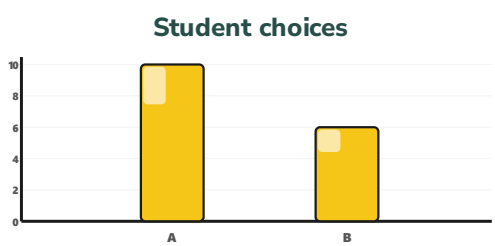
Know what the data do not prove

A survey of one class describes that class.

It does not automatically describe every child in every school. Say who was counted and how the information was collected.

Explain your reasoning

How many more students chose A than B? Read the scale.



Bar graph

Four more. A has ten students and B six.

Two more worked cases

Situation	Reasoning
A chart uses one block for five pupils	A fourteen-pupil increase needs 2.8 blocks. Use a labelled scale that allows partial blocks.
A bar rises from 40 to 45 on a cut-off axis	The gain is five. Compare values directly before judging its size from the picture.

1 3 3 9

Which score is most frequent?

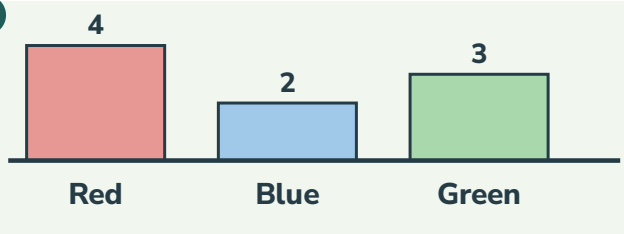
Three occurs twice. It is also the median. The range is 9 − 1 = 8.

ILLUSTRATED PROBLEM SHEET

Read a display one mark at a time

The key says what a mark is worth.

1



Which has the most votes?

Red has four. It has one more vote than green.

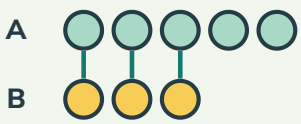
2



Each counter means two votes. How many votes in A?

Three marks represent six votes.

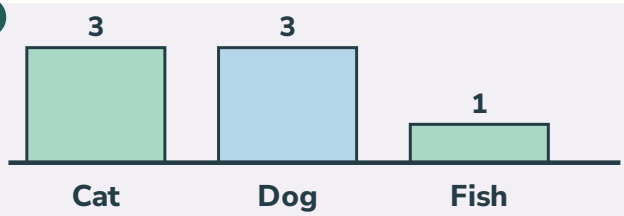
3



With one vote per mark, how many more voted A?

Three pairs match. Two votes remain in A.

4



Is there one winner?

Cat and dog tie with three each. Seven votes were cast.

A row with zero marks
zero recorded votes.

Two equally long rows under the same key
a tie.

CHAPTER PROBLEM

Should a survey of eight classmates be claimed as the preference of every child in the country?

No. State the group surveyed and avoid extending the claim without evidence.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 A chart counts books read in one week. Can it tell which book was most popular?	Only if it also records book titles. Counts per pupil alone cannot answer that question.
02 If the key changes from one vote per mark to two, do the voters change?	No. Each complete pair of votes now uses one mark.
03 A fourth day gets 10 mm. How many intervals high is its bar and how far below Tuesday is it?	At 2 mm per interval the bar is five intervals high. It is one interval, or 2 mm, below Tuesday.
04 A pictogram key says one symbol = 8 visits. How do you draw 20 visits?	Two whole symbols represent sixteen and a half symbol represents four.
05 A monthly total rises from 80 to 100. How large is the increase relative to the original?	Increase 20 ÷ 80 = 1/4, or 25%.

List	Low	High
A	4	6
B	1	9

The two-value lists both average five. Do they spread equally?

No. The ranges are two and eight.

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