

Mathematics Foundation

Chapter 6 — Statistics: asking a yes-or-no question and sorting what we find

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Collecting, sorting and comparing data with objects and images

This is read with the teacher. The teacher reads all the words. You look, you say, and you play. You do not need to read.

collect, sort and compare data represented by objects and images in response to given investigative questions that have only 2 outcomes and relate to familiar situations — VC2MFST01

Theory

A question with 2 answers

We can ask a question about our class. The question *Do you have a pet?* has 2 answers: yes and no. The question *Do you like apples?* has 2 answers: yes and no. We call these yes-or-no questions.

What is data?

Data is what we find out. We ask the question. The students answer. The answers are our data.

Sorting into 2 groups

We sort the data into 2 groups. The yes answers go in one group. The no answers go in the other group. We can sort things we can see: shoes, toys, counters. We can sort with stickers too.

Charts with stickers

We can make charts with stickers. Our stickers are stars. The charts have a place for yes and a place for no. The yes stars go in the yes place. The no stars go in the no place. Then we can see the data.

Matching one to one

We match one to one: one here, one there. When the groups match one to one, we can see which has more.

Which has more?

Look at the 2 groups. One group has more than the other group. Or the groups are the same. No group has more.

Do with the teacher

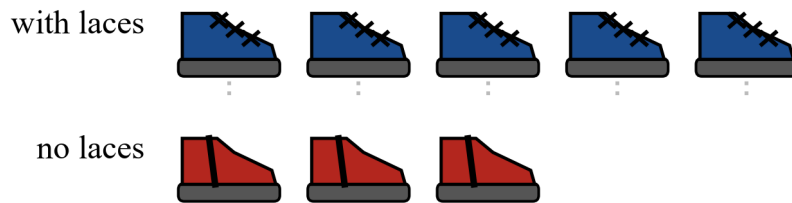
Do these with the teacher.

Example 1 — Shoes with laces and shoes with no laces

The question: *Do more people in our class today have shoes with laces than without?*

What we do	What we say
We put all our shoes on the mat.	We collect our shoes.
We sort the shoes. Shoes with laces go here. Shoes with no laces go there.	We sort into 2 groups.
We match the shoes one to one.	The shoes match: one for one.
We look. Some shoes with laces have no match.	The shoes with laces have more.
We count the shoes: 5 with laces and 3 with no laces.	5 is more than 3.
$\therefore$ More of the shoes have laces.	

Do more people in our class today have shoes with laces than without?



Five shoes with laces and three shoes with no laces, one next to one.

Example 2 — The pet question

The question: *Do you have a pet?*

What we do

What we say

We ask the students the question.

Yes or no?

The students put the stars on the charts. Yes stars go in the yes place. No stars go in the no place.

We sort the answers with stickers.

We look at the charts and count the stars: 6 yes stars and 2 no stars.

6 is more than 2.

∴ More students said yes. 6 students said yes. 2 students said no.

Do you have a pet?

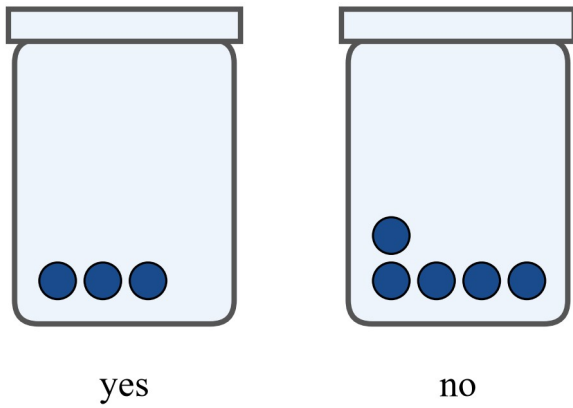
yes	★	★	★	★	★	★
no	★	★				

Charts with stars: 6 stars for yes and 2 stars for no.

Your turn

Do these with the teacher.

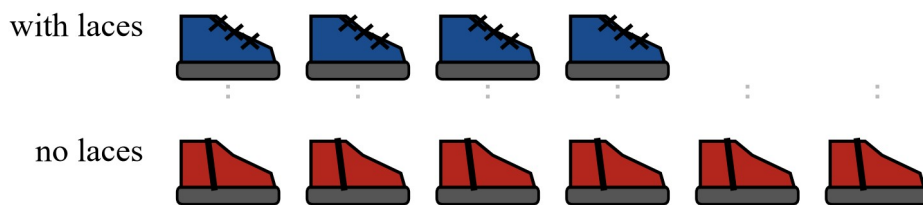
Q1. The question is: *Do you have a sister?* Look at the boxes.



Two boxes of counters: 3 in the yes box and 5 in the no box.

- Count the counters in the yes box. There are ____.
- Count the counters in the no box. There are ____.
- Which box has more counters? ____

Q2. Look at the shoes. Some shoes have laces. Some shoes have no laces.



Four shoes with laces and six shoes with no laces, one next to one.

- How many shoes have laces? ____
- How many shoes have no laces? ____
- Which has more? ____

Q3. The question is: *Do you walk to school?* Look at the charts.

Do you walk to school?



Charts with stars: 7 stars for yes and 2 stars for no.

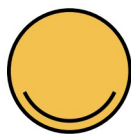
- How many said yes? ____
- How many said no? ____

c. Which has more? ____

Q4. Look at the toys. Sort the toys into 2 groups: toys that move and toys that don't move.



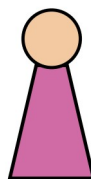
car



ball



teddy



doll

Four toys: a car, a ball, a teddy and a doll.

- a. Which toys move? ____
- b. Which toys don't move? ____

Q5. The question is: *Do you like apples?* Get the counters and 2 boxes. Put the counters in the yes box and the no box.

- a. The yes box has ____ counters.
- b. The no box has ____ counters.
- c. Which box has more counters? ____

Q6. The question is: *Do you have a dog?* Make charts with stickers. Match one to one.

- a. Which has more, yes or no? ____
- b. Say how you know. ____

Now you do these.

Q7. The question is: *Do you have a cat?* Get the counters and 2 boxes. Collect the answers. Sort the counters into the yes box and the no box.

Which has more? ____

How do you know? ____

Q8. The question is: *Do you like fruit?* Look at the charts.

Do you like fruit?



Charts with stars: 6 stars for yes and 4 stars for no.

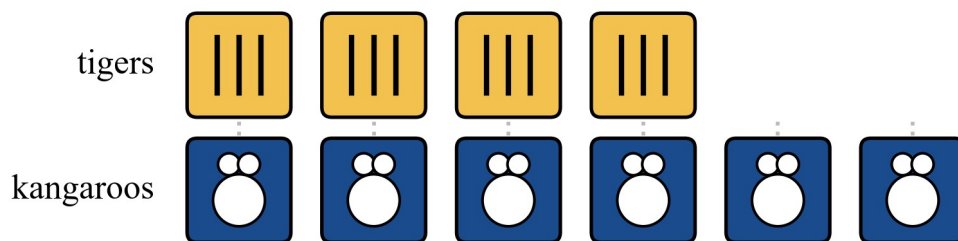
- a. How many said yes? ____
- b. How many said no? ____
- c. How many students are there in all? ____

Q9. Get the toys in the box. Sort the toys into 2 groups: toys that move and toys that don't move.

Toys that move: _____

Toys that don't move: _____

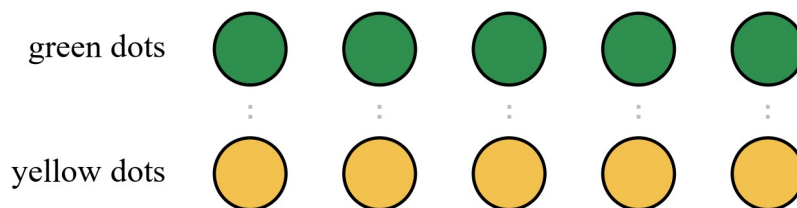
Q10. The teacher reads *The Waterhole* by Graeme Base (Source: Penguin Books Australia, *The Waterhole*, Graeme Base, 2001, found 2026-08-19). Get the cards of the tigers and the kangaroos. Sort the cards into 2 groups. Match the tigers and the kangaroos one to one.



Cards of tigers and kangaroos, one next to one.

Which has more, the tigers or the kangaroos? _____

Q11. Match the dots one to one. Which has more, the green dots or the yellow dots? Or are they the same?



Green dots and yellow dots, one next to one.

Q12. Ask your friends: *Did you see a bird today?* Collect the answers with counters. Sort the counters into yes and no.

Which has more? _____

Answers

1.
 - a. 3 b. 5 c. The no box
2.
 - a. 4 b. 6 c. The shoes with no laces
3.
 - a. 7 b. 2 c. Yes
4.
 - a. The car and the ball b. The teddy and the doll
5. Do this with your class.
6. Do this with your class. Match one to one to see.
7. Do this with your class. Match one to one to see.
8.
 - a. 6 b. 4 c. 10
9. Toys like the car and the ball move. Toys like the teddy and the doll don't move.
10. In the picture, there are more kangaroos.
11. They are the same.
12. Do this with your class. Match one to one to see.

See how we do it

Q1. The yes box has 3 counters. The no box has 5 counters. 5 is more than 3. $\therefore$ The no box has more counters.

Q2. 4 shoes have laces. 6 shoes have no laces. 6 is more than 4. $\therefore$ The shoes with no laces have more.

Q3. Count the yes stars: 7. Count the no stars: 2. 7 is more than 2. $\therefore$ More said yes.

Q4. The car and the ball move. The teddy and the doll don't move. $\therefore$ One group is the car and the ball. The other group is the teddy and the doll.

Q5, Q6, Q7. You collect the answers, so the numbers can be different. Sort the counters. Match one to one. Some counters have no match. $\therefore$ The group with the counters that have no match has more.

Q8. Count the yes stars: 6. Count the no stars: 4. 6 is more than 4. $\therefore$ More said yes. 6 and 4 make 10. $\therefore$ There are 10 students in all.

Q9. Toys that move: the car, the ball. Toys that don't move: the teddy, the doll. Your toys can be different. $\therefore$ Sort the toys and say what is in each group.

Q10. Match the cards one to one. 4 tigers and 4 kangaroos have a match. 2 kangaroos have no match. $\therefore$ There are more kangaroos.

Q11. Every green dot has a yellow dot. Every yellow dot has a green dot. The dots match one to one. $\therefore$ They are the same.

Q12. You ask, so the numbers can be different. Collect the counters and sort them into yes and no. Match one to one. Some counters have no match. $\therefore$ The group with the counters that have no match has more.

Checkpoint CP6

Chapter 6 — Statistics: asking a yes-or-no question and sorting what we find.

This is an observed task. The teacher reads all the words. The child looks, says and does. The child does not need to read, and the child writes nothing.

collect, sort and compare data represented by objects and images in response to given investigative questions that have only 2 outcomes and relate to familiar situations — VC2MFST01

Chapter	6 — Statistics
Content description	VC2MFST01
Format	Observed: the child conducts a two-outcome collection, sorts it and answers a question from it. Run one-to-one or in a small group over a normal week.
Marks	6 — three separately scored observations: collecting, sorting and comparing (2 marks each)
Timing	Nothing is timed. Guidance duration for the teacher's planning: about 5–10 minutes per child, across a normal week. This is a guide for planning the week, not a limit on the child.
Equipment	The children's own shoes (1 shoe per child in the group); 2 mats or 2 hoops; the recording sheet below
Calculator	None. There is no calculator anywhere in this book.
Response	Oral and practical. The child writes nothing. The teacher records the marks.

The question

The investigative question is fixed for this checkpoint. It comes from VC2MFST01 .E02, quoted verbatim:

Do more people in our class today have shoes with laces than without?

The question has **only 2 outcomes** — laces, or no laces — as VC2MFST01 requires. When the task runs with a small group, the teacher says *our group* in place of *our class*.

Materials

- The shoes the children are wearing. Each child gives 1 shoe.
- 2 mats or 2 hoops: one for shoes with laces, one for shoes with no laces.
- The recording sheet at the end of the Marking guide. The teacher fills it in while the child works.

Teacher script

Sit with a small group of about 6–10 children on the mat. One child at a time is the observed child. The other children sit with their shoes on the mat too, so the observed child has real data to collect, sort and compare.

Step	What you say	What you watch for
1. The question	<i>We have a question about our shoes. Point to a shoelace. These are laces. Shoes with laces, and shoes with no laces. Say the question: Do more people in our group today have shoes with laces than without?</i>	The child listens. No marks here.
2. Collect	<i>Let's find out. Each of you, take off one shoe. To the observed child: Collect the shoes. One shoe for each</i>	Observation 1 — collecting.

Step	What you say	What you watch for
3. Sort	<i>child in our group.</i> <i>Sort the shoes. Sort means: put each shoe in its group. Shoes with laces go on this mat. Shoes with no laces go on that mat.</i>	Observation 2 — sorting.
4. Compare	<i>Which mat has more shoes? How do you know? If the child waits, say: Match the shoes. One here, one there.</i>	Observation 3 — comparing.
5. Answer	<i>So — do more people in our group today have shoes with laces than without?</i>	The child answers the question from the data. This is part of Observation 3.
6. Finish	<i>Put your shoes back on. We found the answer to our question.</i>	The task is done. Record the marks.

Teacher notes

- The child being observed does the collecting, the sorting and the comparing. The other children take part by lending a shoe. Observe each child on their own run; the task can be repeated across the week.
- If the child sorts by something else (for example, by colour), say the Step 3 words again and point to the 2 mats. Record what the child does after the second say.
- If one mat is empty, the question still has an answer: the other mat has more. Zero shoes is still data — zero is in scope in this book (VC2MFN01).
- Keep the question to its 2 outcomes. A third group (for example, buckles as well as laces and no laces) is outside VC2MFST01 and is not scored here.
- No tally marks, no numbered axis and no frequency table: those are Level 1 (VC2M1ST01, VC2M1ST02). The shoes themselves are the data display.

Marking guide

Achievement standard extract — quoted verbatim from the authority file for VC2MFST01 (maths_F.json, VCAA Victorian Curriculum F–10 Mathematics 2.0):

Students collect, sort and compare data in response to questions in familiar contexts.

The rubric is written in the extract’s own words — **collect, sort and compare, in response to questions in familiar contexts** — so the teacher’s judgement maps to the VCAA wording without translation.

Where the 6 marks come from. §7 derives checkpoint marks as 4 marks per owned CD, with a floor of 6 marks per chapter. Chapter 6 owns one CD (VC2MFST01), so the floor applies and CP6 carries 6 marks. Per §7, CP6 scores collecting, sorting and comparing as three separately scored observations: 3 observations $\times$ 2 marks = 6 marks.

Reasoning. VC2MFST01 does not carry a reasoning verb in its CD text, so CP6 has no separate reasoning mark. (This is unlike VC2MFN03, “explain or demonstrate reasoning”; VC2MFM01, “communicating reasoning”; and VC2MFSP01, “giving reasons”, whose checkpoints score reasoning on its own.) The *How do you know?* prompt at Step 4 is still asked: a child who lines the shoes up one to one is demonstrating the compare itself (VC2MFST01.E02).

Rubric

Each observation is scored 2, 1 or 0, separately.

Observation	2 marks	1 mark	0 marks
1. Collecting the data	The child collects the data in response to the question: every child in the group is in the collection, one shoe each.	The child collects the data with the teacher’s help, or the collection misses a child, or has a child in it twice.	The child does not collect the data.
2. Sorting the data	The child sorts all of the data into the 2 outcome groups: every shoe with laces on the laces mat, and every shoe with no laces on the other mat.	The child sorts the shoes with 1 or 2 errors and fixes them when asked, or sorts with the teacher’s help.	The child does not sort the shoes into the 2 groups.
3. Comparing the data	The child compares the 2 groups — matching one to one or counting both groups — says which group has more, or that the groups are the same, and answers the question from the data.	The child says which group has more, or answers the question, but does not show how they know, even with the match prompt.	The child does not compare the groups.

Total: /6. The other 46 checkpoint marks in this book come from CP1–CP5; the checkpoint total is 52.

Recording sheet

Observation	Mark
1. Collecting the data	____ /2
2. Sorting the data	____ /2
3. Comparing the data	____ /2
Total	____ /6

A child who scores 0 or 1 on an observation has not yet shown that part of the standard. Return to the matching 6A tasks (collecting and sorting: Q4, Q5 and Q7; comparing: Q1, Q2 and Q10), then run this checkpoint again.