# Mathematics Level 1

## Chapter 6 — Statistics: collecting and displaying categorical data · 2 subtopics · 2 CDs



**Aboriginal and Torres Strait Islander content** has been excluded as accuracy cannot be guaranteed, and it is better to be respectful than cover the entire curriculum inaccurately.

Significant effort has been made to ensure this content is legal. Please send any areas of concern to admin@vwx.au with appropriate document/legal references so errors can be verified and changes be made.

### Contents

# Acquiring and recording data for categorical variables

**Mathematics 1 · Level 1 · Chapter 6 — Statistics · Subtopic 6A.** Teaching order: 14th of 15, after 5B, before 6B (TOC D5).

**Owns:** `VC2M1ST01` — "acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols". Quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Statistics, `VC2M1ST01`, via `maths_1.json` (VCAA export retrieved 2026-07-29).

**Achievement standard (extract):** "Students collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies." Quoted verbatim from the same source.

**Elaborations drawn on:** `VC2M1ST01.E01`, `.E02`, `.E03`, `.E04`. `VC2M1ST01.E05` is not used — see the Teacher note.

**Linked bank:** 288 MCQs keyed to `VC2M1ST01` — digital asset only, not printed (TOC D12).

All task wording is read aloud by the teacher; responses are a numeral, a drawing, tally marks or a short sentence (TOC D17). Student-facing text runs from "What we are learning" to "Answers"; the front matter above, the Teaching sequence and the Teacher note at the end are for the teacher.

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## What we are learning

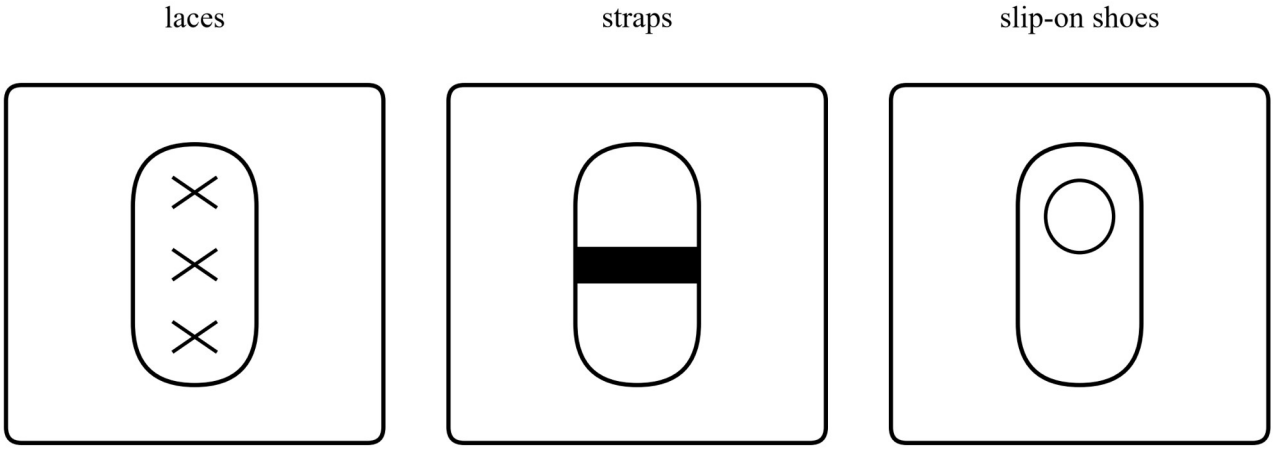
Sometimes we want to find something out. We start with a question.

*What shoes are we wearing today?*

Then we collect the answers. We can ask our friends. Or we can watch and count.

What we find out is called **data** (say: day-tuh).

We put data into groups. The groups are called **categories** (say: kat-uh-gor-eez). We choose the categories before we start. Then every answer has a group to go into.




*Three groups for shoes: laces, straps and slip-on shoes. Each group has one shoe.*

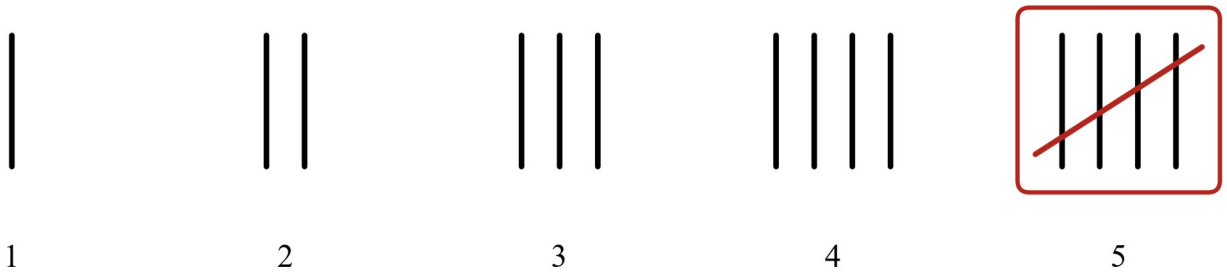
To **record** data means to put it down so we do not forget it. There are many ways to record data:

- with **objects** — one cube for each answer
- with **drawings** and **pictures**
- with a **list** and ticks — one tick ✓ for each answer
- with **tally marks** — one mark | for each answer
- with **symbols** — one small mark that stands for one thing

- with **digital tools** — our teacher can type our answers for us

**One thing, one mark.** If 4 friends have laces, we make 4 marks.

**A tally group of 5.** 5 tally marks are 4 down marks and 1 across mark: | | | | /. A full group of 5 helps us count fast.




*Tally marks counting 1, 2, 3, 4 and 5. The mark for 5 goes across.*

After we collect and record, we look back. Did we count everyone? What can we do better next time?

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## Teaching sequence (for the teacher)

Each task in this subtopic is read aloud by the teacher. The students listen, look, say, do and draw.

**Materials:** one cup of 12 coloured cubes per table (5 red, 4 blue, 3 yellow); a tub of mixed shape blocks for Q8; large paper or the board for the class list and tally; paper and pencils; tick-list strips for Q2 and Q7; the pre-drawn rows for Q5; stickers or small symbol cards; an optional device with a simple list- or chart-making tool for Q6.

**Step 1 — Sort some objects (rehearse, do not re-teach).** Sorting data with objects and images was taught at Foundation (`VC2MFST01`). Give each table a small tub of mixed objects. Ask the students to put them into groups by colour or by kind. Say: we put things into groups. Today we put the *answers to a question* into groups.

**Step 2 — Start with a question.** Ask: *What shoes are we wearing today?* How could we find out? Take ideas. (Ask everyone. Look at the shoes.) Write the question on the board. A question that data can answer is how statistics starts.

**Step 3 — Choose the categories before collecting.** The groups are laces, straps and slip-ons. Ask: what if a shoe has laces *and* straps? Each child picks the one group that fits, so every answer goes into exactly one group.

**Step 4 — Collect and record as a list with ticks.** Ask each child in turn. Make one tick ✓ next to each group for each answer. One child speaks once. Then count the ticks in each group and write the number. Check: the counts together match the number of children here today.

**Step 5 — Record the same data with tally marks.** Show the tally way: one down mark for each answer. Show the group of 5: 4 down marks and 1 across mark. Record the shoe data again as tallies. The data is the same; only the recording changed.

**Step 6 — Name the other ways.** Hold up a cube (objects), draw a quick picture (drawings and images), show a sticker or a drawn star (symbols), and show the device (digital tools). The students will try these ways in the tasks that follow.

**Step 7 — Look back.** How did we find out? What did the data tell us? Did we count everyone? What can we change next time? This short talk is part of the mathematics, not a filler: reviewing the collection is in the content description's own elaborations (`VC2M1ST01.E01`, `.E03`).

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## Worked examples

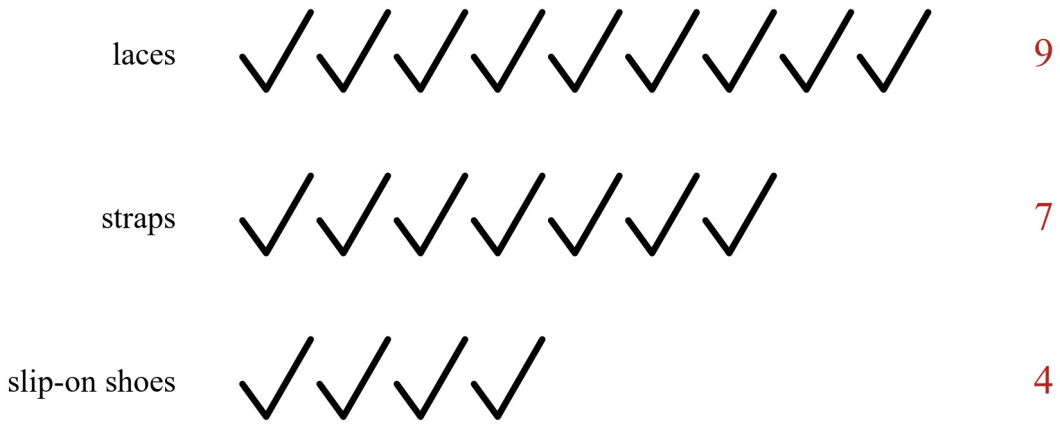
### *Example 1 — make a tick list, then count*

**Question:** What shoes are we wearing today?

20 children are at school today. We choose the categories before we start: laces, straps and slip-on shoes.

**You need:** the board or large paper, and a pen.

| What we do | Why |
|---|---|
| 1. Ask the question: *What shoes are we wearing today?* | We start with a question. |
| 2. Choose the groups before we start: laces, straps, slip-on shoes. | Every shoe goes into one group. |
| 3. Ask each child one time. Make one tick ✓ for each answer. | One tick for one child. |
| 4. Count the ticks in each group: laces 9, straps 7, slip-on shoes 4. | Now we know how many in each group. |
| 5. Check: 9 + 7 + 4 = 20. That is all 20 children. | Every child is in the data one time. |
| 6. Look at the data. What do we find out? Laces have the most. | The data answers our question. |




*A tick list for shoes. Laces has 9 ticks, straps has 7 ticks and slip-on shoes has 4 ticks.*

laces ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ straps ✓ ✓ ✓ ✓ ✓ ✓ ✓ slip-on shoes ✓ ✓ ✓ ✓

### *Example 2 — choose the groups, then watch and tally*

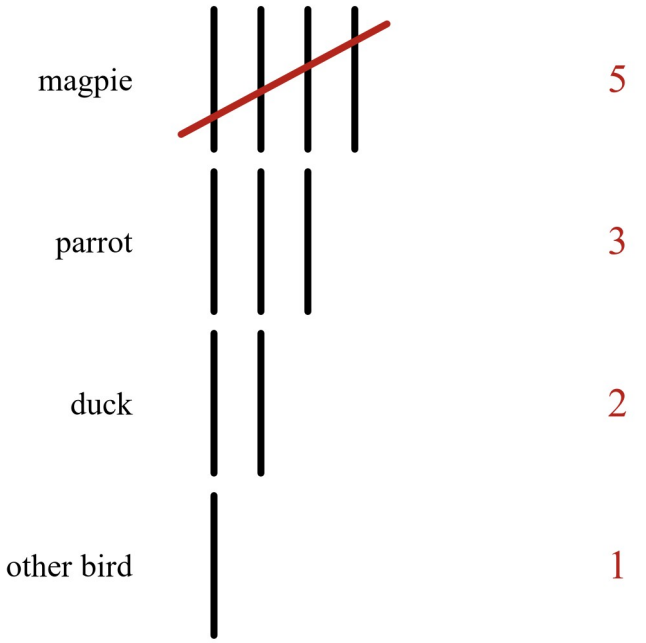
**Question:** What birds come to our playground at lunchtime?

We choose the categories before we watch: magpie, parrot, duck, other bird.

**You need:** paper and a pencil.

| What we do | Why |
|---|---|
| 1. Choose the groups before we watch: magpie, parrot, duck, other bird. | Then we are ready to record. |
| 2. Watch the playground at lunchtime. | We collect the data by watching. |
| 3. One friend calls out each bird. One friend makes one tally mark for each bird. | One mark for one bird. |
| 4. Make a group of 5 like this: \| \| \| \| /. | A full group of 5 helps us count fast. |
| 5. Count each group: magpie 5, parrot 3, duck 2, other | The tally shows all the birds we saw. |

| What we do | Why |
|---|---|
| bird 1. Check: 5 + 3 + 2 + 1 = 11 birds in all. | |
| 6. If no ducks come, the duck group stays empty. That is still data! An empty group has 0. | We record what we saw, not what we want to see. |
| 7. Look back. Did our tally work? Was it fast to make one mark for each bird? What can we change next time? | We can make our collecting better. |




*Tally marks for birds. Magpie has 5, parrot has 3, duck has 2 and other bird has 1.*

magpie | | | | / parrot | | | duck | | other bird |

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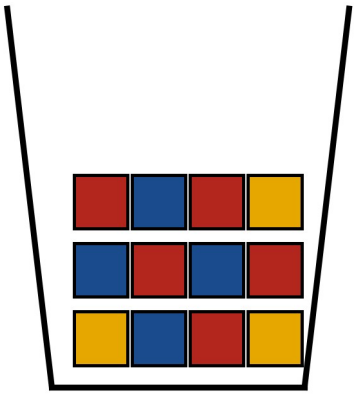
## Now you try

### *With your teacher*

**Q1.** Cubes in a cup. Your teacher gives your table a cup of 12 cubes: 5 red, 4 blue and 3 yellow.



*A cup of 12 mixed cubes: 5 red, 4 blue and 3 yellow.*

(a) Put the cubes into colour groups. One group for each colour.

(b) Record how many in each group. Write the number.

red ▢ blue ▢ yellow ▢

(c) How many cubes in all? ▢

**Q2.** Drinks at lunchtime. 10 friends each pick one drink: water, milk or juice. A helper makes one tick for each answer.

water ✓ ✓ ✓ ✓ ✓ ✓ milk ✓ ✓ ✓ juice ✓

(a) How many ticks for each drink?

water ▢ milk ▢ juice ▢

(b) Which drink has the most ticks?

(c) How many friends in all? ▢

**Q3.** Draw the tally marks. Remember: 5 is 4 down marks and 1 across mark.

(a) 3

(b) 5

(c) 8

*Three blank spaces to draw the tally marks for 3, 5 and 8.*

(a) 3 (b) 5 (c) 8

**Q4.** Read the tally. Mia watched the playground at lunchtime. She made this tally.

duck | | | magpie | | | | parrot |

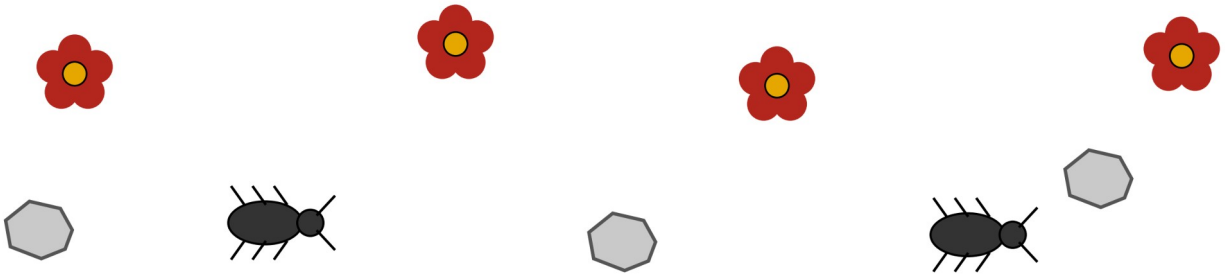
(a) How many of each bird did Mia see?

duck ▢ magpie ▢ parrot ▢

(b) Which bird has the most? Which has the least?

(c) How many birds in all? ▢

**Q5.** Our class garden. We saw 4 flowers, 2 bugs and 3 stones. Draw one ★ for each thing we saw. One row for each group.



*A garden with 4 flowers, 2 bugs and 3 stones.*

flowers bugs stones

**Q6.** A digital tool. The teacher asks: *What do we drink at lunchtime? Water, milk or juice?* Each child says one answer, one time. The teacher types each answer into a digital tool. Then we read the list together.

(a) Did every child speak one time? How do you know?

(b) There are 20 children in our class. How many answers are in the list? ▢

(c) Talk about it: the tool's list and our ticks show the same data. How can you tell?

***On your own***

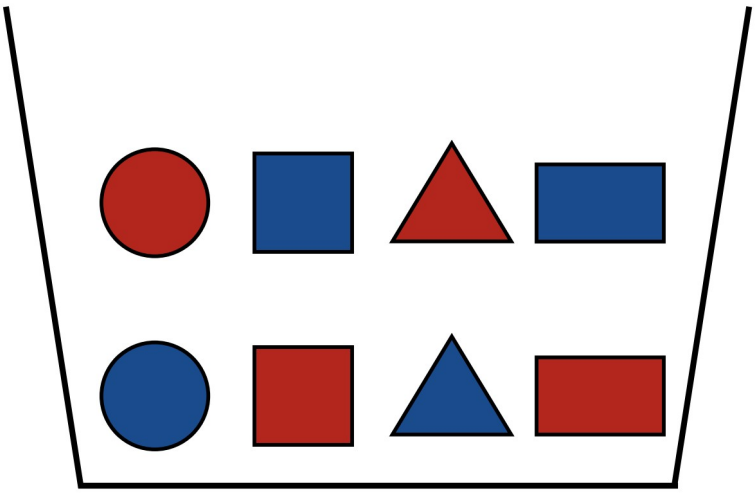
**Q7.** Ask 8 friends: *Do you have laces on your shoes today?* Tick one box for each friend.

yes [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] no [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

(a) How many said yes? ▢ How many said no? ▢

(b) Did you count all 8 friends? How do you know?

**Q8.** A tub of shape blocks. Choose your groups first. Then put the blocks into your groups. Record with tally marks.



*A tub of mixed shape blocks: circles, squares, triangles and rectangles in blue and red.*

(a) What groups did you choose?

(b) Draw your tally here.

(c) Did every block go into one group? yes ▢ no ▢

**Q9.** Find the mistake. Ben counted the hats in our classroom. He counted Mia two times, and he forgot Sam.

(a) Is Ben's data right? yes ▢ no ▢

(b) What should Ben do to fix it?

**Q10.** What question? Look at this list. It came from one question.

hat ✓ ✓ ✓ ✓ ✓ no hat ✓ ✓ ✓

(a) What question did this list answer?

(b) What can we find out from this list? Tell a friend.

**Q11.** Same data, two ways. We read 10 books at mat time: 5 about cats, 3 about dogs and 2 about fish.

(a) Record the data two ways: with a tick list, and with tally marks.

(b) Which way do you like best? Why?

**Q12.** Your own symbols. In the garden, you saw 3 birds, 2 bugs and 4 flowers. Record the data with symbols you choose. Use one of your symbols for each thing you saw.

(a) Draw your record here.

(b) What symbols did you use? Say why.

**Q13.** Think first. You want to find out what we like to read at mat time.

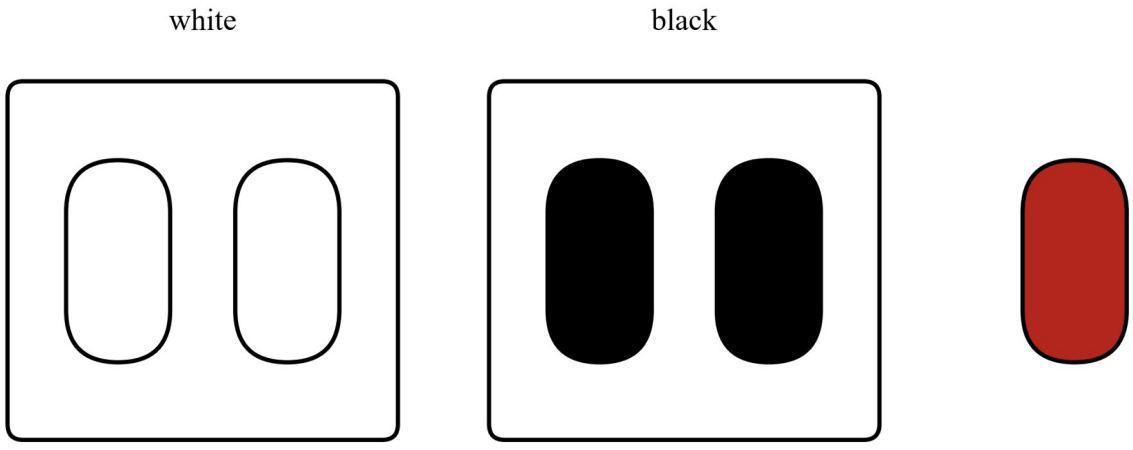
(a) What question will you ask?

(b) What groups will you make?

(c) How will you record the data?

Say or draw what you will do.

**Q14.** Fix the groups. Zoe asked: *What colour are your shoes?* She made two groups: white and black. But Tom has red shoes.




*Two groups for shoes: white and black. The red shoe has no group.*

(a) What went wrong?

(b) What can Zoe do next time?

## Answers

**Q1.** (b) red 5, blue 4, yellow 3. (c) 12.

**Q2.** (a) water 6, milk 3, juice 1. (b) Water. (c) 10.

**Q3.** (a) | | | (b) | | | | / (c) | | | | / | | |

**Q4.** (a) duck 3, magpie 4, parrot 1. (b) Most: magpie. Least: parrot. (c) 8.

**Q5.** flowers ★★★★ bugs ★★ stones ★★★

**Q6.** (a) Check: one answer for each child here today. (b) 20. (c) One answer: the counts are the same in both records.

**Q7.** Answers will not all be the same. Check: one tick for each friend; the yes and no counts go to 8 together.

**Q8.** Answers will not all be the same. Check: the groups were chosen before the sorting; one tally mark for each block; every block in one group.

**Q9.** (a) No. (b) Count Mia one time, and count Sam.

**Q10.** (a) One answer: *Are we wearing our hats today?* (b) One answer: 5 children wore hats and 3 did not. More children wore hats than did not.

**Q11.** (a) Tick list: cats ✓✓✓✓✓, dogs ✓✓✓, fish ✓✓. Tally marks: cats | | | | /, dogs | | |, fish | |. (b) Answers will not all be the same. One answer: tally marks, because a full group of 5 is fast to count.

**Q12.** Answers will not all be the same. Check: one of the chosen symbols for each thing; 3 birds, 2 bugs and 4 flowers.

**Q13.** Answers will not all be the same. Check: there is a question, some groups, and a way to record.

**Q14.** (a) Red shoes had no group to go into. (b) One answer: add more colour groups, or add a group called "other colours".

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## Teacher note

**Curriculum map.** This subtopic owns `VC2M1ST01` in full (TOC §3, §4). The content description is delivered through class-collected data with original questions and contexts, not through the elaborations one by one (D11): E01's moves (discuss ways to collect, try a way, then review and improve) → Teaching sequence Steps 2 and 7, Example 1, Q9, Q14; E02's moves (record with a list, read the data back, ask questions the data can answer) → Example 1, Q2, Q6, Q10, Q13; E03's moves (choose the categories before observing, record with a tally while observing, review whether the tally worked) → Example 2, Q3, Q4, Q8; E04's moves (use symbols or stickers to represent class data) → Q5, Q12. The CD's own named ways are all delivered: objects (Q1), images and drawings (Q5, Q12 and Step 6), lists (Example 1, Q2, Q6, Q10, Q11), tally marks (Example 2, Q3, Q4, Q8, Q11), symbols (Q5, Q12) and digital tools (Q6 and the note below). Reading back from one's own record ("which has the most") appears lightly (Example 1 Step 6, Q4, Q10) as E02's read-back move; the scored comparison work with one-to-one displays and frequencies belongs to 6B (`VC2M1ST02`).

**Boundary with 6B.** 6A is acquiring and recording: choose the categories, collect, record. 6B turns the record into one-to-one displays, compares frequencies, discusses findings, and reads tallies by skip counting fives from 3B (`VC2M1A01`, D5). The tally group-of-5 convention is introduced here as a recording aid only; skip-count reading of tallies is 6B's work. The empty-group point in Example 2 Step 6 is a recording fact (we saw 0 ducks), not 6B's scored zero/blank-category display judgement (`VC2M1ST02.E03`).

**E05 exclusion.** `VC2M1ST01.E05` (*exploring ways of representing, sharing and communicating data through stories and symbols used by Aboriginal and Torres Strait Islander Peoples*, verbatim from the authority file) is Aboriginal and Torres Strait Islander content, which is excluded from ClassBasics books per CONTENT_POLICY Rule 1 (DJB 2026-08-15): accuracy cannot be guaranteed, and it is better to be respectful than cover the entire curriculum inaccurately. VCAA names no People, place or language group in this elaboration (TOC D16), and this book supplies

none. This is an ACCEPTED exclusion, not a coverage gap: the content description itself is delivered in full through E01–E04 and class contexts (D11). This note stands in for the §2A entry TOC.md must carry; TOC.md is read-only from this authoring seat.

**Digital tools.** The CD says "including using digital tools". Student tasks here are device-neutral; where a device is available, Q6 (and any recording task) may be done with a simple list- or chart-making tool instead, and the collecting and recording are unchanged. For Q6 the teacher's phone, a tablet or a classroom computer works; any tool that types a list is enough.

**Materials.** One cup of 12 coloured cubes per table (5 red, 4 blue, 3 yellow) for Q1; a tub of mixed shape blocks for Q8; large paper or the board for the class list and tally; paper and pencils; tick-list strips for Q2 and Q7; pre-drawn rows for Q5; stickers or small symbol cards; an optional device with a simple list- or chart-making tool for Q6.

**Assumed Foundation skill, rehearsed only:** collecting, sorting and comparing data represented by objects and images (VC2MFST01 — *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*, in maths_F.json, VCAA export retrieved 2026-07-29). Teaching sequence Step 1 rehearses it in the first minutes of the sequence; it is not taught as new and not assessed as a Level 1 outcome (D3).

**Also drawn on (already taught, in the recommended sequence):** counting to 120 — 1A and 1C (VC2M1N01, VC2M1N03), used in every count-and-check step; the + and = symbols — 2A (VC2M1N04), used in the check steps only (9 + 7 + 4 = 20; 5 + 3 + 2 + 1 = 11); no new calculation is taught here. The tally group-of-5 leans on skip counting by fives from 3B (VC2M1A01), which 6B then uses to read tallies.

**Level 2 destinations (named only, not taught — D3):** VC2M2ST01 — *acquire data for categorical variables through surveys, observation, experiment and using digital tools; sort data into relevant categories and display data using lists and tables*; and VC2M2ST02 — *create different graphical representations of data using software where appropriate; compare the different representations, and identify and describe common and distinctive features in response to questions* (both in maths_2.json, VCAA export retrieved 2026-07-29). The recording ways secured here — lists, tallies and symbols — are exactly the lists and tables Level 1 students will display at Level 2 (TOC §5).

**Assessment.** Chapter checkpoint T6 (12 marks across VC2M1ST01 + VC2M1ST02): one short data collection run in class, then teacher-read questions on a supplied one-to-one display (TOC §7). The collection part of T6 draws on this subtopic: the question, the categories chosen before collecting, and the recording. Items score the method and the explanation, not only the counts (TOC §7).

**Data note.** Every data set in this section is invented class data constructed for the example or task; no external datum is asserted, so no source line is required beyond the curriculum quotation in the front matter (TOC §6). The birds named in Example 2 and Q4 (magpie, parrot, duck) are common Australian birds used as category labels, not as asserted data. All counts stay within the Level 1 ranges: counting and combining within 20 (D8), no operation symbols beyond + and = (D9), no chance language (D6), no metric units (D7), no clock faces and no fractions.

**Vocabulary gate record (DJB 2026-08-18).** Student-facing text — everything from "What we are learning" to "Answers" — is at or below the Yr1 ladder ceiling (rank 1), verified with load_ladder/check_text/tokenize from S:\Files\projects\mcq-system\reports\vocab_level_check.py, run as _vocab_gate_6A.py gate src/wb06_6A.md. Result: CLEAN — zero words above Yr1 not covered by an exemption. The pandoc fence lines (::: {custom-style="Source Code"}) are render markup, not body text, and are excluded from the check; the content inside them is checked. The "Teaching sequence (for the teacher)" block is teacher-facing and sits outside the student-facing region. Curriculum-exempt words retained per VOCABULARY_LEVEL.md exemption 1: *record* (defined in the body — "To record data means to put it down so we do not forget it"; verbatim in the content description), *categories* (defined with a pronunciation guide; verbatim in VC2M1ST01.E03), *tally* (defined in the body; in the content description), *objects*, *symbols* (both defined in the body; in the content description), *digital* (in the content description, "digital tools"), *question* (in VC2M1ST01.E01), *chosen* (in VC2M1ST02.E01), and *example(s)* (an elaboration word, appearing only in the heading "Worked examples" and in answer scaffolds). The title's *Acquiring*, *recording*, *categorical* and *variables* are fixed by the TOC section title and are all verbatim in the content description. No general word above Yr1 remains: the draft's *symbol* (singular), *plan* and *against* were rewritten with at-level equivalents (the

exempt plural *symbols*; “Think first” / “what you will do”; “Check: one answer for each child”), and the ladder-unplaced *slip-ons* was written as the placed *slip-on shoes*. Unplaced tokens are only *day-tuh* and *kat-uh-gor-eez* (pronunciation guides), *Sam* and *Zoe* (invented children’s given names — proper nouns, exemption 3) and *why* (function word); none is a violation. The front matter, the Teaching sequence and this Teacher note are teacher-facing metadata and are not vocabulary-gated (WORD_LEVEL_POLICY Rule 3).

# One-to-one displays: representing data and comparing frequencies

**Mathematics 1 · Level 1 · Chapter 6 — Statistics · Subtopic 6B.** Teaching order: last of 15, after 6A.

**Owns:** VC2M1ST02 — "represent collected data for a categorical variable using one-to-one displays and digital tools where appropriate; compare the data using frequencies and discuss the findings". Quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Statistics, VC2M1ST02, via maths_1.json (VCAA export retrieved 2026-07-29).

**Achievement standard (extract):** "Students collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies." Quoted verbatim from the same source.

**Elaborations drawn on:** VC2M1ST02.E01, .E02, .E03, .E04. VC2M1ST02.E05 is not used — see the Teacher note.

**Linked bank:** 288 MCQs keyed to VC2M1ST02 — digital asset only, not printed (TOC D12).

All task wording is read aloud by the teacher; responses are a numeral, a drawing, tally marks or a short sentence (TOC D17). Student-facing text runs from "What we are learning" to "Answers"; the front matter above and the Teacher note at the end are for the teacher.

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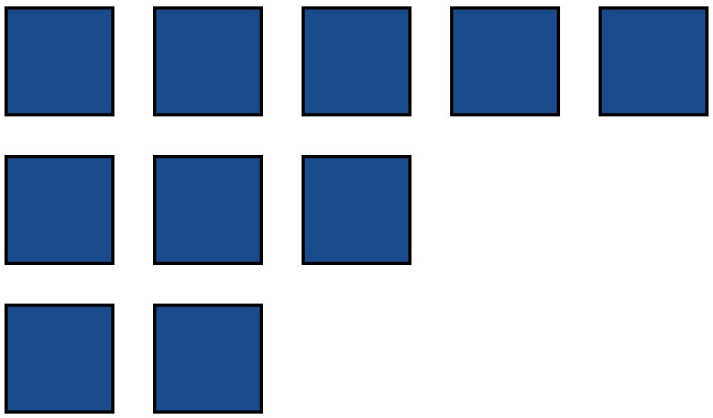
## What we are learning

First we collect data. Then we put the data into groups. Then we make a display.

**One stands for one.** In a one-to-one display, one mark stands for one thing. One cube is one friend. One tick is one pick. The marks line up in rows. There is one row for each group.

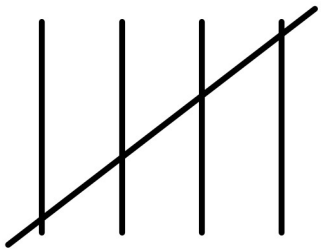
**Which has the most?** The longest row has the most. The shortest row has the least. We can count each row to find how many.



*Rows of cubes. One row has 5 cubes, one row has 3 cubes and one row has 2 cubes. The longest row has the most.*

**New words:**

- A **pictograph** (say: pik-toh-graf) is a display made of pictures or marks. Each picture or mark stands for one.
- **Tally marks:** one mark for each thing. A group of 5 is 4 down marks and 1 across mark: | | | | /
- A **tally chart** is a list of tally marks. It has one row for each group.
- We can count tally marks by 5. Say 5 for each full group, then count on.



= 5

*Tally marks. 4 down marks and 1 across mark make a group of 5.*

**A group can be empty.** Sometimes a group has nothing in it. That group has 0. You can write 0. Or you can leave the row blank. Both ways are good. Talk about which way you like best.

| | | |
|---|---|---|
| one way | pears | 0 |
| other way | pears | |

*Two ways to show the pear group. One way writes 0. The other way is blank.*

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## Worked examples

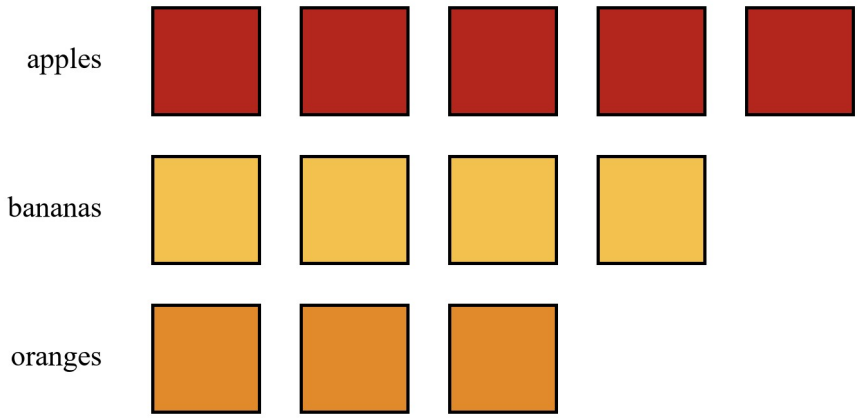
### *Example 1 — make a pictograph, with cubes*

**Question:** Which fruit do we like best?

12 friends each pick one fruit. 5 friends pick apples. 4 friends pick bananas. 3 friends pick oranges.

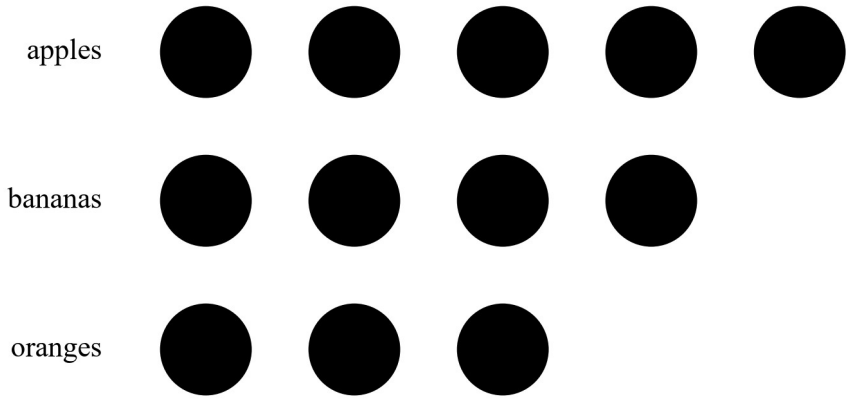
**You need:** cubes and paper.

| What we do | Why |
|---|---|
| 1. Say how many for each fruit: 5 apples, 4 bananas, 3 oranges. | The data is in groups. |
| 2. Put one cube down for each pick. Line the cubes up in rows, one row for each fruit. | One cube stands for one friend. That is one-to-one. |
| 3. Draw the display. Each ● is one friend. | Now we can see the data. |
| 4. Look at the rows. The apple row is the longest. The orange row is the shortest. | Apples have the most. Oranges have the least. |
| 5. How many more apples than oranges? Line the rows up, one to one: 5 − 3 = 2. | One to one, we see how many more. |
| 6. Check: 5 + 4 + 3 = 12. That is all 12 friends. | The display shows all the data. |

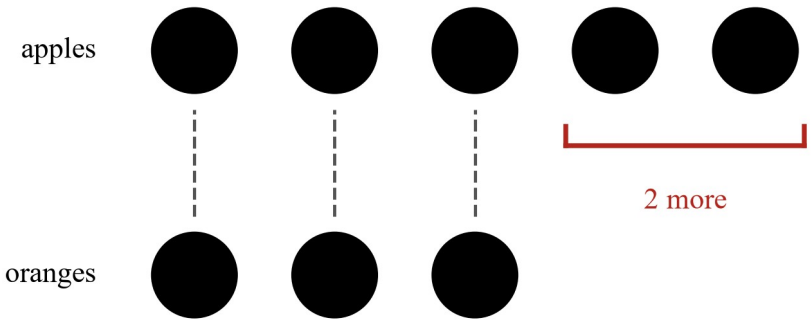



*Rows of cubes for the fruit data. The apple row has 5 cubes, the banana row has 4 cubes and the orange row has 3 cubes.*

apples ● ● ● ● ● bananas ● ● ● ● oranges ● ● ●




*A pictograph of the fruit data. Each dot is 1 friend. Apples have 5 dots, bananas have 4 dots and oranges have 3 dots.*

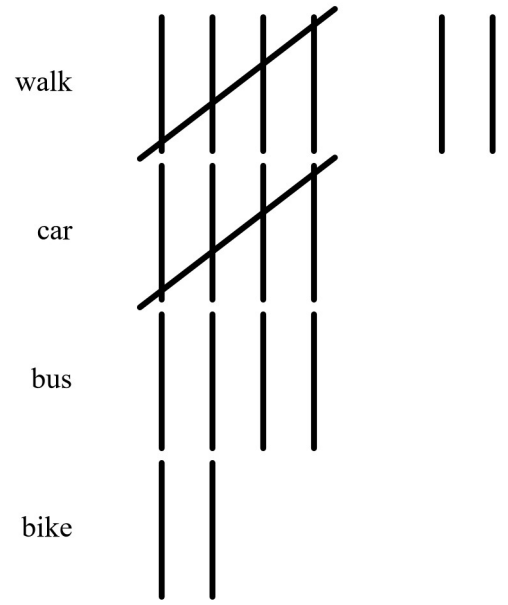



*5 apple dots and 3 orange dots line up one to one. The apples have 2 more dots than the oranges.*

### *Example 2 — read a tally chart, counting by 5*

**Question:** How did we get to school today?

18 children said how they got to school. The teacher made this tally chart.

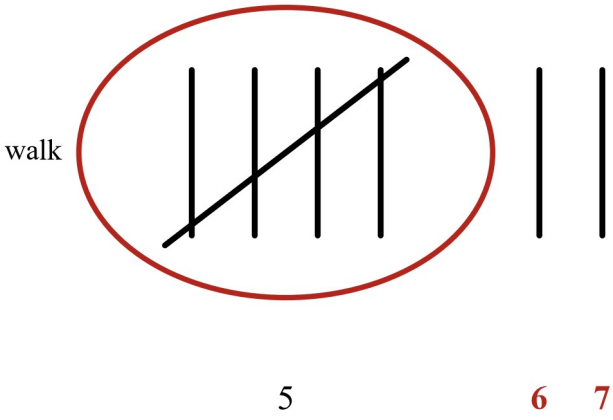



*A tally chart. Walk has 7 tally marks, car has 5, bus has 4 and bike has 2.*

**You need:** paper and a pen.

walk | | | | / | | car | | | | / bus | | | | bike | |

1. Find the full groups of 5. A group of 5 is | | | | /.
2. Walk: one group of 5, then count on — 5 … 6, 7. **7 children walked.**
3. Car: one group of 5. **5 children came by car.**
4. Bus: 4 marks. **4 children came by bus.** Bike: 2 marks. **2 children rode bikes.**
5. Which is the most? **Walk, with 7.** Which is the least? **Bike, with 2.**
6. How many more children walked than rode bikes? 7 − 2 = **5**.




*The walk row has 7 tally marks. The group of 5 is circled. Count on: 5, then 6, 7.*

## Now you try

***With your teacher***

**Q1.** Favourite colour. 4 friends picked red. 6 friends picked blue. 3 friends picked green. 2 friends picked yellow.

(a) Draw one ● for each pick. Make one row for each colour.

(b) Which colour has the most? Which has the least?

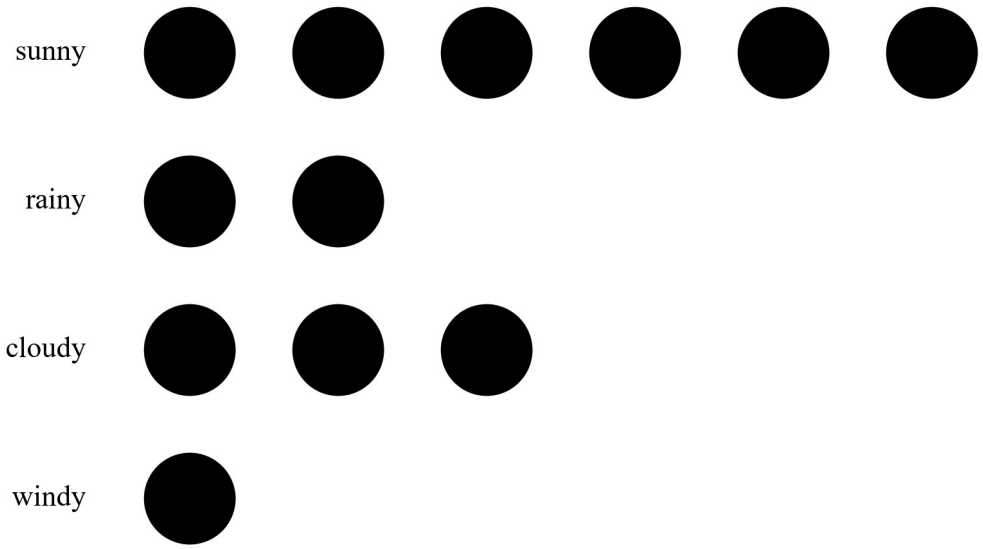
**Q2.** Favourite pet. 8 friends picked a pet. 4 picked dog. 3 picked cat. 1 picked fish.

(a) Put one cube down for each pick.

(b) Which pet has the most cubes?

(c) How many cubes in all?

**Q3.** Look at the pictograph. It shows the favourite weather of 12 friends.




*A pictograph of the favourite weather. Sunny has 6 dots, rainy has 2 dots, cloudy has 3 dots and windy has 1 dot.*

sunny ● ● ● ● ● ● rainy ● ● cloudy ● ● ● windy ●

(a) How many friends picked sunny?

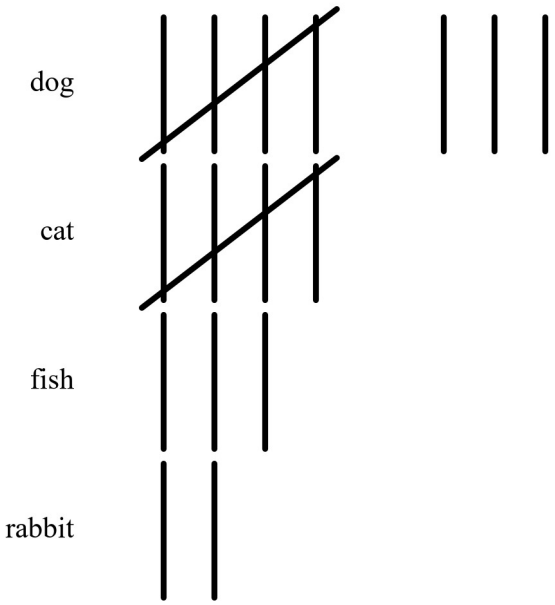
(b) Which weather has the least?

(c) How many more friends picked sunny than rainy?

**Q4.** Draw tally marks. 5 is 4 down marks and 1 across mark.

(a) 4 (b) 5 (c) 7

**Q5.** Read the tally chart. It shows the favourite pets of 18 children.




*A tally chart of the favourite pets. Dog has 8 tally marks, cat has 5, fish has 3 and rabbit has 2.*

dog | | | | / | | | cat | | | | / fish | | | rabbit | |

(a) Count the dogs by 5. How many children picked dog?

(b) Which pet has the most? Which has the least?

(c) How many children picked dog and cat in all?

**Q6.** Birthday display. Here are the birthdays of one group of friends.

April ● ● ● May ● June

(a) How many birthdays in June?

(b) Draw June two ways: one way with 0, and one way with a blank row.

### *On your own*

**Q7.** Games at lunch. 10 friends picked a game. 4 picked ball. 3 picked blocks. 2 picked bikes. 1 picked cards.

(a) Make a one-to-one display of the data.

(b) Which game has the most? Which has the least?

**Q8.** Look at your display for Q7.

(a) How many more friends picked ball than bikes?

(b) How many more friends picked blocks than cards?

**Q9.** The weather for 10 days: sunny on 5 days, rainy on 3 days, cloudy on 2 days.

(a) Make a tally chart of the data.

(b) Which weather had the most?

(c) What can you say about these 10 days? Talk about it with a friend.

**Q10.** Write the number for each row of tally marks.

apple | | | | / | banana | | | pear | | | | / grape | | | |

apple: ▢ banana: ▢ pear: ▢ grape: ▢

**Q11.** Favourite fruit. 3 friends picked apple. 2 friends picked banana. 0 friends picked pear.

(a) Show the pear group two ways: with 0, and with a blank row.

(b) Which way do you like best? Why?

**Q12.** Ask 5 friends: “What is your favourite colour?”

(a) Tick one box for each friend.

red [ ] blue [ ] green [ ] yellow [ ]

(b) Make a display of the data.

(c) What did you find out? Tell your class.

**Q13.** Make your display from Q12 in a new way. You can use cubes, or you can draw it. Which way is best for you? Why?

**Q14.** Ben made this to show 5.

| | |

Is Ben right? Fix the display.

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## Answers

**Q1.** (b) Most: blue, 6. Least: yellow, 2.

**Q2.** (b) Dog. (c) 8 cubes.

**Q3.** (a) 6. (b) Windy. (c) 6 − 2 = 4.

**Q4.** (a) | | | | (b) | | | | / (c) | | | | / | |

**Q5.** (a) 5, 6, 7, 8 — 8 children. (b) Most: dog. Least: rabbit. (c) 8 + 5 = 13.

**Q6.** (a) 0. (b) Write 0 next to June, or leave the June row blank.

**Q7.** (b) Most: ball. Least: cards.

**Q8.** (a) 4 − 2 = 2. (b) 3 − 1 = 2.

**Q9.** (b) Sunny. (c) One answer: there were more sunny days than rainy days.

**Q10.** apple 6, banana 3, pear 5, grape 4.

**Q11.** (b) One answer: I write 0, so we can see the pear group is there.

**Q12.** Answers will not all be the same. Check: one tick for each friend.

**Q13.** Answers will not all be the same. One answer: cubes, because they are fast to put down.

**Q14.** No. Ben has 4 marks. Fix it: | | | | /

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## Teacher note

**Curriculum map.** This subtopic owns `VC2M1ST02` in full (TOC §3, §4). The content description is delivered through class-collected data built on 6A's lists and tallies (`VC2M1ST01`), not through the elaborations one by one (D11): E01 (create a pictograph, reflect on the groups) → Example 1, Q1, Q3, Q7; E02 (translate into a tally chart, skip count by fives, explain what it shows) → Example 2, Q4, Q5, Q9, Q10 — the skip counting by fives comes from 3B (`VC2M1A01`), taught earlier in the recommended sequence (D5); E03 (zero/blank-category judgement) → Q6, Q11; E04 (one object per data value, describe the display, use counting to find frequencies) → throughout. The CD's "compare the data using frequencies" is delivered as which-has-most/least and how-many-more comparisons; "discuss the findings" is delivered by the talk prompts (Q9c, Q11b, Q12c, Q13) — discussion is scored, not optional (TOC §7: items score the strategy and the explanation, and a rubric that scores only the answer fails this CD).

**Zero/blank-category judgement.** 6B's E03 idea is a genuine statistical judgement and is scored separately from simple display reading (TOC §3 note for Chapter 6). Q6 and Q11 are the rehearsal items; the T6 checkpoint should carry one such item.

**E05 exclusion.** `VC2M1ST02.E05` (Aboriginal and Torres Strait Islander children's instructive games; VCAA names *Kolap*, Mer Island, Torres Strait region) is not covered, per CONTENT_POLICY Rule 1 (DJB 2026-08-15): Aboriginal and Torres Strait Islander content is deliberately excluded from ClassBasics books because accuracy cannot be guaranteed. This is an `ACCEPTED` exclusion, not a coverage gap: the CD itself is delivered in full through E01–E04 and class contexts (D11). This note stands in for the `§2A` entry TOC.md must carry; TOC.md is read-only from this authoring seat.

**Digital tools.** The CD says "digital tools where appropriate". Student tasks here are device-neutral; where a device is available, any of the displays (Q1, Q7, Q12, Q13) may instead be made with a simple drawing or charting app, and the comparing and discussing are unchanged. 6A's recording may likewise have used a digital tool (`VC2M1ST01`).

**Materials.** Counters; unifix/centi-cubes or other connecting cubes; grid paper; sticky notes; whiteboard and markers; pre-cut tally cards showing completed groups of 5; tick-box strips for Q12; optional device with a drawing tool.

**Assumed Foundation skill, rehearsed only:** sorting data with objects and images (VC2MFST01) — rehearsed in the opening grouping step, not taught as new and not assessed as a Level 1 outcome (D3).

**Also drawn on (already taught, in the recommended sequence):** skip counting by fives — 3B (VC2M1A01); acquiring and recording data, lists and tally marks — 6A (VC2M1ST01); addition and subtraction within 20 and the +, −, = symbols — 2A (VC2M1N04), used in the "how many more" and check steps; no new calculation is taught here.

**Level 2 destination (named only, not taught — D3):** VC2M2ST01 (lists and tables) and VC2M2ST02 (create different graphical representations and compare them). The one-to-one idea secured here is what later scaled displays stand on (TOC §5).

**Assessment.** Chapter checkpoint T6 (12 marks across VC2M1ST01 + VC2M1ST02): one short data collection run in class, then teacher-read questions on a supplied one-to-one display (TOC §7).

**Data note.** Every data set in this section is invented class data constructed for the example or task; no external datum is asserted, so no source line is required beyond the curriculum quotation in the front matter (TOC §6). All counts stay within the Level 1 ranges: addition and subtraction within 20 (D8), no operation symbols beyond +, −, = (D9), no chance language (D6), no metric units (D7).

**Vocabulary gate record (DJB 2026-08-18).** Student-facing text — everything from "What we are learning" to "Answers" — is at or below the Yr1 ladder ceiling (rank 1), verified with `load_ladder/check_text/tokenize` from `S:\Files\projects\mcq-system\reports\vocab_level_check.py`. Result: CLEAN. Curriculum-exempt words retained per VOCABULARY_LEVEL.md exemption 1, each defined at first use where student-facing: *display(s)*, *pictograph*, *tally/tallies*, *chart*, *example(s)*, *question* (all verbatim in the VC2M1ST02 content description or its elaborations), plus the heading's *representing*, *comparing*, *frequencies*, which are fixed by the TOC section title and the CD. No general word above Yr1 remains. The front matter and this Teacher note are teacher-facing metadata and are not vocabulary-gated (WORD_LEVEL_POLICY Rule 3). Cross-check with the whole-file build gate (`_pool/vocab_check.py`, ceiling Yr1, `--cds maths_1.json`) confirms: its only flag inside the student-facing region is *examples* in the heading "Worked examples", an inflection of the curriculum word *example* (VC2M1ST02.E03) missed by the gate's literal-form exemption; all other build-gate flags sit in the teacher-facing front matter and Teacher note.

## Checkpoint CP6

**Mathematics 1 · Level 1 · Chapter 6 — Statistics · Checkpoint CP6.** This is row **T6** of TOC §7. Administered at the end of Chapter 6, after 6A and 6B.

**CDs scored:** `VC2M1ST01` (owned by 6A) and `VC2M1ST02` (owned by 6B) — **6 marks each, 12 marks in total** (TOC §7: each checkpoint is worth 6 marks per CD the chapter owns, and every CD is separately scored).

**`VC2M1ST01`:** "acquire and record data for categorical variables in various ways including using digital tools, objects, images, drawings, lists, tally marks and symbols". Quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Statistics, `VC2M1ST01`, via `maths_1.json` (VCAA export retrieved 2026-07-29).

**`VC2M1ST02`:** "represent collected data for a categorical variable using one-to-one displays and digital tools where appropriate; compare the data using frequencies and discuss the findings". Quoted verbatim from the same source.

**Achievement standard (extract) — the same extract is carried by BOTH CDs, verbatim:** "Students collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies." Quoted verbatim from the same source.

**Administration notes — timing, equipment, calculator (TOC §7, D12, D17):** this checkpoint is a classroom task, **not an exam**. **Timing:** there is NO time limit — there is no timed paper at Level 1. Suggested running only: Part A about 10 minutes, Part B about 10 minutes. **Read aloud:** every item is read aloud by the teacher; students may ask for any item to be read again. **Equipment — materials on desk:** pencil and this sheet; a board or large paper for the teacher's own record of the class collection; counters or stickers optional for A5 (students may draw instead). The supplied display for Part B is printed on this sheet. Responses are a numeral, tally marks, a drawing or a short sentence. **Calculator:** none — there is no calculator anywhere in this book (TOC §7, D12, D17). Part A is one short data collection run in class and scored from the student's sheet and the teacher's observation; Part B is teacher-read questions on the supplied one-to-one display (TOC §7, row T6).

Student-facing text runs from "Part A" to the end of "Part B"; the front matter above and the Marking guide at the end are for the teacher.

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### Part A — We collect data (in class)

**6 marks.** The teacher reads each item aloud. The teacher watches as the students work.

What we find out is called **data**. We put data into groups. The groups are called **categories**. To **record** data means to put it down so we do not forget it.

**Our question:** *What do we drink at lunchtime?*

**A1. [1 mark]** We chose our groups before we started. Write or draw the groups we chose.

▢ ▢ ▢

**A2. [1 mark]** Watch and record. The teacher asks each child: *What do you drink at lunchtime? Water, milk or juice?* Each child answers one time. Make one **tally mark** | for each answer. Remember: 5 is 4 down marks and 1 across mark: | | | | /

water

milk

juice

**A3. [1 mark]** Count your tally marks. Write the number for each group.

water ▢ milk ▢ juice ▢

**A4. [1 mark]** How many drinks in all? ▢

How do you know that every child was counted one time?

**A5. [1 mark]** Make a **one-to-one display** of your data. One mark stands for one drink. Draw one ○ for each drink. Make one row for each group.

water

milk

juice

**A6. [1 mark]** Look back at your collecting. Say or write one thing you would change next time.

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## Part B — We read a display

**6 marks.** The teacher reads each item aloud. Look at the display.

The display below shows one class. 15 children told us how they got to school today. One ● stands for one child. That is **one-to-one**.

walk ● ● ● ● ● ● car ● ● ● ● bus ● ● ● bike ● ●

**B1. [1 mark]** How many children for each way?

walk ▢ car ▢ bus ▢ bike ▢

**B2. [1 mark]** Which way has the most children? ▢

Which way has the least children? ▢

**B3. [1 mark]** How many more children walked than rode bikes?

Show how you worked it out.

**B4. [1 mark]** How many children in all? ▢

**B5. [1 mark]** Zoe wants to put **train** in the display too. No children came by train today.

(a) Show the train group on the display. Write 0, or leave the row blank.

train

(b) Which way do you like best? Why?

**B6. [1 mark]** What did you find out? Tell your teacher one thing the display shows. Use a number in your sentence.

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## Marking guide

For the teacher. This checkpoint is worth **12 marks**: 6 for `VC2M1ST01` (Part A) and 6 for `VC2M1ST02` (Part B), per TOC §7. The rubric is written in the language of the achievement-standard extract, quoted verbatim below, so a teacher's judgement maps to the VCAA wording without translation (TOC §7). There is no time limit, no pass mark and no exam condition — this is a classroom instrument (TOC §7, D12, D17).

### Achievement-standard extract (quoted verbatim)

"Students collect and record categorical data, create one-to-one displays, and compare and discuss the data using frequencies."

Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Statistics — this single extract is carried verbatim by both `VC2M1ST01` and `VC2M1ST02` in `maths_1.json` (VCAA export retrieved 2026-07-29). Each scored item below is mapped to the phrase of the extract it evidences.

### Mark allocation

| CD | Items | Marks |
|---|---|---|
| `VC2M1ST01` (6A — acquiring and recording) | A1–A6 | 6 |
| `VC2M1ST02` (6B — displaying, comparing, discussing) | B1–B6 | 6 |
| **Total** | | **12** |

### Item-by-item scheme

| Item | Mark | What earns the mark | Extract phrase evidenced |
|---|---|---|---|
| A1 | 1 | The groups chosen BEFORE collecting are written or drawn — one answer: water, milk, juice. Accept the three groups the class actually chose, provided each answer fits exactly one group. | "collect and record categorical data" |
| A2 | 1 | One tally mark for each answer; the tallies match the teacher's own record of the class collection. | "collect and record categorical data" |
| A3 | 1 | The three numbers match the student's own tallies in A2. | "collect and record categorical data" |
| A4 | 1 | The total matches the number of children counted, AND the student tells how they know — one answer: one mark for each child; the counts all together match everyone here today; I checked everyone. | "collect and record categorical data" — the CHECK and the REASONING are scored, not the numeral alone (TOC §7) |
| A5 | 1 | One ○ for each drink (one-to-one), one row for each group, and the rows match | "create one-to-one displays" |

| Item | Mark | What earns the mark | Extract phrase evidenced |
|---|---|---|---|
| | | the counts in A3. | |
| A6 | 1 | Any sensible change for next time — one answer: make the marks smaller so they fit; use full groups of 5 so they are fast to count; one child calls out the answers; check the total at the end. | reasoning — reviewing the collection and saying how to change it next time (`VC2M1ST01.E01`); the explanation IS the mark (TOC §7) |
| B1 | 1 | walk 6, car 4, bus 3, bike 2 — all four. | "… the data using frequencies" |
| B2 | 1 | Most: walk (6). Least: bike (2). | "compare … the data" |
| B3 | 1 | 4. Accept a shown strategy: `6 − 2 = 4`, lining the two rows up one to one, or counting the difference. | "compare … the data" |
| B4 | 1 | 15. Accept counting all the ●s, or `6 + 4 + 3 + 2 = 15`. | "… the data using frequencies" |
| B5 | 1 | A valid display of the empty category — the train row with 0, or the train row left blank — AND a reason. One answer: I write 0, so we can see the train group is there even with none. One answer: I leave it blank, so the display is short. | "discuss the data" — the zero/blank-category judgement (`VC2M1ST02.E03`) is a genuine statistical judgement and is scored separately (TOC §3, Chapter 6 note); the display AND the reason together earn the mark |
| B6 | 1 | Any true statement about the display that uses a number — one answer: 6 children walked; more children walked than came by car; 2 children rode bikes, so bike has the least. | "discuss the data using frequencies" — a statement with no number does not earn the mark |

### Reasoning is scored, not just answers

`VC2M1ST02` requires students to "discuss the findings", and `VC2M1ST01.E01` requires them to review the data collected and say how they might change the way they collect data next time. Items **A4, A6, B5 and B6** therefore score the strategy and the explanation, not only the answer. **A rubric that scores only the answer fails these CDs** (TOC §7). Where an item says "say or write" or "tell your teacher" (A4 second part, A6, B5(b), B6), a spoken response earns the mark on the same criteria.

### Whole-checkpoint judgement, in the words of the extract

| Judgement | In the language of the extract | Indicative marks |
|---|---|---|
| **At the standard** | The student **collects and records categorical data** — the categories are chosen before collecting, one | 10–12 |

| Judgement | In the language of the extract | Indicative marks |
|---|---|---|
| | mark is made for each answer, and the counts are right. They **create a one-to-one display** — one symbol for each answer, in rows, one row for each group. They **compare and discuss the data using frequencies** — they say which has the most and the least, how many more, and the total, and they say what the data shows using a number. | |
| **Developing** | The student **collects and records categorical data** with some missed or extra marks, and **creates a one-to-one display** that is mostly one-to-one. They **compare** the most and the least, but their **discussion** does not yet **use frequencies**. | 6–9 |
| **Beginning** | With support, the student **collects and records** some of the **categorical data**, **creates** a partial **one-to-one display**, and **compares** with help. | 0–5 |

The bands are a guide only. There is no time limit and no pass mark; this is not an exam.

## Running and observation notes

- **Part A is observed.** The teacher asks each child the question one time and keeps their own record (board or large paper) of the class answers. A2 and A3 are scored against that record; A1 is scored only if the groups were chosen before the collecting started.
- **Part B is teacher-read** on the supplied one-to-one display printed on the sheet. No materials are needed for Part B beyond a pencil.
- Any item may be read again on request (D17).
- **Digital tools:** none are required here. The collection is recorded by hand — tally marks in A2, symbols in A5. If a device is used for the teacher's class record, the scoring is unchanged.

## Boundaries kept

- All counts stay within the Level 1 ranges: every number on this sheet is at most 15 (D8).
- Operation symbols are +, − and = only (D9). The expected responses for B3 and B4 use − (U+2212) and +; no vertical algorithm is used or rewarded.
- No chance or probability language anywhere in this checkpoint (D6); no metric units (D7); no clock faces; no fractions.
- **Data note:** the Part B display and the Part A drink groups are invented class data constructed for this task; no external datum is asserted, so no source line is required beyond the curriculum quotations in the front matter (TOC §6). The ways to school named in Part B (walk, car, bus, bike, train) are everyday Victorian referents used as category labels, not asserted data. Zoe is an invented child's given name.
- **E05 note:** `VC2M1ST01.E05` and `VC2M1ST02.E05` are Aboriginal and Torres Strait Islander content, excluded from ClassBasics books per CONTENT_POLICY Rule 1 (DJB 2026-08-15); they are not assessed here. See the Teacher notes in 6A and 6B. This exclusion is `ACCEPTED`, not a coverage gap (D11: the CDs are delivered and scored through E01–E04 moves).