

Mathematics Level 1

Chapter 3 — Algebra: repeating and skip counting patterns · 2 subtopics · 2 CDs

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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.

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Repeating patterns and the unit of repeat

Mathematics 1 · Level 1 · Chapter 3 — Algebra · Subtopic 3A. Teaching order: third of 15, after 1B, before 3B (TOC D5, D10).

Owens: VC2M1A02 — “recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit and recognising the importance of repetition in solving problems”. Quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Algebra, VC2M1A02, via `maths_1.json` (VCAA export retrieved 2026-07-29).

Achievement standard (extract): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.” Quoted verbatim from the same source.

Elaborations drawn on: VC2M1A02.E01, .E02, .E03. VC2M1A02.E04 and .E05 are not used — see the Teacher note.

Linked bank: 288 MCQs keyed to VC2M1A02 — digital asset only, not printed (TOC D12).

All task wording is read aloud by the teacher; responses are a numeral, a drawing, a row of symbols 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.

What we are learning

First we make a pattern. Then we find the part that comes again and again.

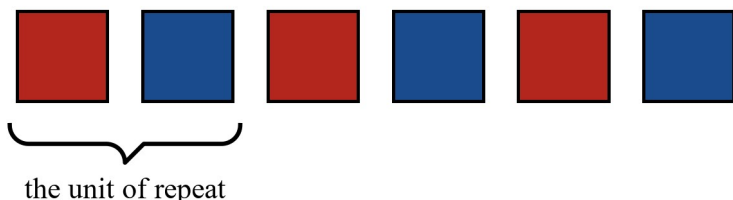
Make a pattern. Get some cubes. Put down a red cube, then a blue cube, then red, then blue. Red, blue, red, blue, red, blue. Say the colours as you build.



Six cubes in a line: red, blue, red, blue, red, blue.

A pattern has an order. A **repeating pattern** has a part that comes again and again, in the same order.

The unit of repeat. Look at red, blue, red, blue, red, blue. The red, blue part comes again and again. This repeating part has a name. It is called the **unit of repeat**. Here, the unit of repeat is red, blue.

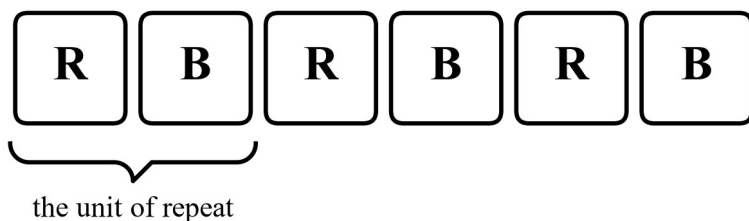


Six cubes in a line: red, blue, red, blue, red, blue. A line under the first red, blue part marks the unit of repeat.

New words:

- **Symbols** (say: sim-buls) are marks or letters that stand for something. R can stand for red. B can stand for blue. Then red, blue, red, blue is R B R B. The unit of repeat is R B.

- **Digits** (say: dij-its) are 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. We use digits to write numbers.
- The **unit of repeat** is the part of the pattern that comes again and again.



Letter cards: R B R B R B. A line under the first R B marks the unit of repeat.

Why is it good that patterns repeat? The unit comes again and again, so we know what comes next. We do not have to build it all.

Numbers have patterns too. The digits 0 to 9 come again and again as we count. That helps us name big numbers like 21, 22 and 23.

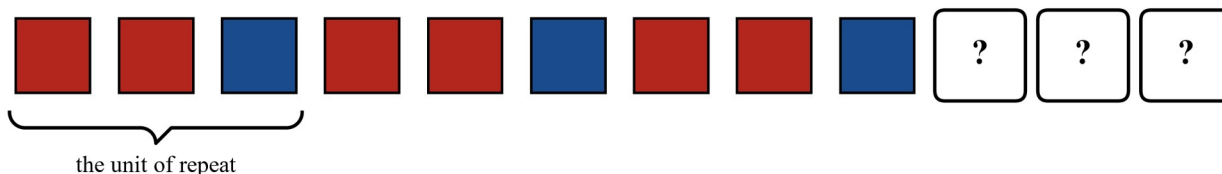
Worked examples

Example 1 — read a friend's pattern, find the unit

Noah made a pattern with cubes. What comes next?

R R B R R B R R B ? ? ?

R is a red cube. B is a blue cube.



Nine cubes: red, red, blue, red, red, blue, red, red, blue, then 3 cards marked ?. A line under the first red, red, blue marks the unit of repeat.

You need: red and blue cubes, or red and blue cards.

What we do

Why

1. Read the pattern: red, red, blue, red, red, blue, red, red, blue.

We can see all the parts.

2. Find the part that comes again and again: red, red, blue.

The same part comes back, in the same order.

3. This part has a name. It is the unit of repeat. The unit of repeat is red, red, blue.

The unit of repeat is the part that comes again and again.

4. What comes next? After blue, a new unit starts: red, red, blue.

When the unit ends, it starts again.

5. So the next cubes are red, red, blue.

We used the unit to know what comes next.

R R B R R B R R B R R B

Example 2 — write a pattern with symbols

Ava makes a pattern: clap, clap, pat. Clap, clap, pat. How can we write it?

You need: your hands and your knees.

What we do

Why

1. Do it with Ava: clap, clap, pat. Clap, clap, pat. Clap, clap, pat.
2. Let C stand for clap. Let P stand for pat.
3. Write the pattern: C C P C C P C C P.
4. Find the part that comes again and again: C C P.
5. The unit of repeat is C C P. What comes next? A new unit: C C P — clap, clap, pat.

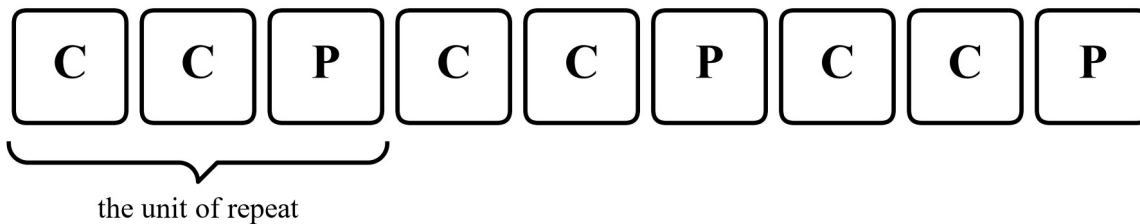
We can feel the pattern.

Letters are fast to write.

Now we can read the pattern.

It is the same every time.

The unit starts again.



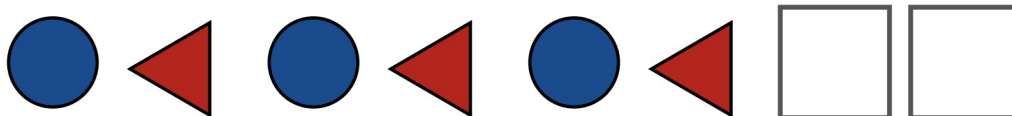
Letter cards: C C P C C P C C P. A line under the first C C P marks the unit of repeat.

Now you try

With your teacher

Q1. Look at the shape pattern.

● ▲ ● ▲ ● ▲ □ □

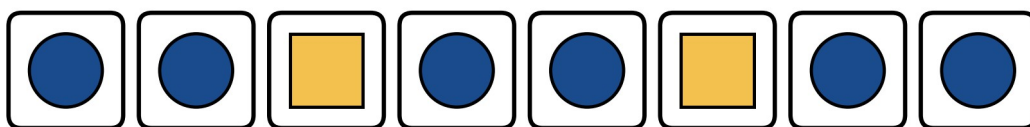


Shapes in a line: circle, triangle, circle, triangle, circle, triangle, then 2 blank boxes.

- (a) What shapes come next? Draw them.
- (b) What is the unit of repeat?
- (c) How do you know what comes next?

Q2. Mia made this pattern with shape cards.

● ● ■ ● ● ■ ● ●



Shape cards: circle, circle, square, circle, circle, square, circle, circle.

- (a) What is the repeating part?
- (b) Draw the next unit.
- (c) How many cards are in one unit?

Q3. Jack puts out forks and spoons: fork, spoon, fork, spoon, fork, spoon. F stands for fork. S stands for spoon.

- (a) Write the pattern with F and S.
- (b) What is the unit of repeat?

Q4. Make a pattern with cubes. The unit of repeat is red, blue, blue.

- (a) Build the pattern, then build it again.
- (b) Write your pattern with R and B.
- (c) What comes next?

Q5. Look at the numbers.

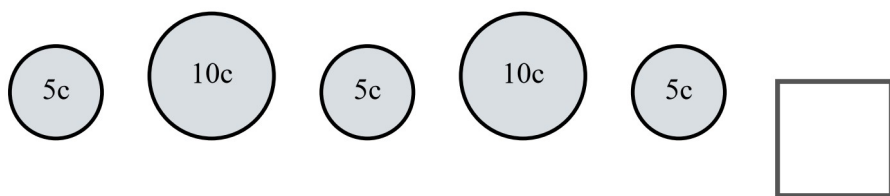
21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 □ □ □ □ □

21	22	23	24	25	26	27	28	29	30
31	32	33	34	35					

Boxes with numbers in 2 rows: 21 to 30, then 31 to 35 and 5 blank boxes.

- (a) Fill in the blanks.
- (b) Look at 21 and 31. What is the same? What is not the same?

Q6. Zoe puts coins in a line: 5c, 10c, 5c, 10c, 5c.

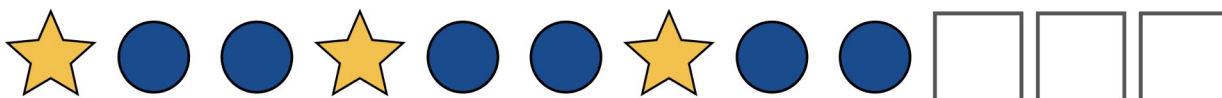


Coins in a line: 5c, 10c, 5c, 10c, 5c, then 1 blank box.

- What coin comes next?
- What is the unit of repeat?
- Make a new coin pattern with 5c and 10c coins.

On your own

Q7. Look at the pattern.



Shapes in a line: star, circle, circle, star, circle, circle, star, circle, circle, then 3 blank boxes.

- Draw what comes next.
- What is the unit of repeat?

Q8. Make your own repeating pattern. You can use shapes, cards or cubes.

- Make your pattern.
- Write the unit of repeat.
- A friend looks at your pattern. Can they find the unit?

Q9. Look at the shape pattern.



- What is the unit of repeat?
- Draw the next unit.
- How many shapes are in one unit?

Q10. Zoe makes the pattern $\blacktriangle \blacksquare \blacktriangle \blacksquare \blacktriangle \blacksquare$ and goes on. She does not draw any more shapes. What is the 10th shape? How do you know?

Q11. Count on.

- 27, 28, 29, $\square$, $\square$, $\square$
- 74, 75, 76, $\square$, $\square$, $\square$
- What comes again in each ten?

Q12. Make a repeating pattern with 3 things. You can use claps and pats, shapes, or things on your desk.

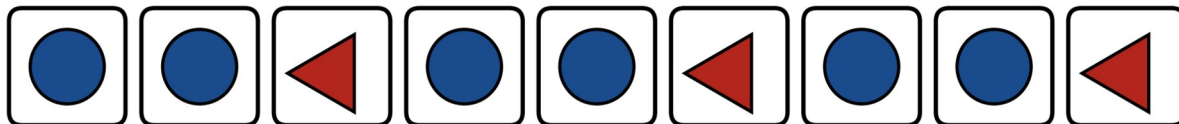
- Make your pattern. Write it with symbols.

(b) What is the unit of repeat?

(c) A friend makes your pattern from your symbols. Does it match?

Q13. Ben says the unit of repeat is ● ▲. His pattern is:

● ● ▲ ● ● ▲ ● ● ▲



Shape cards: circle, circle, triangle, circle, circle, triangle, circle, circle, triangle.

Is Ben right? What is the unit of repeat?

Q14. Talk with a friend.

(a) Why does it help to know the unit of repeat?

(b) Write or draw one way it helps.

Answers

- Q1.** (a) ● ▲. (b) ● ▲. (c) One answer: the unit ● ▲ comes again and again, so after ▲ comes ●.
- Q2.** (a) ● ● ■. (b) Draw ● ● ■. (c) 3 cards.
- Q3.** (a) F S F S F S. (b) F S.
- Q4.** (a) Build R B B R B B. (b) R B B R B B. (c) Red.
- Q5.** (a) 36, 37, 38, 39, 40. (b) Both end in 1. One starts with 2, and one starts with 3.
- Q6.** (a) 10c. (b) 5c, 10c. (c) Answers will not all be the same. Check: a part comes again and again in the same order.
- Q7.** (a) ★ ● ●. (b) ★ ● ●.
- Q8.** Answers will not all be the same. Check: a part comes again and again in the same order, and the unit is right.
- Q9.** (a) ▲ ■ ▲ ●. (b) Draw ▲ ■ ▲ ●. (c) 4 shapes.
- Q10.** ■. One answer: the unit ▲ ■ comes again and again. Shapes 2, 4, 6, 8, 10 are ■.
- Q11.** (a) 30, 31, 32. (b) 77, 78, 79. (c) The digits 0 to 9, again and again.
- Q12.** Answers will not all be the same. Check: the symbols match the pattern, and the unit comes again.
- Q13.** No. The unit of repeat is ● ● ▲.
- Q14.** (b) One answer: you know what comes next without making it all.
-

Teacher note

Curriculum map. This subtopic owns VC2M1A02 in full (TOC §3, §4). The content description is delivered through materials-based pattern work built on the opening sequence, not through the elaborations one by one (D11): E01 (interpret a pattern made by someone else, notice and describe the repeating part, explain how they know what comes next) → Example 1, Q1, Q2, Q3, Q7, Q9, Q13; E02 (identify the unit of repeat, represent the elements with letters or symbols, continue the pattern) → Example 2, Q3, Q4, Q8, Q9, Q10, Q12, Q13; E03 (the 0–9 digits repeat in and between the decades; use the pattern to continue the sequence and name two-digit numbers beyond 20) → the number paragraph in “What we are learning”, Q5, Q11 — number names stay within the Level 1 cap of 120 (D8). The CD’s “recognising the importance of repetition in solving problems” is delivered by Q10 (using the unit instead of drawing all the shapes) and Q14 (talking about why the unit helps), and by every “how do you know” prompt. All four element types named in the CD are used: numbers (Q5, Q11), symbols (Example 2, Q3, Q4, Q12), shapes (Q1, Q7, Q9, Q10) and objects (Example 1, Q2, Q6). Creating is scored in Q4, Q6c, Q8 and Q12.

The unit of repeat is the point. TOC §3 names identifying the unit of repeat and representing it symbolically (E02) as 3A’s hardest and least-skippable idea; pattern continuation alone does not deliver the CD. Every task therefore asks for the unit as well as the next element, and Q13 checks that the unit must repeat exactly — a unit that fits once but not again is not the unit.

E04 and E05 exclusion. VC2M1A02 . E04 (repeating patterns in Aboriginal and Torres Strait Islander systems of counting) and VC2M1A02 . E05 (shell or seed necklaces made by Aboriginal and Torres Strait Islander Peoples) are 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–E03 and class contexts (D11 — elaborations are illustrations, not requirements). This note stands in for the §2A entry TOC.md must carry; TOC.md is read-only from this authoring seat.

Coins. The achievement standard names Australian coins. Q6 uses real 5c and 10c coins as pattern pieces only — no value is counted, added or skip-counted. Coin skip counting belongs to 3B (VC2M1A01 . E04) and is constrained by D8.

Materials. Red, blue and yellow unifix/centi-cubes or other connecting cubes; shape cards or pattern blocks (circles, triangles, squares, stars); forks and spoons (real or play); play Australian coins (5c, 10c); paper and pens or pencils.

Assumed Foundation skill, rehearsed only: repeating patterns and following instructions (VC2MFA01) — rehearsed in the opening build-a-pattern step, not taught as new and not assessed as a Level 1 outcome (D3). 3A extends VC2MFA01 directly (D10): the new content is the unit of repeat as a named, symbolised object.

Also drawn on (already taught, in the recommended sequence): naming and writing numbers to at least 120 — 1A (VC2M1N01), used in Q5 and Q11; no new number work is taught here. **No operation symbols appear in the student-facing text:** 2A (VC2M1N04) introduces +, −, = later in the recommended teaching sequence (D5), and 3A needs no calculation (D9).

Level 2 destination (named only, not taught — D3): additive patterns (VC2M2A01). Identifying a unit of repeat is the earliest form of “the next term is generated from the last by a fixed rule” (TOC §5); 3B’s skip counting patterns (VC2M1A01) build directly on this subtopic (D10).

Assessment. Chapter checkpoint T3 (12 marks across VC2M1A02 + VC2M1A01): teacher-read; pattern blocks, beads and coins supplied; continue, create and state the unit of repeat (TOC §7). Stating-the-unit items in this section (Q1b, Q2a, Q3b, Q6b, Q7b, Q9a, Q13) rehearse that format; T3 should also carry a create-and-name item.

Data note. Every pattern in this section is invented 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 5c and 10c coins named in Q6 are real Australian coins used as objects; no fact about them is stated. All number names stay within 120 (D8); no chance language (D6), no metric units (D7), no clock faces, no fractions, no $\times$ or $\div$ (D9).

Vocabulary gate record (DJB 2026-08-18). Student-facing text — everything from “What we are learning” to “Answers” (897 tokens; pandoc fence directives stripped as rendering markup) — 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 — no general word above Yr1 remains. Curriculum-exempt words retained per VOCABULARY_LEVEL.md exemption 1, each defined at first use where student-facing: *unit*, *repeat* (CD “the repeating unit”; E02 “the unit of repeat”), *symbols* (CD “numbers, symbols, shapes and objects”), *digits* (E03 “0–9 digits are repeated”), and *example(s)* in the house heading “Worked examples” (E02 “for example”) — *examples* is an inflection of the curriculum word *example*, the same class the build gate’s literal-form exemption misses and 6B’s record accepts. Unplaced tokens (reported separately, not violations): the invented child names *Ava*, *Noah*, *Zoe* (proper nouns, exemption 3), the pronunciation respellings *sim-buls* and *dij-its*, and *why* (a ladder gap, recorded per VOCABULARY_LEVEL.md rather than worked around). 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`) is expected to flag only the exempt words listed above, all in student-facing use under exemption 1.

Skip counting patterns in twos, fives and tens, including with Australian coins

Mathematics 1 · Level 1 · Chapter 3 — Algebra · Subtopic 3B. Teaching order: 4th of 15, after 3A and before 1C (TOC D5, D10).

Owens: VC2M1A01 — “recognise, continue and create pattern sequences, with numbers, symbols, shapes and objects including Australian coins, formed by skip counting, initially by twos, fives and tens”. Quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Algebra, VC2M1A01, via `maths_1.json` (VCAA export retrieved 2026-07-29).

Achievement standard (extract): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.” Quoted verbatim from the same source.

Elaborations drawn on: VC2M1A01.E01, .E02, .E03, .E04, .E05 — all five; see the Curriculum map in the Teacher note.

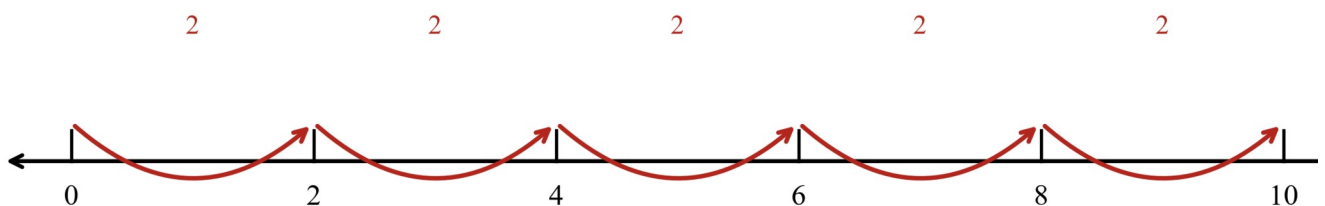
Linked bank: 288 MCQs keyed to VC2M1A01 — digital asset only, not printed (TOC D12).

All task wording is read aloud by the teacher; responses are a numeral, a drawing, a coloured chart 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.

What we are learning

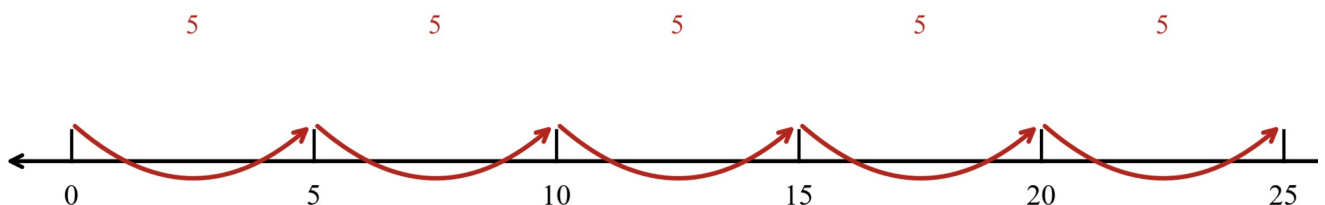
We can count by the same jump every time. This is **skip counting**.

Count by 2s. 2, 4, 6, 8, 10 ... Each number is 2 more than the one before.



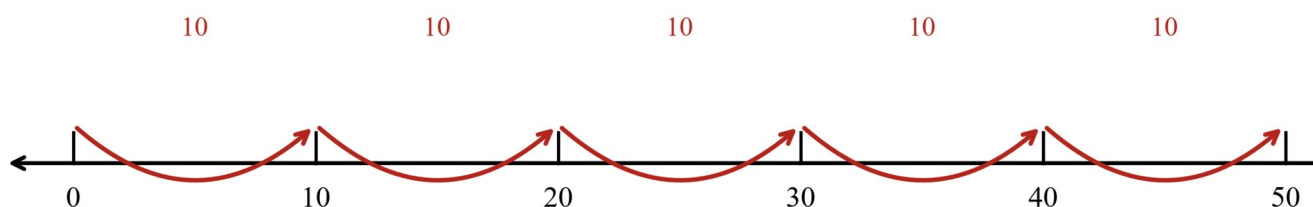
A number line from 0 to 10. The numbers go up by 2.

Count by 5s. 5, 10, 15, 20, 25 ... Each number is 5 more than the one before.



A number line from 0 to 25. The numbers go up by 5.

Count by 10s. 10, 20, 30, 40, 50 ... Each number is 10 more than the one before.



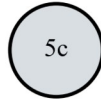
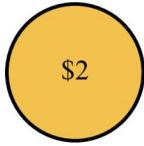
A number line from 0 to 50. The numbers go up by 10.

See the pattern. When we count by 5s, every number ends in 5 or 0. When we count by 10s, every number ends in 0.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

A 100 chart. The numbers that end in 5 or 0 have red circles.

We can skip count money too. \$2 coins count by 2s. 5c coins count by 5s. \$10 notes count by 10s.



2, 4, 6

5, 10, 15

10, 20, 30

A \$2 coin, a 5c coin and a \$10 note. We can skip count them.

New words:

- **Skip counting** is counting by the same jump every time.
- A **number sequence** (say: see-kwens) is a list of numbers in order. 2, 4, 6, 8, 10 is a number sequence.
- **The jump** is how much each number goes up. In 2, 4, 6, 8, 10 the jump is 2.
- A **number chart** is a big chart of numbers in rows. We use it to see patterns.

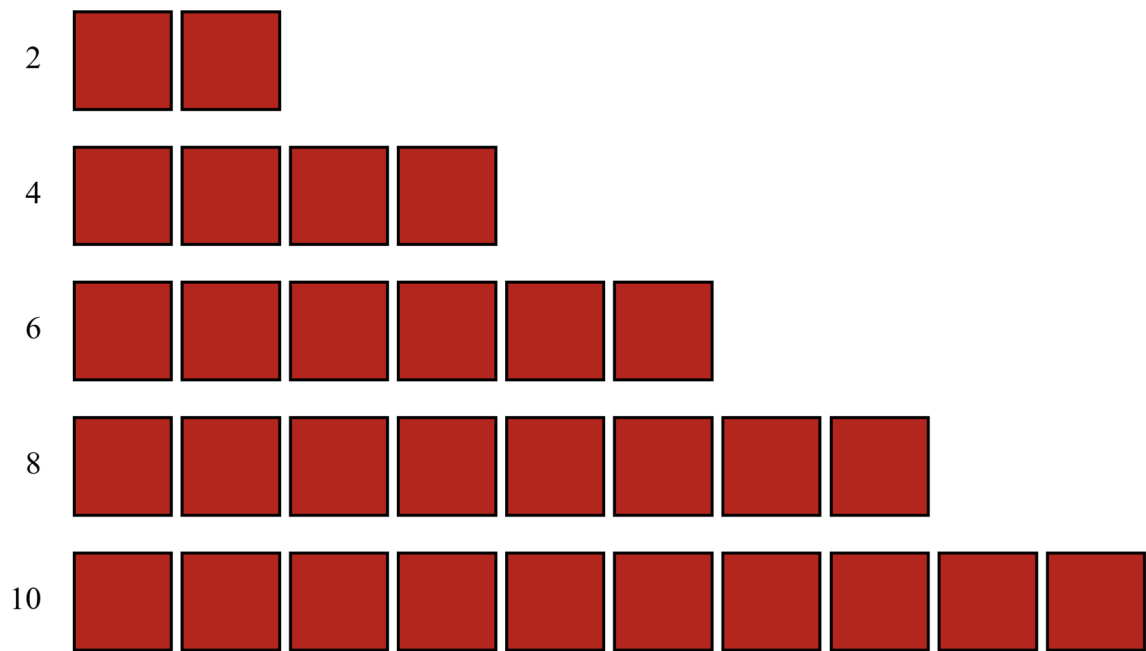
Worked examples

Example 1 — make a growing pattern, counting by 2s

Question: Make the pattern 2, 4, 6, 8, 10 with cubes. How does it grow?

You need: cubes and paper.

What we do	Why
1. Make a group of 2 cubes.	We start at 2.
2. Make the next group: 4 cubes. Then 6, 8 and 10. Say the numbers as you go: 2, 4, 6, 8, 10.	Each group is 2 more than the one before.
3. Draw the pattern. Each • is one cube.	Now we can see the pattern.
4. Look at the groups. Each time, 2 more.	The jump is 2.
5. What comes next? 10 and 2 more is 12.	The pattern goes on with the same jump.
2 • • 4 • • • 6 • • • • 8 • • • • • 10 • • • • • • • • • •	



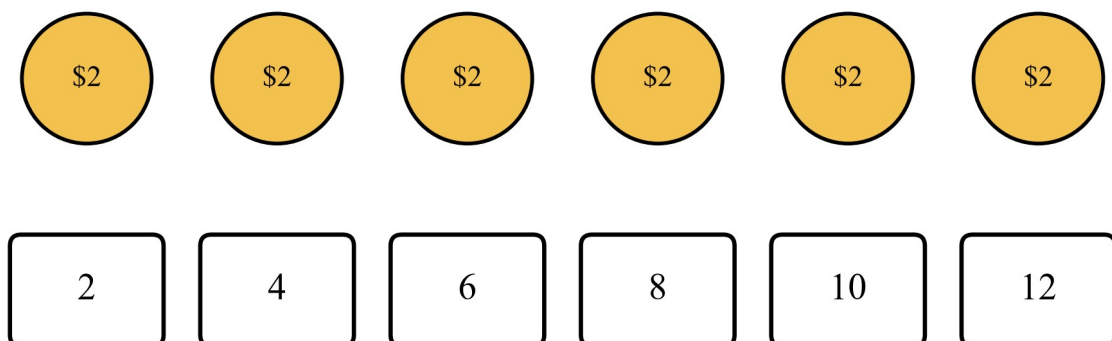
Rows of cubes: 2, 4, 6, 8 and 10. Each row is 2 more.

Example 2 — count \$2 coins, counting by 2s

Question: Mia has 6 \$2 coins. How much money does she have?

You need: play money (\$2 coins) and paper.

What we do	Why
1. Put the 6 coins in a line.	So we do not skip a coin.
2. Count the coins by 2s. Say one number for each coin: 2, 4, 6, 8, 10, 12.	\$2 coins count by 2s.
3. The last number is 12.	We counted all 6 coins.
4. Mia has \$12.	The last number tells us how much.
5. Check: 6 coins, and we counted to 12. \$2 \$2 \$2 \$2 \$2 \$2 2 4 6 8 10 12	Skip counting found how much.



Six \$2 coins in a line. The numbers under them are 2, 4, 6, 8, 10 and 12.

Now you try

With your teacher

Q1. This is part of a number chart. We count by 2s.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20

A number chart from 1 to 20, in rows of 5.

- (a) Colour the numbers we say: 2, 4, 6, and go on.
- (b) Look at the numbers you coloured. What number does each one end in?

Q2. Sing and clap the 5s: 5, 10, 15, 20, 25, 30.

- (a) Say it with your class. Clap on each number.
- (b) Write the numbers in the boxes. 5, 10, □, 20, □, 30.

Q3. Take a 100 chart. Count by 10s.

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

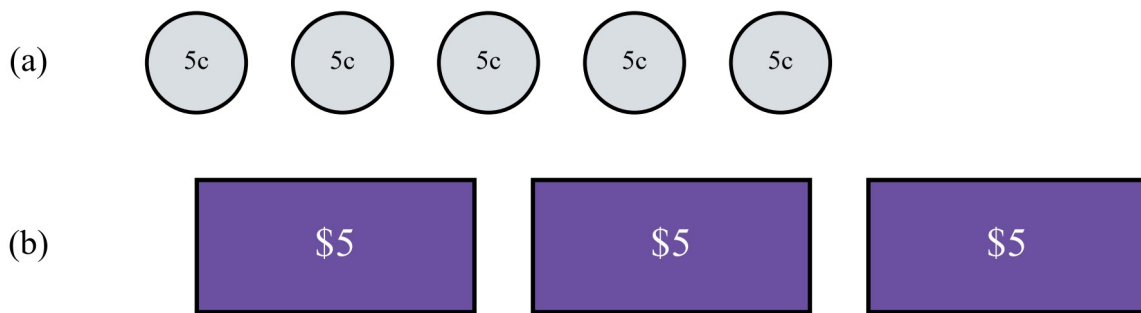
A 100 chart with red circles on 10, 20 and 30.

- (a) Colour 10, 20, 30. Go on to 100.
- (b) What number do they all end in?
- (c) Point to the line of numbers. Say them all.

Q4. Make a growing pattern with cubes: 5, 10, 15, 20.

- (a) Make each group. Draw it.
- (b) How many cubes are in group 4?
- (c) How many more cubes each time? What is the jump?

Q5. Count the money. Skip count to find how much.



(a) Five 5c coins. (b) Three \$5 notes.

(a) Five 5c coins. Skip count by 5s: 5, 10, 15, □, □. How much in all?

(b) Three \$5 notes. Skip count by 5s: 5, 10, □. How much in all?

Q6. The clap game. Sam-yuk-gu is a counting game from Korea. We will play our own way.

Count by 5s around the class. Clap when you say a number.

(a) We clap on 5, 10, 15, □, □. What two numbers go in the boxes?

(b) Play again. Count by 2s. We clap on 2, 4, □, □, 10. What two numbers go in the boxes?

On your own

Q7. Write the next 3 numbers.

(a) 2, 4, 6, □, □, □

(b) 5, 10, 15, □, □, □

(c) 10, 20, 30, □, □, □

Q8. Look at each number sequence. What is the jump?

(a) 2, 4, 6, 8

(b) 5, 10, 15, 20

(c) 10, 20, 30, 40

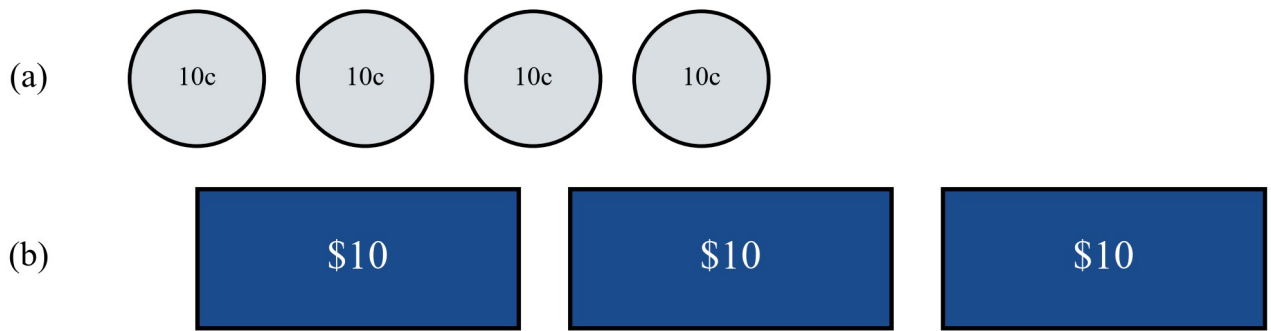
Q9. Draw a growing pattern of circles: 2, then 4, then 6.

(a) Draw the 3 groups.

(b) Write the next 2 numbers. 2, 4, 6, □, □.

(c) What is the jump?

Q10. Count the money. Skip count to find how much.



(a) Four 10c coins. (b) Three \$10 notes.

(a) Four 10c coins. How much in all?

(b) Three \$10 notes. How much in all?

Q11. Circle the numbers we say when we count by 5s.

5 8 10 13 15 18 20 22 25 28 30

Q12. Ben counted by 5s. He said: 5, 10, 15, 19, 25. Is Ben right? Fix his pattern.

Q13. Make your own skip counting pattern. Use beads or cubes.

(a) Make your pattern.

(b) Say it to a friend.

(c) What is the jump?

Q14. Count by 10s to 120. Write the numbers in the boxes.

10, 20, 30, □, □, 60, □, □, 90, □, 110, □

10	20	30			60			90		110	
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Number cards 10, 20, 30 and so on, with some blank cards.

Answers

Q1. (a) Colour 2, 4, 6, 8, 10, 12, 14, 16, 18, 20. (b) 2, 4, 6, 8, 0.

Q2. (b) 15 and 25.

Q3. (a) Colour 10, 20, 30, 40, 50, 60, 70, 80, 90, 100. (b) 0.

Q4. (b) 20 cubes. (c) 5 more each time. The jump is 5.

Q5. (a) 20, 25 — 25c in all. (b) 15 — \$15 in all.

Q6. (a) 20 and 25. (b) 6 and 8.

Q7. (a) 8, 10, 12. (b) 20, 25, 30. (c) 40, 50, 60.

Q8. (a) 2. (b) 5. (c) 10.

Q9. (b) 8, 10. (c) 2.

Q10. (a) 40c. (b) \$30.

Q11. 5, 10, 15, 20, 25, 30.

Q12. No. 20, not 19: 5, 10, 15, 20, 25.

Q13. Answers will not all be the same. Check: the jump is the same every time.

Q14. 40, 50, 70, 80, 100, 120.

Teacher note

Curriculum map. This subtopic owns VC2M1A01 in full (TOC §3, §4). The content description is delivered through materials-based growing patterns, number charts and same-denomination coin counts, not through the elaborations one by one (D11): E01 (number charts, songs, rhymes and stories to establish skip counting sequences of twos, fives and tens) → Q1, Q2, Q3; E02 (shapes and objects to represent a growing pattern formed by skip counting, e.g. 2, 4, 6, 8, 10 ... and 5, 10, 15, 20 ...) → Example 1, Q4, Q9, Q13; E03 (recognising patterns in sequences formed by skip counting — counting in fives always ends in 5 or 0) → Q1b, Q3b, Q8, Q11; E04 (counting by twos, fives or tens to determine how much money is in a collection of coins or notes of the same denomination — 5-cent, 10-cent and \$2 coins, \$5 and \$10 notes) → Example 2, Q5, Q10, coin set constrained by D8 and §6; E05 (different variations of Sam-yuk-gu) → Q6, see the Sam-yuk-gu note. The CD's verbs are all delivered: *recognise* (Q1b, Q3, Q8, Q11, Q12), *continue* (Q2b, Q4, Q5, Q6, Q7, Q10, Q14), *create* (Q9, Q13); and every material the CD names is used — numbers and numeral symbols (chart tasks), shapes (Q9), objects (cubes and beads in Example 1, Q4, Q13) and Australian coins (Example 2, Q5, Q10). The achievement standard's "identifying the repeating unit" is delivered as *the jump* (Q4c, Q6, Q8, Q9c, Q13c) — the fixed step of a skip counting pattern — extending the unit-of-repeat idea taught in 3A (VC2M1A02, D10).

No operation symbols yet. 3B is taught 4th, before 2A (D5), where +, − and = are introduced (VC2M1N04 . E04). No operation symbol appears in student-facing text here: steps are expressed as sequences (2, 4, 6), as "2 more"/"5 more", and as "count by". No × or ÷ anywhere (D9).

Sam-yuk-gu. E05 speaks of "different variations of the popular Korean counting game Sam-yuk-gu". Q6 repeats VCAA's own description of the game and goes no further: no claim is made about the traditional rules, since no checkable source for them could be verified (TOC §6: everything named must be citable). The clap game in Q6 is an original classroom variation, which is exactly what E05's "different variations" contemplates. Sam-yuk-gu is a Korean game; this is not Aboriginal or Torres Strait Islander content, so CONTENT_POLICY Rule 1 is not engaged.

Money facts. The coins and notes used are current Australian currency, restricted to the denominations D8 allows for this work (VC2M1A01 . E04): 5c, 10c and \$2 coins, \$5 and \$10 notes. Source: Royal Australian Mint, *Circulating coins*, <https://www.ramint.gov.au/circulating-coins>, retrieved 2026-08-19. Nothing is asserted about coin or note

design or any property beyond face value. No 1c or 2c coins (withdrawn from circulation in 1992 — TOC §6). Every money count is a same-denomination skip count per VC2M1A01 .E04; there are no transactions and no mixed denominations — those belong to 2B (VC2M1N05).

Materials. Connecting cubes (unifix/centi-cubes); counters; beads and string; blocks; class 100 chart and individual 100 charts; crayons; play money — 5c and 10c coins, \$2 coins, \$5 and \$10 notes.

Assumed Foundation skill, rehearsed only: numbers to 20 and zero (VC2MFN01) — rehearsed throughout the chart and counting tasks, not taught as new and not assessed as a Level 1 outcome (D3). The repeating-pattern idea comes from Foundation VC2MFA01 via 3A (D3, D10).

Also drawn on (already taught, in the recommended sequence): numbers to 120 and the 100 chart — 1A (VC2M1N01); tens and ones — 1B (VC2M1N02); unit of repeat — 3A (VC2M1A02).

Level 2 destination (named only, not taught — D3): multiplication and division (VC2M2N05) and the twos facts (VC2M2A03) — skip counting is how equal groups become multiplication (TOC §5); additive patterns (VC2M2A01).

Assessment. Chapter checkpoint T3 (12 marks across VC2M1A02 + VC2M1A01): teacher-read; pattern blocks, beads and coins supplied; continue, create and state the unit of repeat (TOC §7), including one same-denomination coin count per VC2M1A01 .E04.

Range check. All numbers in student tasks are at or below 120 (D8 counting cap; Q14 ends at 120). No metric units (D7), no chance or probability language (D6), no clock faces, no fractions, no vertical algorithms and no operation symbols (D5, D9).

Data note. Children’s names (Mia, Ben) are invented, as permitted (TOC §6). All class data in the examples and tasks is invented for the task. No external datum is asserted beyond the coin denominations sourced above and the curriculum quotations in the front matter.

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: *sequence(s)* (in the VC2M1A01 content description itself, plus .E01, .E03, .E05) and *chart(s)* (VC2M1A01 .E01), both defined at first use in “New words”; *example(s)* and *question* appear only as the structural labels of the worked examples (verbatim in the elaborations of VC2M1A01 and across the book’s --cde file). *Korea* (Q6) is a proper noun — exemption 3 (proper nouns and numerals); the build gate likewise skips it as a mid-sentence capital. The Pandoc fence directives (`::: {custom-style="Source Code"}`) are build markup, not student prose, and are stripped from the gated text. No general word above Yr1 remains. The front matter above 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, --cde `maths_1.json`): its only flag inside this section’s student-facing region is *examples* in the heading “Worked examples”, an inflection of the curriculum word *example* missed by the gate’s literal-form exemption — the same accepted result as the delivered 6B section; all other build-gate flags sit in teacher-facing text. Caveat: the build gate’s `$...$` maths mask pairs the dollar signs of the currency notation and so blinds several spans of this file (most of “Now you try” and “Answers”); the `check_text` gate above has no such mask and gated the full student-facing region.

Checkpoint CP3

Mathematics 1 · Level 1 · Chapter 3 — Algebra · Checkpoint CP3 (TOC §7 row T3). The topic checkpoint for Chapter 3: third of the six checkpoints, administered after 3A and 3B (TOC D5 teaching order). A classroom instrument, not an exam (TOC §7, D17).

CDs scored (TOC §4, §7): VC2M1A02 (owned by 3A), 6 marks, and VC2M1A01 (owned by 3B), 6 marks — **12 marks**, the §7 rate of 6 marks per CD the chapter owns.

VC2M1A02 — “recognise, continue and create repeating patterns with numbers, symbols, shapes and objects, identifying the repeating unit and recognising the importance of repetition in solving problems”.

VC2M1A01 — “recognise, continue and create pattern sequences, with numbers, symbols, shapes and objects including Australian coins, formed by skip counting, initially by twos, fives and tens”. Both quoted verbatim. Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Algebra, VC2M1A02 and VC2M1A01, via `maths_1.json` (VCAA export retrieved 2026-07-29).

Achievement standard (extract, shared by both CDs): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.” Quoted verbatim from the same source. The Marking guide below is written in the language of this extract and quotes it beside every scored item (TOC §7).

Administration (TOC §7, D17): teacher-read — the teacher reads every item aloud, twice if asked.

Materials on desk. Short written or drawn work. **No time limit — there is no timed paper in this book.**

No calculator — there is no calculator in this book. Not an exam. This is an observed checkpoint: while students work, the teacher observes and notes on the paper what the student builds, points to or says. Where a student answers by mouth, the teacher writes the student’s words on the paper. No multiple-choice items (D12).

Materials on desk (named, TOC §7): pattern blocks or shape cards (circles and triangles); beads in two or three colours (red, blue, yellow); connecting cubes; play Australian 10c coins — four per student plus spares; paper; pencils. The 10c coin is current Australian currency; the denomination is in the VC2M1A01.E04 and D8 coin set. Source: Royal Australian Mint, *Circulating coins*, <https://www.ramint.gov.au/circulating-coins>, retrieved 2026-08-19.

Rehearsal: the 3A and 3B sections rehearse this checkpoint’s format — stating the unit of repeat (3A Q1b, Q2a, Q3b, Q6b, Q7b, Q9a, Q13) and one same-denomination coin count per VC2M1A01.E04 (3B Example 2, Q5, Q10) — as their Teacher notes require. All patterns in this checkpoint are invented for the task; no other real datum is asserted (TOC §6).

Student-facing text runs from “How this works” to Q5; the front matter above and the Marking guide are for the teacher.

How this works

Your teacher reads each task to you. The things you need are on your desk. You can draw, write numbers, or write short words. Take all the time you need.

Q1 — a repeating pattern (3A)

Look at the pattern. You can use pattern blocks to help.

● ▲ ▲ ● ▲ ▲ ● ▲ ▲ □ □ □

- Draw what comes next.
- What is the unit of repeat? The unit of repeat is the part that comes again and again.
- How do you know what comes next?

Q2 — make a repeating pattern (3A)

Make your own repeating pattern with beads. Use two colours. Show the unit two times.

- (a) Make it, then draw it.
- (b) Write the unit of repeat.
- (c) Write your pattern with letters. You can pick the letters.

Q3 — skip counting (3B)

Write the next two numbers.

- (a) Count by 2s: 2, 4, 6, ,
- (b) Count by 5s: 5, 10, 15, ,

Q4 — count the coins (3B)

You have four play 10c coins on your desk. Skip count by 10s to find how much.

10c 10c 10c 10c

- (a) Write the numbers you say: , , ,
- (b) How much in all?

Q5 — make a skip counting pattern (3B)

Make your own skip counting pattern. Count by 2s, by 5s, or by 10s. You can use cubes or beads, or just write the numbers.

- (a) Make the pattern. Write the numbers or draw it.
 - (b) What is the jump? The jump is how much each number goes up.
-

Marking guide

Teacher only. This marking guide is the rubric for Checkpoint CP3, written in the language of the achievement-standard extract carried in the authority file for the two CDs scored, so a teacher's judgement maps to VCAA wording without translation (TOC §7). Marks are given for what the student shows with the materials, and for what the student writes, points to or says. Administration, exactly as TOC §7 and D17 set it: teacher-read, materials on desk, short written or drawn work, no timed paper, no calculator, not an exam. Each bullet is worth 1 mark; no part marks. Accept any correct form — words, letters, colours, numerals or drawings.

Achievement standard (extract) — quoted verbatim. Both CDs scored here carry the same extract:

“Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

Source: Victorian Curriculum F–10 Version 2.0, Mathematics (VCAA), Level 1, Algebra, achievement_standard extract for VC2M1A02 and VC2M1A01, via maths_1.json (VCAA export retrieved 2026-07-29).

Marks summary.

Part	CD	Items	Marks	Achievement-standard language (extract, verbatim)
Repeating patterns	VC2M1A02	Q1, Q2	6	“Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”
Skip counting patterns	VC2M1A01	Q3, Q4, Q5	6	“Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”
Total			12	

Q1 — VC2M1A02 · 3 marks

Achievement standard (extract, verbatim): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

- **(a) — 1 mark: continue.** The next unit: ● ▲ ▲ (circle, triangle, triangle). Give the mark only for all three, in order — when the unit ends, it starts again.
- **(b) — 1 mark: identifying the repeating unit.** The unit of repeat is ● ▲ ▲ (or “circle, triangle, triangle”). Scored separately from continuation: continuing the pattern does not by itself show the unit is identified (TOC §3, Chapter 3 note).
- **(c) — 1 mark: reasoning.** Give the mark for any answer that says the part comes again and again, or that names the unit as the reason — “because ● ▲ ▲ comes again”. The CD requires students to recognise the importance of repetition in solving problems, and VC2M1A02.E01 has them explain how they know what comes next in the sequence, so this mark is for the explanation, not the right answer (TOC §7: items score the

strategy and the explanation, not only the answer). A student with correct (a) and (b) but no appeal to repetition does not get this mark. Accept a spoken answer; write the student's words on the paper.

Q2 — VC2M1A02 · 3 marks

Achievement standard (extract, verbatim): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

- **(a) — 1 mark: create.** A repeating pattern made with two colours of beads, with the unit shown at least two times — for example red, blue, red, blue, or red, red, blue, red, red, blue. The drawing must match the beads. Observe the build as well as the drawing.
- **(b) — 1 mark: identifying the repeating unit.** The unit of repeat, stated correctly for the student's own pattern.
- **(c) — 1 mark: symbols.** The pattern written with letters, one letter per bead, showing the unit again — for example R B R B. Any letter choices are acceptable if they are used the same way all the way through. This is the symbolic representation of VC2M1A02 . E02.

Together the three bullets award what the extract names: students use objects and symbols to create a repeating pattern, identifying the repeating unit — create in (a), identifying the unit in (b), symbols in (c).

Q3 — VC2M1A01 · 2 marks

Achievement standard (extract, verbatim): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

- **(a) — 1 mark: 8, 10.** Both numbers right for the mark.
- **(b) — 1 mark: 20, 25.** Both numbers right for the mark.

This is the CD's “continue” with numbers: pattern sequences formed by skip counting (twos and fives here; tens are covered in Q4). VC2M1A01 does not require an explanation, so no reasoning mark is attached — the strategy is shown in the count itself.

Q4 — VC2M1A01 · 2 marks

Achievement standard (extract, verbatim): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

- **(a) — 1 mark: the strategy.** The count 10, 20, 30, 40 — one number said for each coin, in order.
- **(b) — 1 mark: 40c (forty cents).**

This is the checkpoint's same-denomination coin count, per VC2M1A01 . E04 — counting by twos, fives or tens to find how much money is in a collection of coins or notes of the same denomination — as the 3B Teacher note requires. It awards the Australian-coins half of the extract. The 10c coin is current Australian currency. Source: Royal Australian Mint, *Circulating coins*, <https://www.ramint.gov.au/circulating-coins>, retrieved 2026-08-19.

Q5 — VC2M1A01 · 2 marks

Achievement standard (extract, verbatim): “Students use numbers, symbols and objects, including Australian coins, to create skip counting and repeating patterns, identifying the repeating unit.”

- **(a) — 1 mark: create.** A skip counting pattern of the student's own with the same jump every time — at least three numbers or three groups, counting by 2s, 5s or 10s (for example 2, 4, 6 or 5, 10, 15; a growing pattern of cubes or beads with the same step each time is accepted). The student picks the jump, which is the create the extract names.
- **(b) — 1 mark: identifying the jump.** The jump is stated, and it matches the student's own pattern.

Reasoning — where it is scored. The CD requires reasoning of VC2M1A02 only, so the one reasoning mark sits at Q1(c). The VC2M1A01 items award the pattern and the count; the strategy is awarded inside Q4(a) (the count itself)

and Q5(b) (stating the jump). No mark anywhere requires metric units, clock faces, fractions, $\times$ or $\div$, or content beyond the twos, fives and tens named by VC2M1A01 (D6–D9).

Recording the result. Total: /12, *kept as two scores* — VC2M1A02 /6 (Q1–Q2) and VC2M1A01 ___/6 (Q3–Q5) — so the coverage audit reads each CD’s delivery straight off the mark scheme (TOC §7). Note on the paper what the student built or said at Q2 and Q5.

Vocabulary gate record (2026-08-23). Student-facing text — everything from “How this works” to Q5 (76 tokens; pandoc fence directives stripped as rendering markup) — is at or below the Yr1 ladder ceiling (rank 1), verified with `load_ladder/tokenize/_resolve_min` from `S:\Files\projects\mcq-system\reports\vocab_level_check.py`. Result: CLEAN once the curriculum-exempt words are allowed. Curriculum-exempt words retained per VOCABULARY_LEVEL.md exemption 1, each defined at first use where student-facing: *unit*, *repeat* (achievement-standard extract “identifying the repeating unit”; VC2M1A02.E02 “the unit of repeat”) — the same exemption class the 3A gate record carries. *Limit* (Yr4 on the ladder, no exemption) was drafted out of the student-facing text in favour of “Take all the time you need”; the §7 timing rule (“no timed paper”) stands verbatim in the teacher-facing Administration block, which is not vocabulary-gated (WORD_LEVEL_POLICY Rule 3). The front matter and this Marking guide are teacher-facing metadata and are likewise not gated.