Curriculum Insights and Progress Study

National Monitoring Study of Aotearoa | Te Aroturuki o Aotearoa

Mā te whakaaro nui e hanga te whare;
mā te mātauranga e whakaū
Big ideas create the house; knowledge maintains it

Power up your practice:
Insights from Science and Mathematics

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Nau mai, haere mai

- Karakia
- Mihimihi
- Ko mātou tēnei | Introducing the team

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Ngā kaupapa o te rā | Our focus for today

- Quick intro to Curriculum Insights
- Science 2024
- Mathematics and Statistics 2024
- Closing mihi and karakia

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Curriculum Insights

...provides useful information about how students are progressing and achieving,

and helps us understand how the refreshed curriculum is being used in schools.

These insights can be used to support ongoing improvement across the education system.

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A strong foundation

1995 – 2010
NEMP

National Education Monitoring Project

2011 – 2022
NMSSA

National Monitoring Study of Student Achievement

2023 – present
Curriculum Insights

Curriculum Insights and Progress Study

NEMP
National Education Monitoring Project

NMSSA
Wānangatia te putanga tauira
National Monitoring Study of Student Achievement

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Three key components

Learning area assessments

School visits: trained Kairangahau Kaiako collect data from students in Years 3, 6, and 8.

Foundation assessments

Reading, writing, and maths assessments carried out online by the teachers and schools involved.

Research Panel of Schools

Nimble and responsive data collection from a representative panel of 40 schools.

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2024 learning area assessments

- Nationally representative samples
- Around 80 schools and about 1,500 students per year level
- Administered in Term 3, 2024
- Students undertook a range of rich tasks

Science

Highlights from the collection

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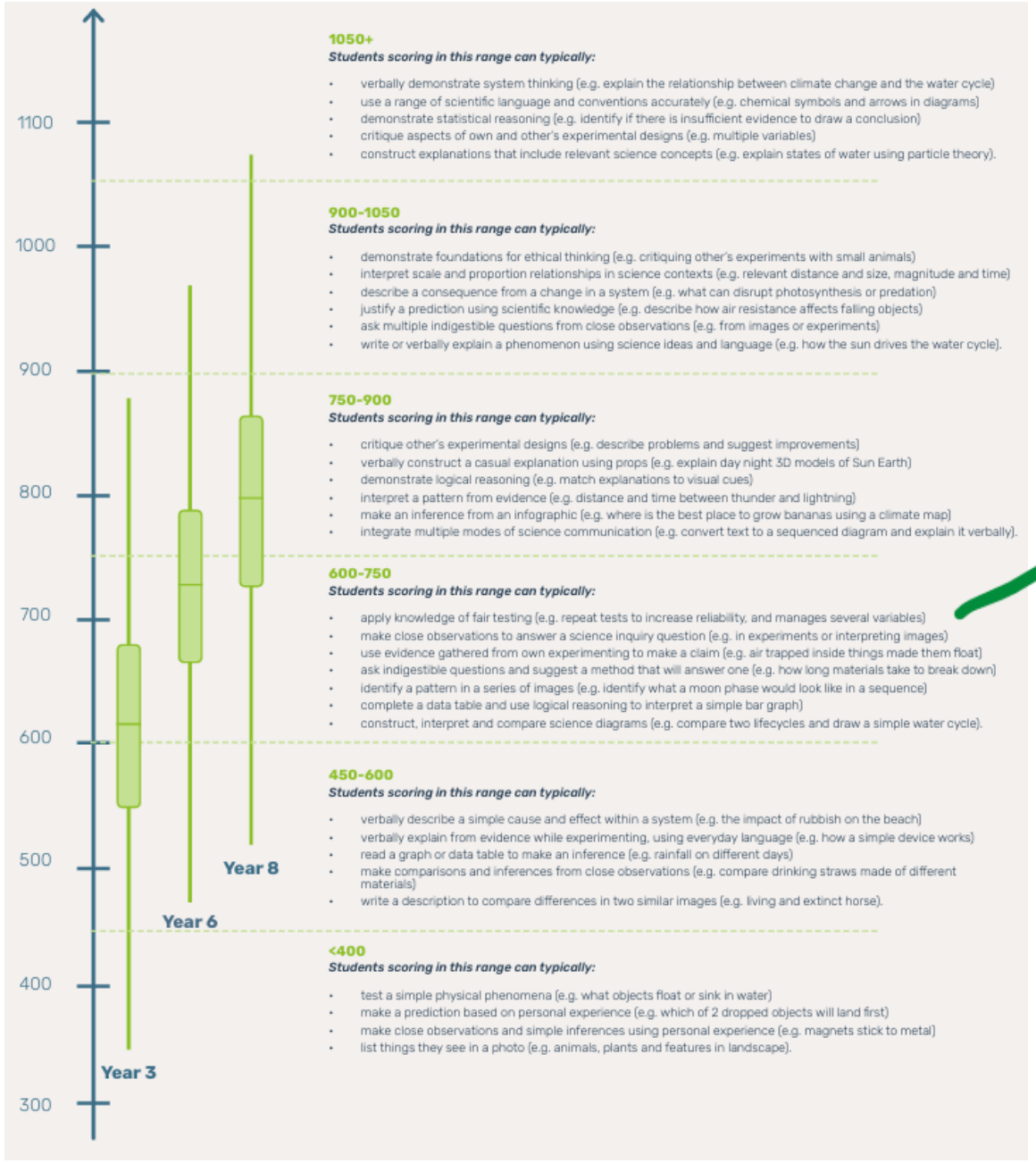

600-750

Students scoring in this range can typically:

- ask investigative questions and suggest a method to answer one.

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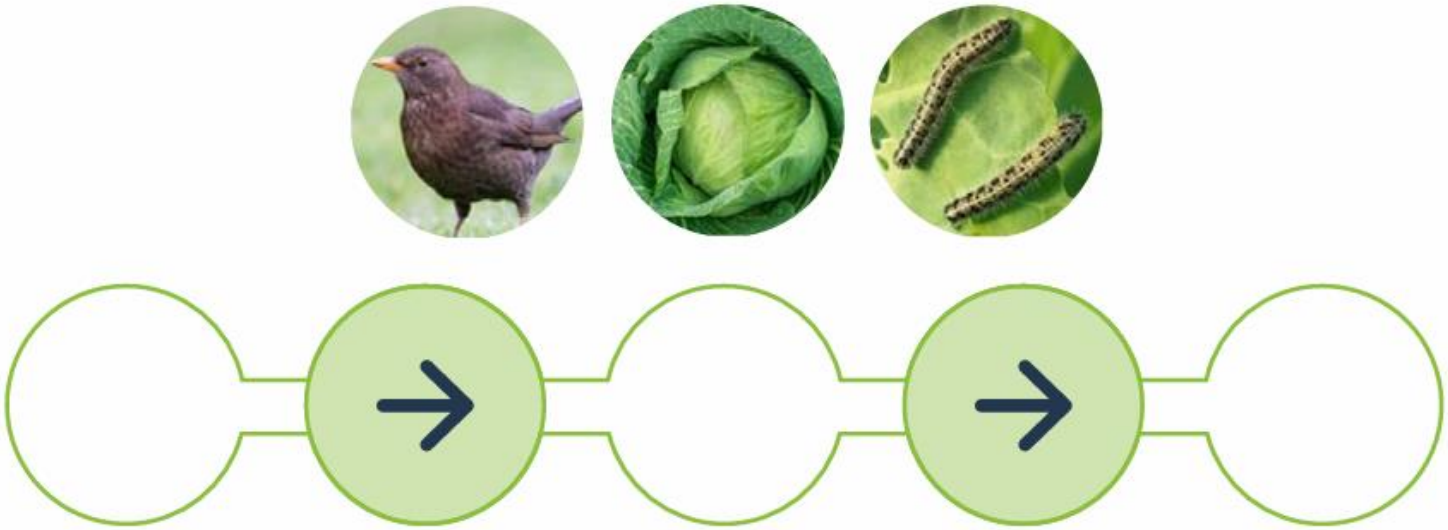
Key insight: Science

Making connections between themselves and natural systems helps ākonga build a richer understanding of science concepts and how systems work and interact.

What systems thinking can Y3 do?

Figure 1. Year 3 task requiring students to complete a simple food chain.



Drag the pictures and arrows to show that caterpillars eat cabbages and birds eat caterpillars.

63% of Year 3

correctly sequenced the relationship

39% read → “eats”

24% → “is eaten by”

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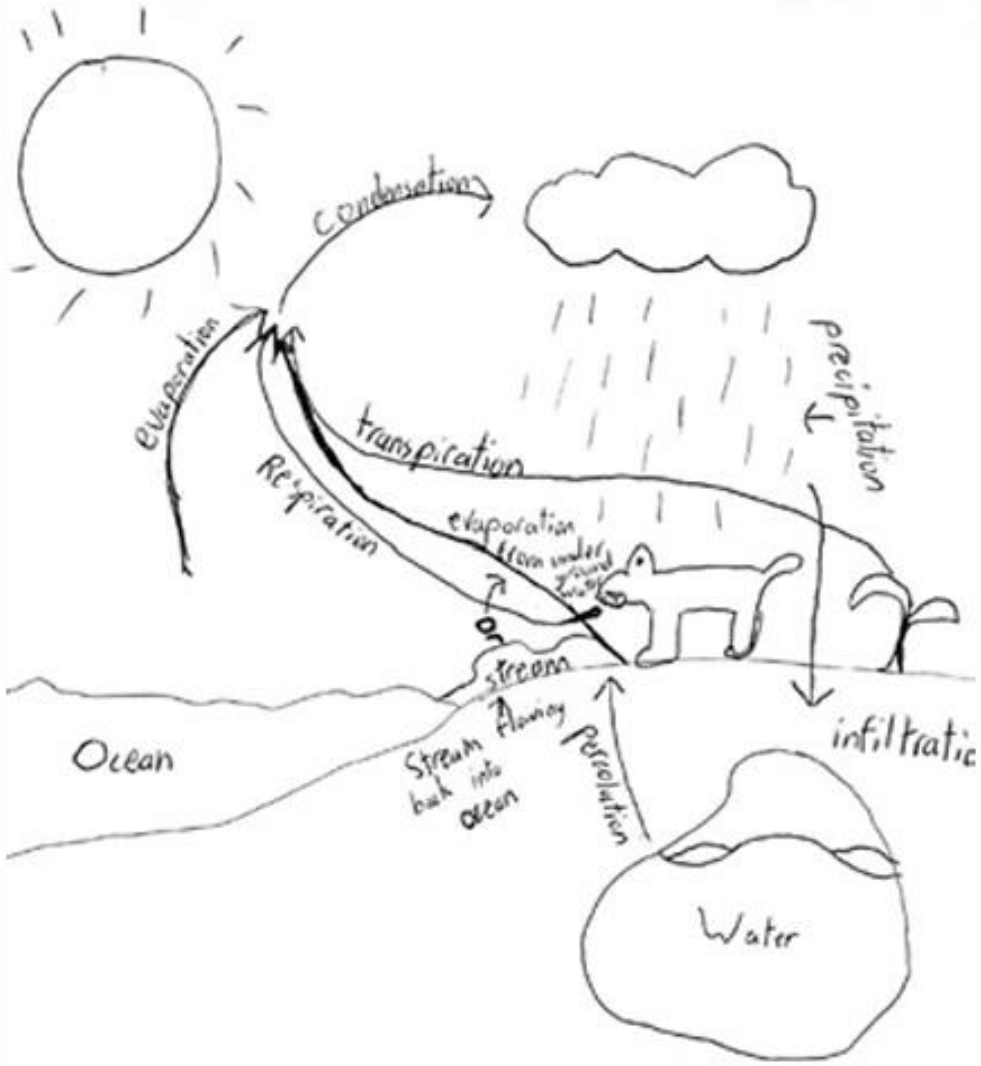
What systems thinking can Y6 & 8 do?



Draw a water cycle from a written explanation.

Explain the diagram verbally.

Draw a stick person to show how you fit into the water cycle.

Explain how ...

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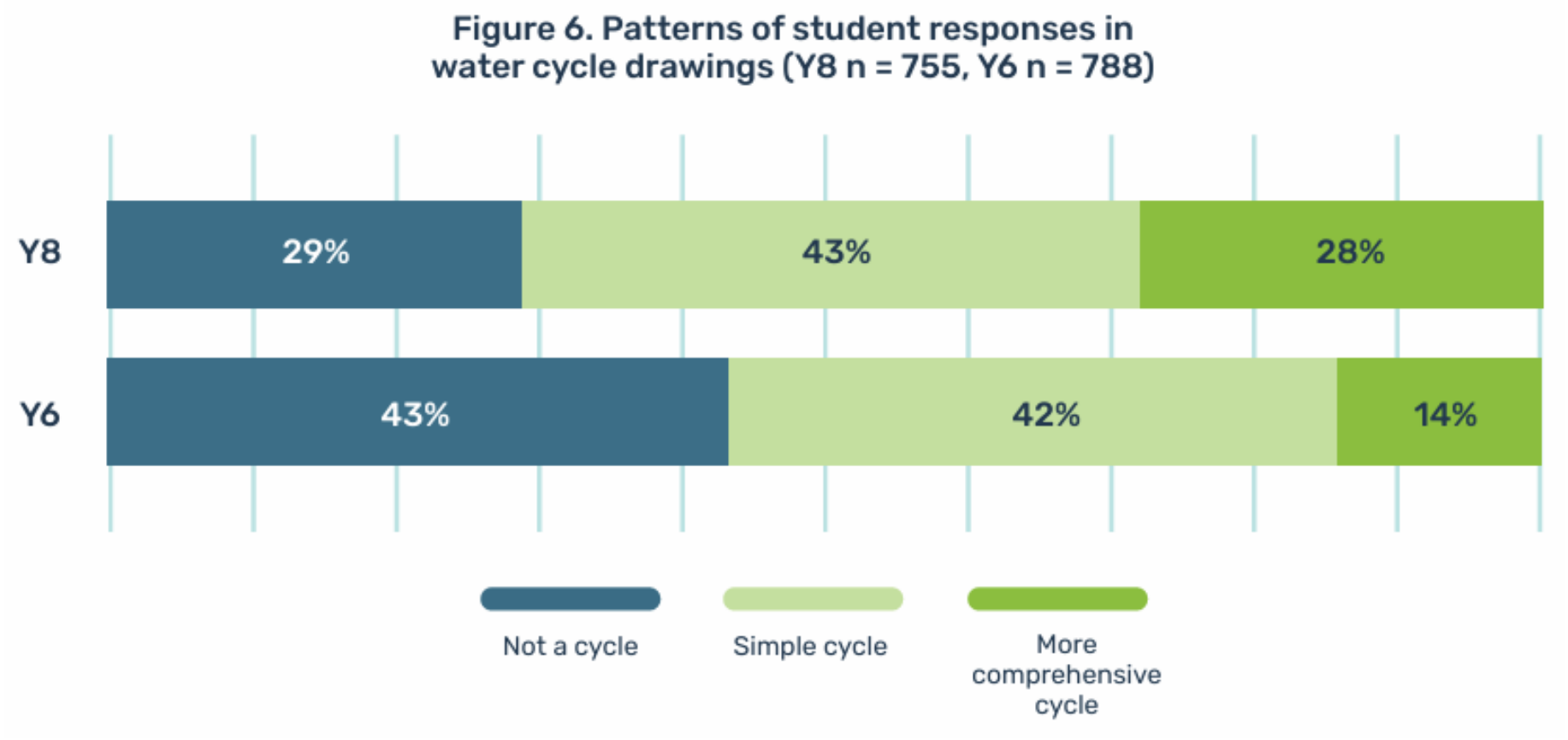
What systems thinking can Y6 & 8 do?



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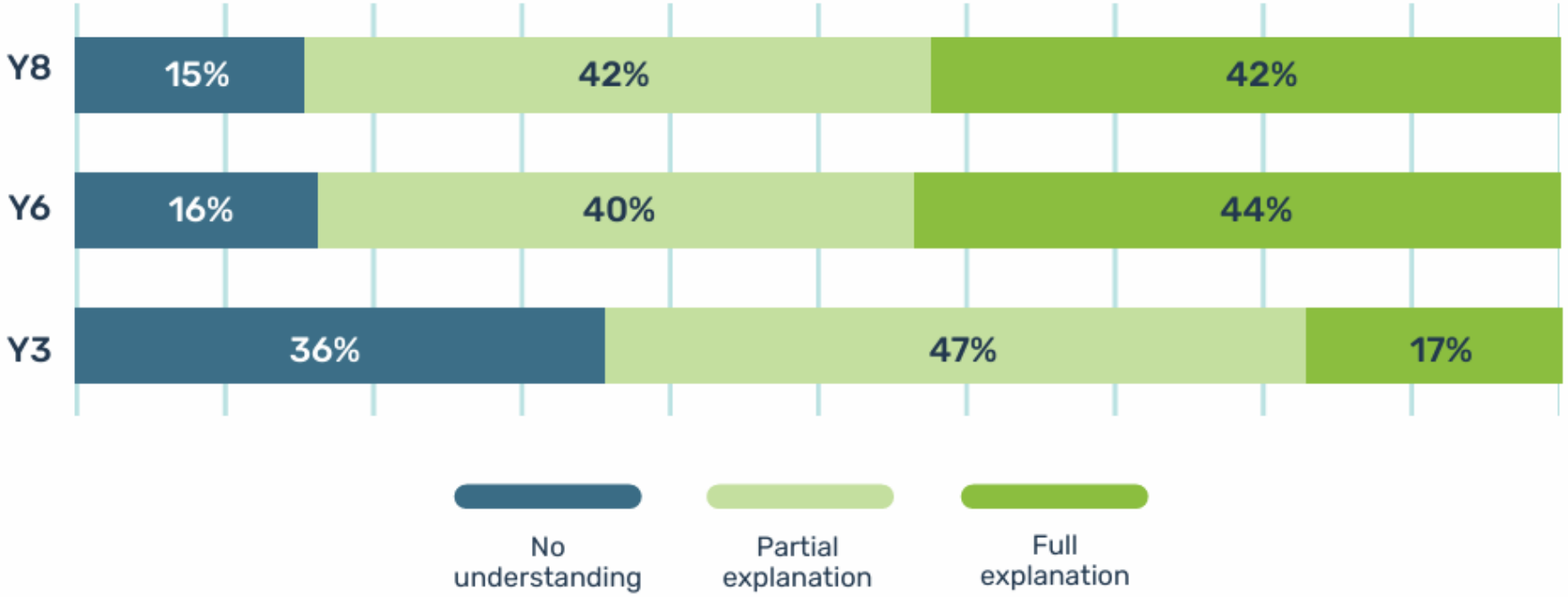
What this might mean for your practice?

- practice cause and effect thinking
- zoom in and out between the parts and whole of systems
- practice ‘it depends’ thinking
- trace chains of events verbally and visually to make connections
- challenge ākonga to place themselves in relevant systems.

Highlights – Talk to Think

Figure 9. Pattern of responses of students who could use models to verbally explain day and night. (Y8 n=622, Y6 n=602, Y3 n=568)



Note: Percentages are rounded to whole numbers. Due to rounding, the totals may not equal 100%.

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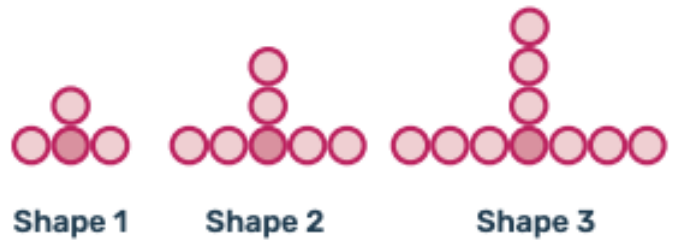
Ngā Pātai - Q & A

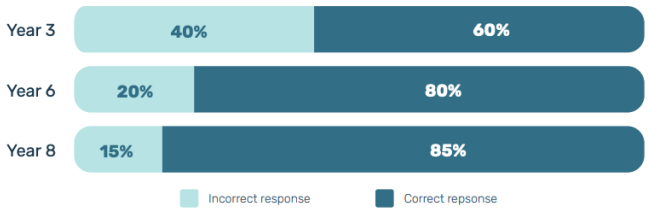
Mathematics and Statistics

Key insight: Mathematics and Statistics

Moving from concrete examples to more abstract mathematical thinking is a challenge for many students.

This includes generalising patterns, re-orienting using maps and diagrams, and using precise mathematical language.



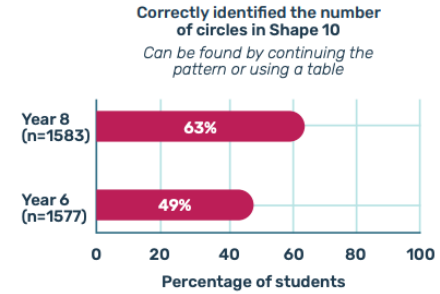


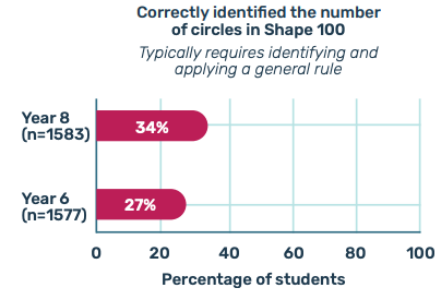
Most students drew the next two shapes correctly.

Shape number	Number of circles
1	4
2	7
3	10
4	
5	
6	
7	

Just over half of Year 6 students **(58%)** and two-thirds of Year 8 students **(68%)** completed the table correctly.

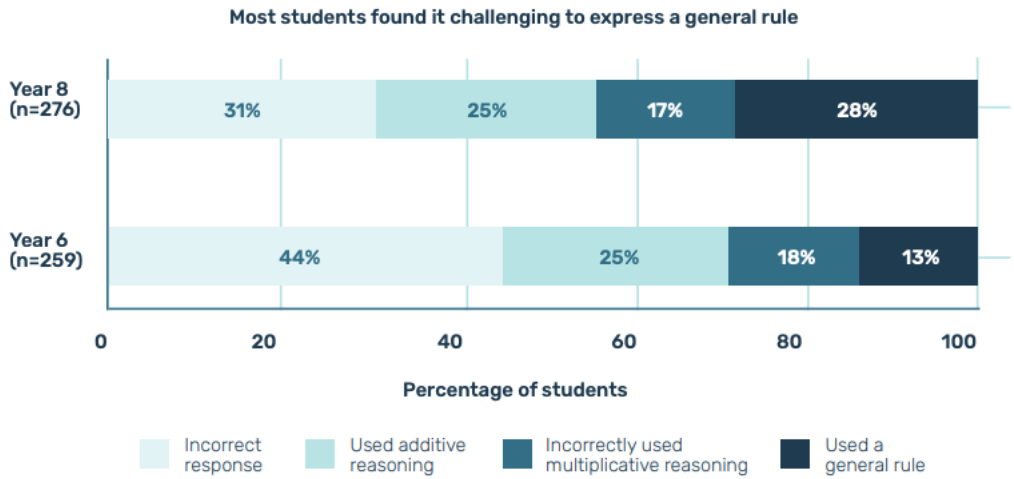
58% of Year 6 and 68% of Year 8 completed the table.





Identifying circles in Shape 10 and Shape 100.

“How could you find the number of circles for any shape number?”



Incorrect response

No response, or reasoning that doesn’t reflect the pattern.

Used additive reasoning

Recognises constant increase.

Example responses:

“It goes up by 3 each time.”

“Start at 4 and add 3 each time.”

Incorrectly used multiplicative reasoning

Uses multiplication, showing pattern awareness, but the rule is incorrect.

Example responses:

“You just times it by 3.”

“It’s shape times 3”

Used a general rule

Identifies and applies a rule that connects shape number to total.

Example responses:

“You times the shape number by 3 and then add 1.”

“For any shape number, the number of circles is 3n + 1”

Overall, 10% of Year 8 students wrote an appropriate algebraic expression (e.g., y = 3x + 1) to describe the relationship.

For example:

Write this as an equation using variables like x and y.

N = 3C + 1

Write this as an equation using variables like x and y.

Y × 3 + 1 = X

Write this as an equation using variables like x and y.

Shape Number = N
No. of Circles = C
3 × N + 1 = C
3N + 1 = C

What this might mean for you

- Give students lots of opportunities to notice how patterns grow
- Encourage reasoning beyond the next step
- Model general rules with and without variables
- Encourage generalising as a process
- Make connections between representations

Highlights from the collection

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Ngā Pātai - Q & A

Nei rā te mihi ki a koutou | thank you all

- Mihi whakamutunga
- Karakia whakamutunga

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