Using the maths sequence to support noticing in a maths lesson

NZAI
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Rangahau Mātauranga o Aotearoa

Workshop focus

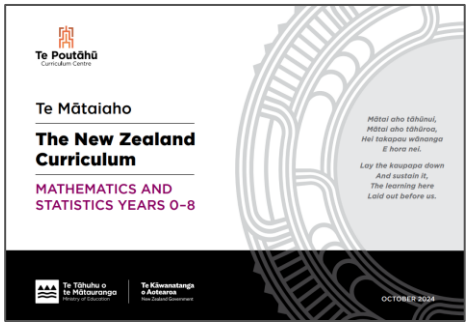
Noticing and recognising within a learning opportunity is a powerful tool to have in a teacher's kete. This workshop will support teachers in Phase 1 to **notice, recognise and respond using the maths sequence and rich tasks**. A practical workshop where participants will anticipate possible ākonga responses to several rich tasks and align these to the teaching progression in the curriculum (Phase 1 Maths sequence statements and end of Year 3 Outcome). This approach can be **used in teams and as part of collaborative planning** to support teachers to notice, recognise and respond within teaching and learning interactions.

Kōwhiti Whakapae Framework

Te Whāriki alignment

Heart of socio-cultural assessment

Te Mātaiaho connection Assessment



Assessment that informs decisions about adapting teaching practice is moment-by-moment and ongoing. Teachers use observation, conversations, and low-stakes testing to continuously monitor students' progress in relation to their year level in the teaching sequence. They ensure that they **notice and recognise** the development, consolidation, and use of learning area knowledge by students within daily lessons, and that they provide timely feedback. They **respond** by adapting their practice accordingly.

Te Mātaiaho Mathematics and Statistics page 23 (2024)

Instructional Model

Supporting notice, recognise and respond.

One critical element of the Instructional model is “Anticipate” which is enacted prior to lessons as part of planning.

One of the purposes of this element is for teachers to:

Anticipate students’ solutions and strategies as well as possible misconceptions.

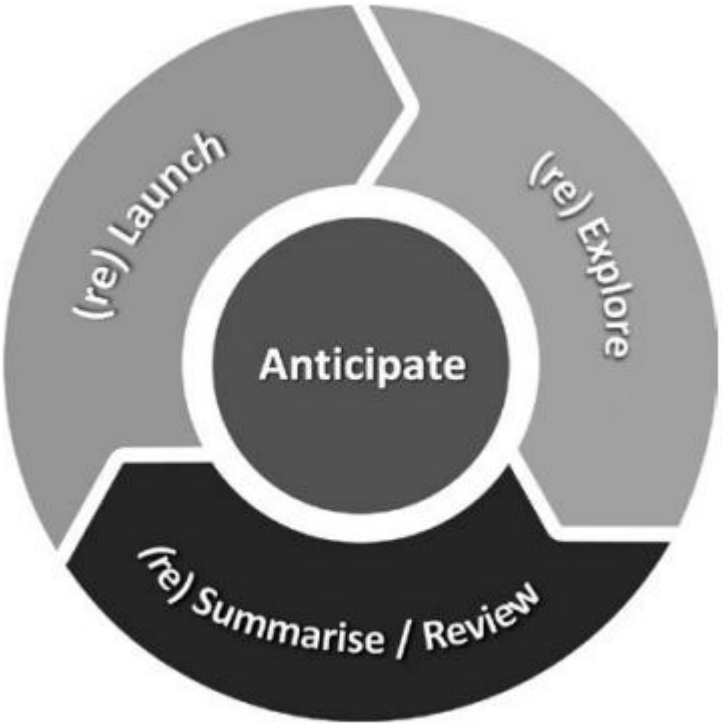


Figure 1. Student centred structured inquiry instructional model.

Sullivan, P. et al (2021). An instructional model to support planning and teaching student centred structured inquiry lessons. APMC 26(1), 9 – 12.

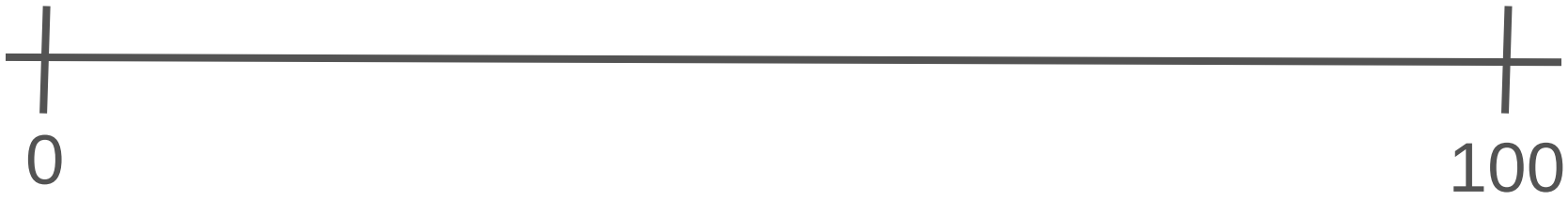
Developing curriculum understanding

Approach 1 – Anticipating prior to learning opportunity

- Complete the task as a group.
- Anticipate students' possible solutions and strategies, as well as misconceptions to solve the problem/task.
- Align the mathematical thinking with the *Maths Sequence Statements*.
- Document in a table and use to "notice, recognise and respond" within and following the lesson.

Game: On the line

Anticipate the learning we will recognise.



Task: Roll two 0-9 dice and place a number on the empty number line.

Aim: Four numbers on the line without your opposition having a number in-between your numbers.

Anticipate the learning we will recognise

	After 6 months	After 1 year	After 2 years	End of Year 3 Outcome
Maths sequence statements	Mathematics sequence statements Te Mātaiaho.			
Anticipate Solutions Strategies	Strategies students may use when playing the game.			
Misconceptions	Misconceptions that may surface.			

On the line

	After 1 year	After 2 years	End of Year 3 Outcome
Maths sequence	Identify, read, write whole numbers up to at least 20. Compare and order whole numbers up to at least 20.	Identify, read, write whole numbers up to at least 100. Compare and order whole numbers up to at least 100.	**Extension – use 3 dice** Identify, read, write whole numbers up to at least 100. Compare and order whole numbers up to at least 100.
Anticipate Strategies	Counting up from 1 or a number to place numbers in order. Placing numbers in random places on the number line.	Use benchmark numbers to help place on the number line e.g. 50 is half way, 32 comes just after 30, 66 comes between 60 and 70. Divides number line into tens. Counts up in tens to place place a number.	
Misconceptions	Teen, -ty confusion e.g. 16 and 60	Teen, -ty confusion e.g. 16 and 60. Reading numbers in reverse. e.g. 65 and 56	


Problem solving task
Open ended task
Conjecture
Rich tasks can be...
Layered word problem
Photograph
Cartoon
Game
Authentic investigation or inquiry

Anticipate the learning we will recognise

	After 6 months	After 1 year	After 2 years	End of Year 3 Outcome
Maths sequence statements	Mathematics sequence statements Te Mātaiaho.			
Anticipate Solutions Strategies	Examples on how students will solve. Representations, words, symbols and expressions.			
Misconceptions	Misconceptions that may surface.			

Developing curriculum understanding

Approach 2 – Elaboration using student work

- Anticipate students' possible solutions and strategies, as well as possible misconceptions.
- Align possible solutions with the *Maths Sequence Statements*.
- Students complete the task - capture on paper, support with photographs and annotations if required.
- As a group order student examples, against your rubic. What do you notice? Strengths? Surfacing misconceptions? Next teaching and learning steps?

Your class has some caterpillars and you need 5 leaves each day to feed 2 caterpillars. How many leaves do you need each day to feed 12 caterpillars?

Caterpillars and leaves

	After 1 year	After 2 years	End of Year 3 Outcome
Maths sequence	Join groups up to a total of 20. Multiple and divide using equal groupings or counting.	Add and subtract numbers up to 100. Multiply and divide using equal grouping of skip counting.	Multiple a one- or two-digit number by a one-digit number using skip counting or known facts.
Anticipate Solutions Strategies	Uses materials, drawings and symbols to support finding number of leaves. Makes groups of leaves and caterpillrs and counts all. Count forwards in ones from 1.	Uses materials, drawings and symbols and equations to support finding number of leaves. Makes equal groups of 5s and may join to make 10s. Uses addition to add up the groups. e.g. 5+5=10, 10+5= 5 etc; 5+5=10, 10+10=20, 20+5=25 Skip counts in 2s and 5s.	Uses materials, drawings and symbols and equations to support finding number of leaves. Skip counts in 2s and 5s. Uses known facts (x5 and x2 tables) e.g. 5 x 5 = 25; 4 x 5 = 20, 20 + 5 = 25
Misconceptions			

Te Poutāhū
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Te Mātaiaho

The New Zealand Curriculum

MATHEMATICS AND STATISTICS YEARS 0–8

Mātai aho tāhūn
Mātai aho tāhūr
Hei takapau wān
E hora nei

Lay the kaupa
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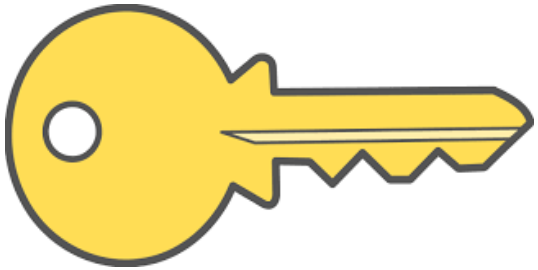
Te Tāhuhu o | Te Kāwanatanga



Akoranga hou

(new learning)

Kaupae i muri

(next steps)

Kei te mīharo au

(wondering, thinking about)