MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

Numeracy Learning Matrix

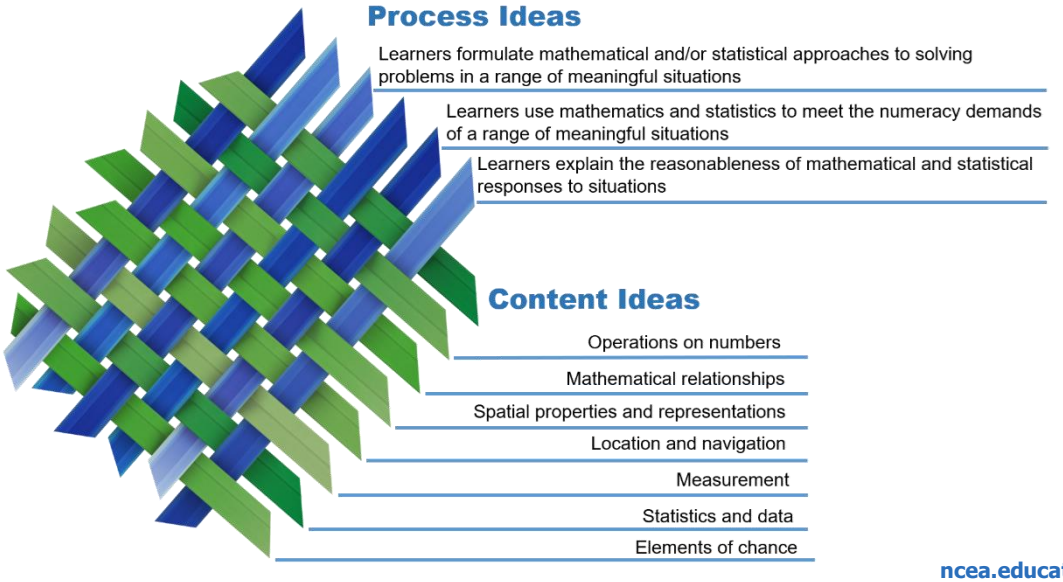
Whiria te kaha tūātinitini, whiria te kaha tūāmanomano

This whakatauākī speaks to the many threads – academic, social, emotional, and cultural – that learners experience when they make mathematical and statistical decisions about situations in their daily lives.

These threads include the satisfaction learners experience when they use mathematics and statistics to understand situations; the joy in using mathematical and statistical ideas to improve the lives of others; and the experience of mathematics and statistics as creative and empowering human endeavours.

Being numerate in Aotearoa New Zealand today involves recognition of tino rangatiratanga, where our cultural worldviews (e.g. Māori and Pacific people) influence how we weave together the many threads of mathematics and statistics. This demonstrates that mathematics and statistics are bodies of knowledge which are created and used by people themselves and their communities.

The Numeracy Learning Matrix weaves together Process Ideas and Content Ideas, as illustrated below:



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Process Ideas

Process Ideas	Significant Learning *Learners……*
Learners formulate mathematical and/or statistical approaches to solving problems in a range of meaningful situations.	• determine the mathematics and/or statistics needed in a range of situations. • formulate plans to use mathematics/statistics • select appropriate representations of the mathematics or statistics – e.g. graphs, tables, diagrams, equations, expressions.
Learners use mathematics and statistics to meet the numeracy demands of a range of meaningful situations.	• apply mathematical and/or statistical concepts. • use appropriate mathematical/statistical approaches, which may include digital calculations. • use a degree of precision appropriate to the situation (including estimation).

Learners explain the reasonableness of mathematical and statistical responses to situations.	• consider and explain the reasonableness of solutions, outcomes, and approaches while reflecting on how these were chosen.
	• engage in sense-making to interpret solutions in relation to the situation given, including in different cultural contexts (see “Unpacking Numeracy”).
	• provide evidence-based conclusions.
	• use critical judgements in relation to statements based on mathematical and statistical ideas.
	  ○ critique these statements
	  ○ explore different approaches to them
	  ○ respect the thinking of others
	  ○ respond to the ideas of others
	• share mathematical and statistical ideas.
	  ○ use mathematical and statistical language, symbols, and representations
	  ○ share methods and results
	  ○ use their own words to explain ideas
	  ○ present ideas concisely and coherently

Content Ideas

1. Fluently and flexibly solve problems that require operations on numbers, understanding the relative size of those numbers, and making sense of the answer in context.
2. Recognise and work with mathematical relationships.
3. Understand and use the spatial properties and representations of objects.
4. Understand and use systems for location and navigation.
5. Use numbers and units to measure and express attributes of objects and events as quantities, with a degree of precision appropriate to the context.
6. Understand and reason with statistics and data.
7. Use probability to interpret situations that involve elements of chance.