

The Aspect Framework

<http://assessment.tki.org.nz/Progress-and-Consistency-Tool/The-PaCT-framework/The-PaCT-aspects>



Reading <i>Read</i> <i>Respond</i> <i>Think critically</i>	Writing <i>Think about</i> <i>Record</i> <i>Communicate experiences, ideas, and information</i>	Mathematics <i>Number and Algebra</i> <i>Measurement and Geometry</i> <i>Statistics</i>
<ul style="list-style-type: none"> • Making sense of text: processing system. 	<ul style="list-style-type: none"> • Writing meaningful text: encoding. 	<ul style="list-style-type: none"> • Additive thinking.
<ul style="list-style-type: none"> • Making sense of text: text structure. 	<ul style="list-style-type: none"> • Writing meaningful text: text features. 	<ul style="list-style-type: none"> • Multiplicative thinking.
<ul style="list-style-type: none"> • Making sense of text: vocabulary knowledge. 	<ul style="list-style-type: none"> • Writing meaningful text: vocabulary knowledge. 	<ul style="list-style-type: none"> • Patterns and relationships.
<ul style="list-style-type: none"> • Making sense of text: reading critically. 	<ul style="list-style-type: none"> • Using writing to think and organise for learning. 	<ul style="list-style-type: none"> • Using symbols and expressions to think mathematically.
<ul style="list-style-type: none"> • Reading to organise ideas and information for learning. 	<ul style="list-style-type: none"> • Creating texts to communicate knowledge and understanding. 	<ul style="list-style-type: none"> • Geometric thinking.
<ul style="list-style-type: none"> • Acquiring and using information and ideas in informational texts. 	<ul style="list-style-type: none"> • Creating texts for literary purposes. 	<ul style="list-style-type: none"> • Measurement sense.
<ul style="list-style-type: none"> • Reading for literary experience. 	<ul style="list-style-type: none"> • Creating texts to influence others. 	<ul style="list-style-type: none"> • Statistical investigations.
		<ul style="list-style-type: none"> • Interpreting statistical and chance situations.

The Reading Aspects

Students will read, respond to, and think critically about texts in order to meet the reading demands of the New Zealand Curriculum at Level _.

Students will locate and evaluate information and ideas within texts appropriate to this level as they generate and answer questions to meet specific learning purposes across the curriculum.

Making sense of text: using a processing system - Readers develop expertise in using sources of information to make sense of text. Some of this information is found within the text, with the rest being brought to the text by the student from their background knowledge. Readers decode the text and make sense of it using strategies to monitor their understanding and take action if this breaks down. Students develop their expertise by reading an increasing range of texts with more independence, fluency, awareness and control over their repertoire of strategies.

Making sense of text: using knowledge of text structure and features - Readers develop their knowledge of text features and use this to navigate and understand texts. This knowledge includes recognising the structure of a text; the way it uses visual features such as headings and illustrations; its punctuation; the language used, and the voice and register. Students become increasingly skilled at recognising the purpose and features of different text types.

Making sense of text: vocabulary knowledge - As readers read, successful comprehension depends on their understanding most of the meanings of the words in the text. They recognise them in print and know what they mean. In the early stages, readers know words they decode because they are in their oral vocabulary. As they become more expert, most words, including academic words for expressing abstract notions, are in their reading vocabulary.

Making sense of text: reading critically - This aspect focuses on students' developing expertise in understanding how writers influence them as readers. They are able to identify the ways in which writers deliberately select language and text features, as well as content, to shape the way they respond to particular ideas or information.

Reading to organise ideas and information for learning – Students use their reading and writing to organise their ideas and information for different learning purposes. Students develop their expertise in selecting, noting down and organising ideas and information, using appropriate formats. They collate, analyse and classify the content they need for a variety of curriculum tasks.

Acquiring and using information and ideas in informational texts - Students become increasingly dependent on their reading to locate ideas and information in a wide range of print and digital texts, evaluate them in terms of their curriculum-related purpose, and then use the information and/or ideas to answer specific questions. As questions and tasks become more difficult, texts get more complex and the content more abstract and specialised.

Reading for literary experience - As they go through school, students develop their expertise in interpreting and responding to ideas, information and experiences in literary texts. Most of the literary texts they read are narrative fiction, including interactive fiction, although they will read and respond to other forms such as poems and plays.

The Writing Aspects

Students will create texts in order to meet the writing demands of the New Zealand Curriculum at level __.

Students will use their writing to think about, record, and communicate experiences, ideas and information to meet specific learning purposes across the curriculum.

Writing meaningful text: encoding - Beginning writers put a lot of their focus on encoding, or spelling, the words they want to use. As they develop their expertise in using the code fluently, they are able to use more of their cognitive resources to convey meaning. This expertise includes a knowledge of how words work (for example, phoneme-grapheme relationships, common and reliable spelling rules and conventions, and the meanings and spellings of morphemes) as well as an expanding memory bank of high frequency words.

Writing meaningful text: using knowledge of text structure and features - This aspect focuses more closely on how students develop and use their knowledge of language features, syntax, and the structure of written text. Students develop their expertise in selecting text structure, layout, visual language features such as headings and diagrams, and language features such as cohesive devices to meet different purposes for writing.

Writing meaningful text: vocabulary knowledge - Students initially use words that are in their oral language or that have been generated in a classroom activity specifically for the writing purpose. At a midpoint in their development students develop their ability to use vocabulary encountered in their reading as well as the academic language of learning. Expert students become more precise in their use of language as well as being able to select and use vocabulary that is specific to particular areas of the curriculum, including words and phrases that express abstract concepts.

Using writing to think and organise for learning - Students use their (reading and) writing to organise their ideas and information for different learning purposes. Students develop their ability to use their writing to clarify and develop their ideas as well as reflect on their learning. They develop their expertise in selecting, noting down and organising ideas and information, using appropriate formats. They collate, analyse and classify the content they need for a variety of curriculum tasks.

Creating texts to communicate knowledge and understanding - From the start of schooling students use their writing to demonstrate their knowledge and understanding about topics and themes from across the curriculum. As they develop their writing expertise, they become more adept at revealing what they know, selecting and using text features including text structure and language features that are increasingly topic or subject specific.

Creating texts for literary purposes - Students use their writing for literary purposes. They develop their expertise in creating different types of texts that express their experiences, ideas and imagination, evoking a response in their audience with increasing effectiveness.

Creating texts to influence others - Even when they are novice writers, students create texts in order to challenge their audience to do something or think about something differently. They write to argue a point or persuade someone to change their mind.

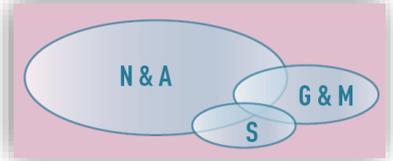
Expert writers know how to effectively achieve these purposes. They choose appropriate structures and features, and control the language they use in order to make the maximum impact on their audience.



*Nāu te rourou, nāku te rourou, ka ora ai te iwi.
With your basket and my basket, we will feed the people*

The Mathematics Aspects

Students will be achieving at level __ in the mathematics and statistics learning area of The New Zealand Curriculum.



Additive thinking - This aspect is similar to the additive domain of the Number Framework in that it focuses on the increasingly sophisticated and flexible addition and subtraction strategies students develop to solve increasingly complex problems. However, the sets of illustrations are not a direct match to the stages of the number framework. For example, imaging (step 3) is not identified as a discrete set and the higher stages of the domain are illustrated by more than one set of illustrations.

Set 1 - The student is developing early quantifying skills as they come to know some number names and begin to use informal language of quantity.

Set 2 - The student solves problems by counting one-to-one, demonstrating knowledge of cardinality.

Set 3 - The student counts all to solve number problems involving addition and subtraction.

Set 4 - The student solves problems involving addition or subtraction of single digits, by counting on or back from the larger number. The language of the problem guides the student to the operation of addition or subtraction.

Set 5 - The student solves problems by partitioning a single digit addend or subtrahend and uses known addition facts to ten. The language of the problem guides the student to the operation of addition or subtraction.

Set 6 - The student responds to two- and three-digit problems in which the mathematical operation is transparent in the wording, by applying a strategy from a limited rehearsed repertoire that is likely to include place value or compensation when the number is close to a tidy number.

Set 7 - The student responds flexibly to addition and subtraction problems involving whole numbers and simple decimals by applying, exploring and explaining a range of strategies, including using inverse operations, as they seek the most efficient method.

Set 8 - The student demonstrates flexibility, a strong number sense and an ability to mentally carry out multiple steps as they estimate and solve complex problems that involve adding and subtracting whole numbers, decimals, fractions and integers.

Multiplicative thinking - This aspect combines elements from both the multiplicative and proportional domains of the Number Framework but once more the sets of illustrations are not a direct match to the stages of the Number Framework. This aspect focuses on the student's ability to think multiplicatively as they solve multiplication, division and proportional problems with an extended range of whole numbers, decimals, fractions, ratios and percentages, in a range of contexts.

Set 1 - The student demonstrates early multiplicative thinking as they understand 'same' and recognize equal groups. However, they are unable to solve multiplication problems or explain their thinking.

Set 2 - The student solves multiplication problems by considering each object one at a time and by counting from one to find the total number of items in equal sets. The student solves simple division problems by equally distributing items one at a time into sets, and by counting from one to check they are 'fair'.

Set 3 - The student solves single-digit multiplication and division problems using additive thinking strategies, including skip counting, repeated addition and repeated subtraction.

Set 4 - The student solves single-digit single-step multiplication problems by applying some known multiplication facts or by using these to derive unknown multiplication basic facts. The student solves simple division problems by using known multiplication facts or by trial and error with different sized groups.

Set 5 - The student uses all multiplication basic facts, and place value knowledge, to solve multiplication and division problems involving single-digit multipliers or divisors.

Set 6 - The student responds to multi-digit problems in which the mathematical operation is transparent in the wording, by applying a multiplicative strategy from a limited rehearsed repertoire that is likely to include place value or compensation when the number is close to a tidy number.

Set 7 - The student responds flexibly to multiplication and division problems involving whole numbers, common fractions, decimals and percentages by selecting from a range of strategies based on the type of problem and numbers involved.

Set 8 - The student demonstrates flexibility and a strong number sense as they estimate and solve complex problems that involve operating on whole numbers, decimals, fractions and integers.

Patterns and relationships - This algebraic thinking aspect develops understanding of the structure of and the relationships within numbers, shapes and measures. In exploring patterns of increasing complexity, students develop the ability to recognise, reason, explain and generalise relationships between quantities.

Set 1 - The student copies or creates a simple pattern with a unit repeat of two, but is unable to discuss or explain their thinking.

Set 2 - The student makes, continues and describes repeating patterns to solve problems and can explain their thinking.

Set 3 - The student continues and describes growing sequential spatial and number patterns to solve problems.

Set 4 - The student connects the elements of sequential patterns with their ordinal position to solve problems.

Set 5 - The student uses tables, graphs and rules to solve problems that involve sequential patterns.

Set 6 - The student uses diagrams, tables, graphs and equations to solve problems that involve linear relationships.

Using symbols and expressions to think mathematically - This algebraic thinking aspect is fundamental to all other aspects of mathematics. It focuses on the way in which we use symbols, expressions and equations to communicate mathematical ideas. In solving problems in a range of contexts, the student must make sense of the symbols they read and must be able to express their understanding of a problem, using the symbolic language of mathematics.

Set 1 - The student recognises some numeral and operation symbols and knows what these stand for.

Set 2 - The student reads and records simple statements of additive computations and explains their thinking.

Set 3 - The student reads and records equality and simple inequality statements of additive and multiplicative computations and explains their thinking.

Set 4 - The student reads and records additive and multiplicative equality and inequality statements in situations involving unknowns. They recognise the need to use an inverse operation to find an unknown.

Set 5 - The student uses the algebraic convention of letter symbols and recognises the concept of equivalence.

Set 6 - The student writes equality statements of problem situations involving four or more terms or factors, including one unknown. They use formal operations to solve equations involving real numbers by operating equally on both sides.

Measurement sense - The measurement aspect is based on the notion that progression in the understanding of measurement is determined by increased sophistication in the unit of measure and the perceptual difficulty of the attribute being measured.

Set 1 - The student understands the attribute by manipulating objects to compare them rather than relying on a visual comparison.

Set 2 - The student makes multiple comparisons between objects and orders the objects according to the attribute being measured. They use an indirect or intermediary measure to compare the length of two objects that cannot be moved.

Set 3 - The student uses numbers to quantify the attribute that is being measured, for example, five rods for length or nine scoops for capacity. They understand that, when comparing objects, the unit being used to measure must not change. They also understand that, when measuring length, they cannot leave gaps or create overlaps as they repeatedly place the measuring unit to mark out the total length and, in the case of capacity, the scoop must always be full and they must not spill anything from the scoop.

Set 4 - The student estimates and measures using the commonly used standard metric units of measure: centimetre, metre, litre and kilogram and is developing an understanding of the concept of a scale; for example by constructing a measuring device and accurately marking the device with numbers for all units in that measure, including positioning a 0. They are able to partition a unit of measure and measure a half unit.

Set 5 - The student measures length, capacity and weight by selecting an appropriate measuring device. They demonstrate greater precision in their measurements by reading scales to marked and unmarked intervals. The student has knowledge of the standard metric units and is able to name and record these units in abbreviated forms (i.e., mm, cm, m, km, g, kg, mL, L). They use benchmarks to help them estimate measurements. The student's understanding of how an array is structured supports their calculation of area and volume.

Set 6 - The student derives measurements of area and of the volume of cuboids from measurements of length; for example they find the area of shapes by separating or reconstructing the shapes into rectangles. They understand the relationship between related units in the metric system, and multiply and divide by powers of 10 to convert into those related units. They understand that the attributes of area and perimeter are not dependent on each other.

Set 7 - The student deduces and uses formulae to measure perimeter, area and volume. They are able to separate a two-dimensional shape into familiar shapes to calculate area. They understand that the volume of a prism is calculated by measuring the area of the base and by multiplying that area by the prism's height. They calculate circumference from the measurement of diameter or radius, and they understand that the relationship between circumference and diameter (or radius) is a constant ratio. They understand the metric relationship of: $1 \text{ g} = 1 \text{ mL} = 1 \text{ cm}^3$.



*Nāu te rourou, nāku te rourou, ka ora ai te iwi.
With your basket and my basket, we will feed the people*

Geometric thinking - As students make sense of and navigate their spatial world, they come to recognize, describe and use the properties and symmetries of shapes, and to describe movement and position with increasing accuracy.

Set 1 - The student is becoming aware of space and shape as they interact with and navigate their immediate environment.

Set 2 - The student notices shapes and uses their appearance to solve problems. They flip, turn and slide shapes, and describe their location in relation to other things in their immediate environment.

Set 3 - The student notices and uses features of shapes and transformations to solve single-step problems. They describe features and explain in their own words why shapes and transformations are the same or different. They are able to see things from a perspective other than their own and are learning to use geometric terms appropriately.

Set 4 - The student understands and uses the features of shapes and transformations to solve multi-step problems, and views and draws shapes from multiple perspectives. The student uses the language of geometry accurately as they measure and quantify space and shape, and they demonstrate precision in their solutions.

Set 5 - The student understands, uses and generalizes the properties and classes of shapes and transformations to solve complex and abstract problems. They are able to reason and justify their solutions and use formal geometric language in a clear and precise way.

Statistical investigations - The statistical investigations aspect is based on the development of an increasingly sophisticated implementation of the statistical inquiry cycle that includes posing investigative questions, collecting data, displaying data and discussing results.

Set 1 - The student participates in a simple class investigation that involves the collection and display of category data in order to answer an investigative question. However the student is unable to explain their reasoning.

Set 2 - The student participates in the collection and display of category data in order to answer an investigative question, and they can explain their reasoning.

Set 3 - The student conducts a statistical investigation that involves the collection, display and discussion of category and whole number data in order to answer their own investigative question. They draw an appropriate conclusion and communicate their findings in context.

Set 4 - The student poses investigative questions (summary). They collect and display whole number data in different ways and communicate their findings in context.

Set 5 - The student poses questions to compare or investigate relationships. They collect multivariate category, measurement or time series data, and can choose the appropriate displays to analyse and communicate their findings in context.

Set 6 - The student poses investigative questions about a wider population. They collect samples of multivariate data and analyse these with displays to find patterns within, between and beyond the data, and notice unusual values. The student communicates their findings with appropriate displays and generalises in context.

Interpreting statistical and chance situations - As students are exposed to statistical evidence presented by others they need to be able to interpret and gain information from what they see, and critically evaluate both the quality of the evidence and the arguments being presented on the basis of that evidence.

Set 1 - The student participates in class statistical investigations and recognizes certainty and uncertainty in simple chance situations. They can disagree with an incorrect data statement, but they are unable to explain their thinking.

Set 2 - The student identifies a correct statement about a data display with reference to the data, identifies different outcomes in chance situations and explains their thinking.

Set 3 - The student identifies and explains errors in statements and/or data displays of others' statistical investigations and identifies whether an outcome is more likely by systematically recording results of chance experiments.

Set 4 - The student examines and questions the steps in the process and results of others' statistical investigations in order to evaluate the appropriateness of the methods and conclusions. They investigate chance situations using experiments and simple models.

Set 5 - The student examines the process and results of others' statistical investigations in order to evaluate whether or not their claims are believable and reasonable. They understand and explain why statistical investigations might be presented in particular ways. The student investigates chance situations by making connections between experimental results and theoretical models.



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