TINO AKORANGA

A research informed guide to exceptional teaching and learning.

2026 Edition

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CONTENTS PAGE

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INTRODUCTION AND OVERVIEW

“Mā te huruhuru ka rere te manu”

“Adorn the bird with feathers so it can fly”

Tino Akoranga is the educational philosophy of Long Bay College. It aims to provide a cohesive, research informed, and context aligned approach to teaching and learning to our teachers, for the benefit of our students.

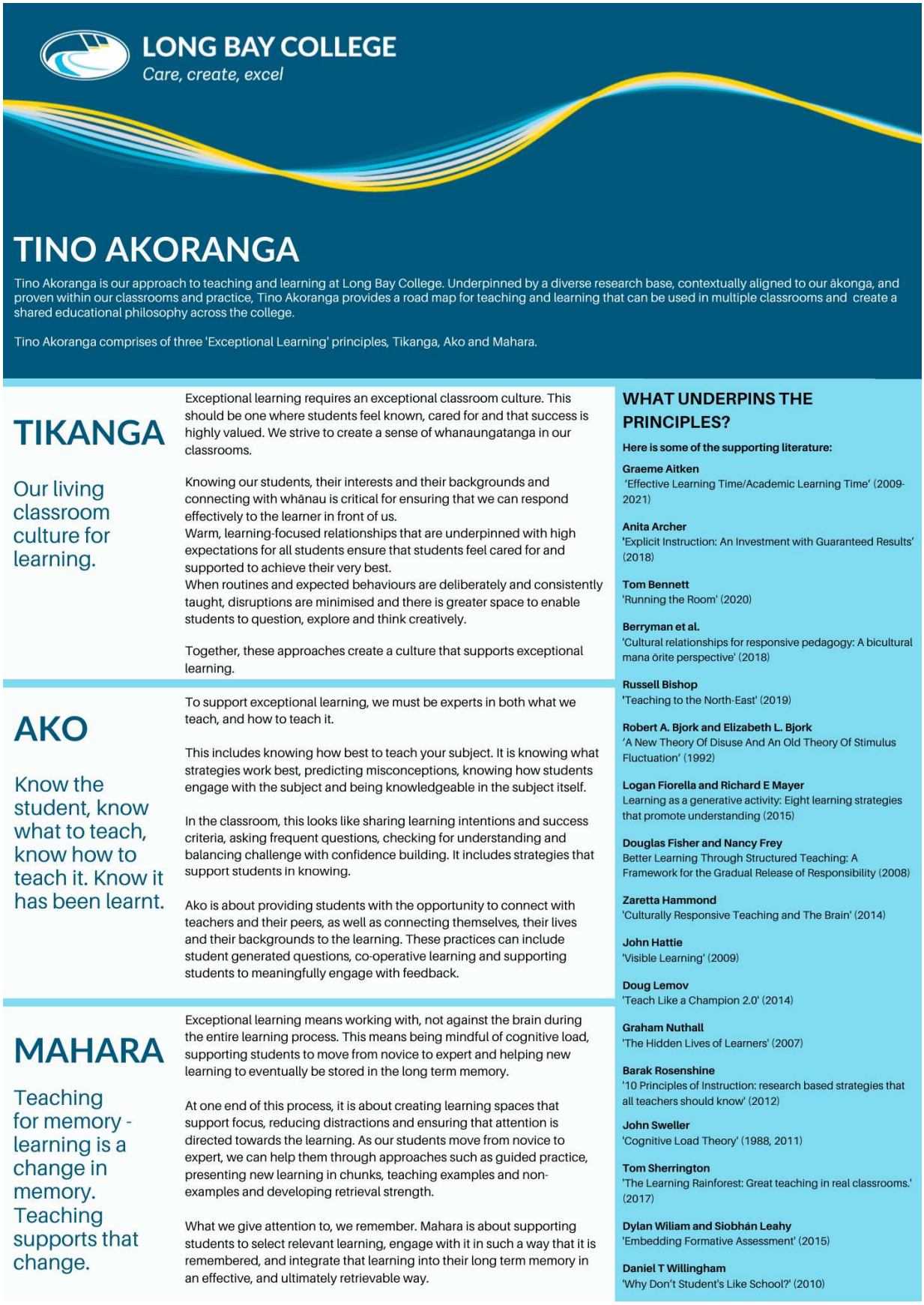
Tino Akoranga was born out a 2019 review into our teaching and learning approaches. From that review came a mandate to develop an educational philosophy that provided exceptional learning and opportunities to our students, whilst reflecting our school values of care, creativity, community and respect.

Tino Akoranga is informed by established approaches and newer developments in the science of learning, cognitive science, relational pedagogies and culturally responsive pedagogy with the aim of creating truly exceptional teaching and learning. Considerate of practices from across Aotearoa and the world, Tino Akoranga is mindful of the need to contextualise these practices to suit our school and our students.

Tino Akoranga:

- Is mindful of the needs of the individual student and the specialist subject.
- Seeks to secure knowledge and understanding of the skills and concepts taught to all students.
- Considers high quality teaching practice and whanaungatanga.
- Is culturally responsive, considering the student, their background and their whānau.
- Seeks to foster cultural competency.
- Seeks to secure learning and is mindful of not overloading students.
- Supports a professional learning culture grounded in “improving not proving”.
- Supports personal excellence for all.
- Is a consistent focus for professional learning at a whole school, faculty, and individual level over the course of years.
- Has a shared language and shared approach that supports the classroom teacher, faculty, and college in adapting their individual and collective practice to the needs of our students.

TIKANGA, AKO AND MAHARA – THE PRINCIPLES OF TINO AKORANGA



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TINO AKORANGA

Tino Akoranga is our approach to teaching and learning at Long Bay College. Underpinned by a diverse research base, contextually aligned to our ākonga, and proven within our classrooms and practice, Tino Akoranga provides a road map for teaching and learning that can be used in multiple classrooms and create a shared educational philosophy across the college.

Tino Akoranga comprises of three 'Exceptional Learning' principles, Tikanga, Ako and Mahara.

TIKANGA

Our living classroom culture for learning.

Exceptional learning requires an exceptional classroom culture. This should be one where students feel known, cared for and that success is highly valued. We strive to create a sense of whanaungatanga in our classrooms.

Knowing our students, their interests and their backgrounds and connecting with whānau is critical for ensuring that we can respond effectively to the learner in front of us.
Warm, learning-focused relationships that are underpinned with high expectations for all students ensure that students feel cared for and supported to achieve their very best.
When routines and expected behaviours are deliberately and consistently taught, disruptions are minimised and there is greater space to enable students to question, explore and think creatively.

Together, these approaches create a culture that supports exceptional learning.

AKO

Know the student, know what to teach, know how to teach it. Know it has been learnt.

To support exceptional learning, we must be experts in both what we teach, and how to teach it.

This includes knowing how best to teach your subject. It is knowing what strategies work best, predicting misconceptions, knowing how students engage with the subject and being knowledgeable in the subject itself.

In the classroom, this looks like sharing learning intentions and success criteria, asking frequent questions, checking for understanding and balancing challenge with confidence building. It includes strategies that support students in knowing.

Ako is about providing students with the opportunity to connect with teachers and their peers, as well as connecting themselves, their lives and their backgrounds to the learning. These practices can include student generated questions, co-operative learning and supporting students to meaningfully engage with feedback.

MAHARA

Teaching for memory - learning is a change in memory. Teaching supports that change.

Exceptional learning means working with, not against the brain during the entire learning process. This means being mindful of cognitive load, supporting students to move from novice to expert and helping new learning to eventually be stored in the long term memory.

At one end of this process, it is about creating learning spaces that support focus, reducing distractions and ensuring that attention is directed towards the learning. As our students move from novice to expert, we can help them through approaches such as guided practice, presenting new learning in chunks, teaching examples and non-examples and developing retrieval strength.

What we give attention to, we remember. Mahara is about supporting students to select relevant learning, engage with it in such a way that it is remembered, and integrate that learning into their long term memory in an effective, and ultimately retrievable way.

WHAT UNDERPINS THE PRINCIPLES?

Here is some of the supporting literature:

Graeme Aitken
'Effective Learning Time/Academic Learning Time' (2009-2021)

Anita Archer
'Explicit Instruction: An Investment with Guaranteed Results' (2018)

Tom Bennett
'Running the Room' (2020)

Berryman et al.
'Cultural relationships for responsive pedagogy: A bicultural mana ōrite perspective' (2018)

Russell Bishop
'Teaching to the North-East' (2019)

Robert A. Bjork and Elizabeth L. Bjork
'A New Theory Of Disuse And An Old Theory Of Stimulus Fluctuation' (1992)

Logan Fiorella and Richard E Mayer
Learning as a generative activity: Eight learning strategies that promote understanding (2015)

Douglas Fisher and Nancy Frey
Better Learning Through Structured Teaching: A Framework for the Gradual Release of Responsibility (2008)

Zaretta Hammond
'Culturally Responsive Teaching and The Brain' (2014)

John Hattie
'Visible Learning' (2009)

Doug Lemov
'Teach Like a Champion 2.0' (2014)

Graham Nuthall
'The Hidden Lives of Learners' (2007)

Barak Rosenshine
'10 Principles of Instruction: research based strategies that all teachers should know' (2012)

John Sweller
'Cognitive Load Theory' (1988, 2011)

Tom Sherrington
'The Learning Rainforest: Great teaching in real classrooms.' (2017)

Dylan Wiliam and Siobhán Leahy
'Embedding Formative Assessment' (2015)

Daniel T Willingham
'Why Don't Student's Like School?' (2010)

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THE SCIENCE OF LEARNING AND ITS IMPLICATIONS FOR INSTRUCTIONAL DESIGN

The Science of Learning is the study of how the human brain learns. Applying the firdings of that study can help teachers to design effective lessons and also to employ teaching methods that support students to learn. Curriculum frames the sequence of planned knowledge, skills, and experiences through which students practice and achieve proficiency. Pedagogy and assessment flows from a well defined curriculum, with clear specifics about the knowledge and skills learners need to progress. Supporting exceptional learning requires teachers working with not against the brain during the entire learning process. As learners move from novice to expert, we can help them through approaches such as guided practice, presenting new learning in chunks, teaching examples and non-examples, and developing retrieval strength. As a student's capability and capacity to demonstrate their expertise and mastery is grown, student agency is authentically fostered.

The teacher as instructional designer is essential, not accidental to teaching and learning, searching for that which the student cannot do by themselves.

Formative assessment is foundational in supporting the teacher and the student to locate the learner in their learning.

The development of mastery requires the student be nurtured to successively independently practice.

Difficulty must also be carefully managed to support students to experience appropriate levels of challenge and promote high performance in summative assessment.

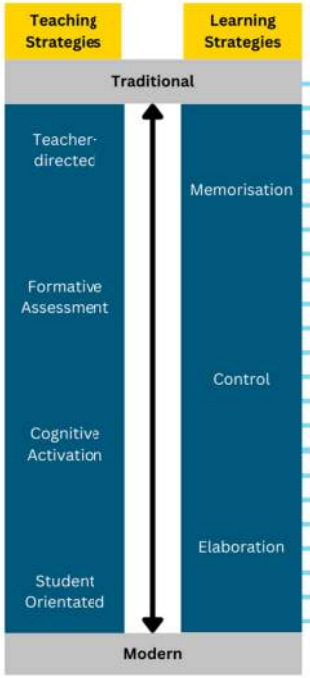
The Science of Learning

Laws
Working memory is limited - the brain can hold 3-7 pieces of information at one time.
Miller, 1958; Baddeley and Hitch, 1974

Theories
Cognitive Load Theory should be an integral consideration in instructional design.
Sweller, 1988

Assumptions
New learning should be presented in such a way that it is manageable for the student.
Sweller, 1988; Rosenshine, 2010

Practice
Support students to move from novices to experts, and to 'think hard' through practices such as direct instruction, worked examples, questioning, and structured reflection.
Quigley, Muijs, and Stringer, 2021



Implications for Instructional Design and Practice

Memorisation
Practices supportive of making a change in memory – retrieval practices, dual coding and elaborative encoding, have been proven to support effective long-term retention.
Bjork, 1974

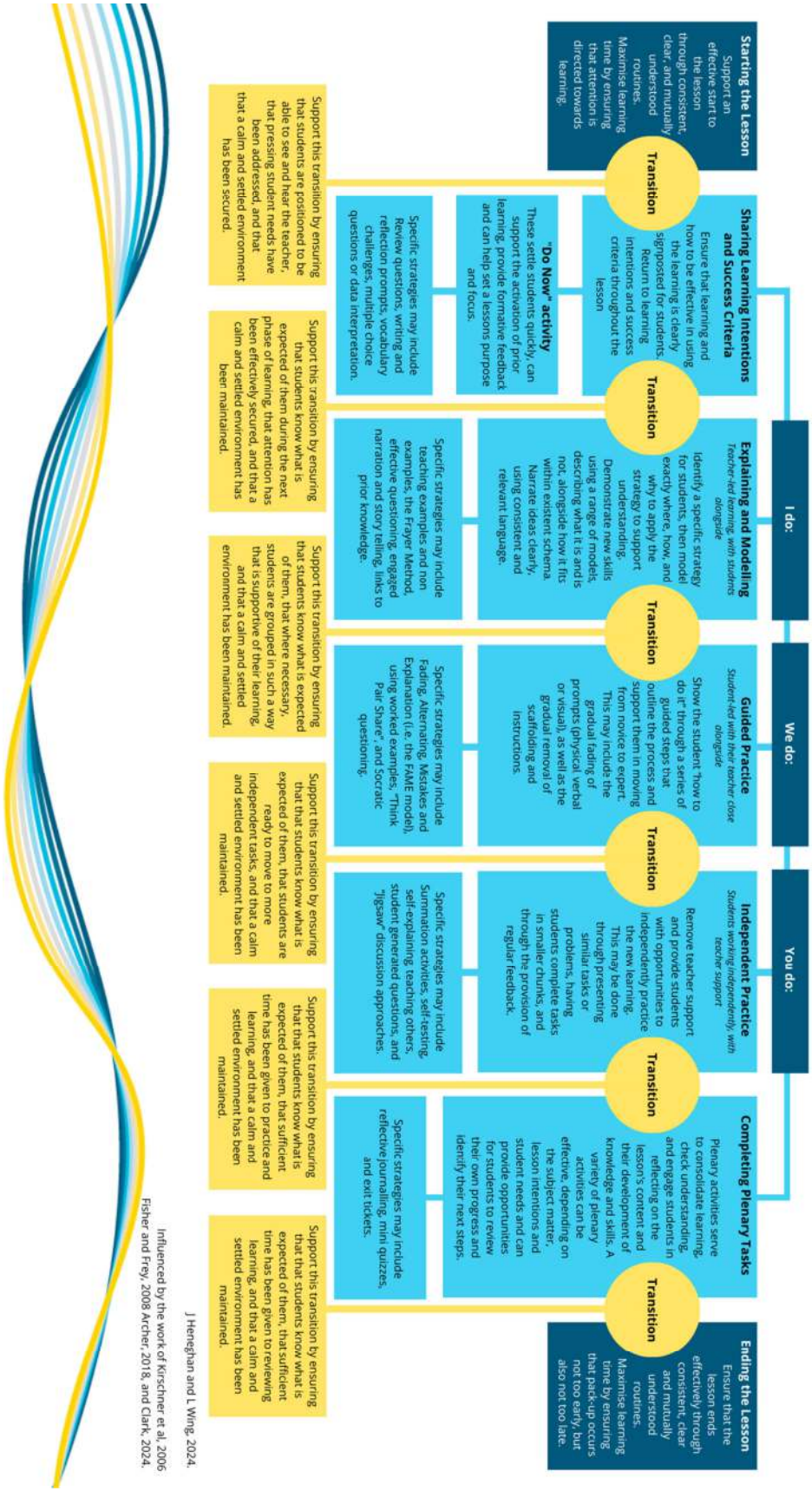
Control
Control learning strategies allow students to have some control over their learning experience. Students can make decisions about the pace, flow, sequence, amount, and review of instruction. Control strategies can also help students identify knowledge gaps and improve their skills.
Wilson-Hill, 2006

Elaboration
A cognitive learning strategy that helps students connect new information to what they already know. Examples including "Generative learning approaches" It can help students think more deeply about the topic, retain information for longer, and perform better in summative assessments.
Sweller, 1988; Rosenshine, 2010

J Heneghan, L Wing, 2024

Science of Learning graphic adapted from Hendrick, 2024
Continuum graphic adapted from OECD Education report, 2015
Credit also to Miller, 1958; Bjork, 1974; Baddeley and Hitch, 1974 Sweller, 1988; Wilson-Hill, 2006; Rosenshine, 2010; Quigley, Muijs, and Stringer, 2021

MAXIMISING LEARNING TIME - A CONSIDERED APPROACH TO EXPLICIT INSTRUCTION



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MAXIMISING LEARNING TIME THROUGH EXPLICIT INSTRUCTION

Explicit instruction is a means of securing intentional practice throughout the learning process.
As a teacher you are articulating what you are doing, what the students need to do, why you are doing it, and how it should be done. *Throughout the lesson.*
It is clear instruction, clear design, and clear delivery to maximise learning. It requires students to actively participate in the learning, in response to what they have been taught. It asks that teachers provide scaffolding to their students, supporting them to move from novices to experts, and removing that scaffolding as mastery is achieved. Regular checking for understanding, as well as the fostering of student participation are critical factors of explicit instruction, ensuring that the approach is student-centred, and responsive to their learning needs.

Foundations of Explicit Instruction

Optimisation of on-task behaviour and participation should be foundational – ensure the conditions for learning are met.
There needs to be clear design, clear instruction, and clear delivery to maximise learning.
Students need to actively participate in the learning, in response to what they have been taught, both as individuals and with their peers.
There should be regular checking for understanding, with teachers and students working toward achieving an 80% success rate.
Teachers should aim to provide scaffolding to their students, supporting them to move from novices to experts, and removing that scaffolding as mastery is achieved.
The amount of content should increase, as well as the complexity of the content as students move from novices to experts.

Four key aspects

1. Require frequent responses from everybody
2. Monitor student performance carefully
3. Provide immediate affirmative and corrective feedback
4. Deliver instruction at a brisk, lively and enthusiastic pace.

Kirschner et al (2006)

WHAT EXPLICIT INSTRUCTION IS AND IS NOT

Explicit teaching supports the shift from novice to expert through guided, interactive and knowledge rich instruction.
It is more than lecturing, it is show, narrate and model. Done well, explicit instruction is peppered with questioning and is an engaging, confidence building approach.

WHAT EXPLICIT INSTRUCTION IS		WHAT EXPLICIT INSTRUCTION IS NOT	
Direct and Clear →	Teachers clearly state the learning intentions and success criteria, breaking tasks into manageable steps.	**Just lecturing** →	Effective explicit instruction involves constant interaction, checks for understanding, and guided practice.
Teacher-Led →	The teacher models and guides learning, especially in the early stages of concept acquisition	**Endless practice** →	It involves meaningful practice with feedback, not mindless repetition.
Sequential and Cumulative →	Instruction builds on prior knowledge, progressing in small, logical steps.	**Only for rote learning** →	It builds conceptual understanding and procedural fluency—used correctly, it enhances deep learning.
Active Engagement →	Students are frequently called to respond, think aloud, or solve problems during instruction.	**Lacking creativity** →	Once core skills are mastered, explicit instruction enables more creative extensions.
Guided Practice →	Students practice new skills with feedback before moving to independent work.	**Inflexible or scripted** →	It is structured but responsive—teachers adjust pacing and support based on student progress.
Checks for Understanding →	Teachers constantly monitor student understanding and adjust accordingly.	**Only effective for novice students** →	All students benefit from clarity, structure, and effective modeling, regardless of age or ability.
Scaffolded Support →	Students receive high levels of support at first, gradually removed as competence increases.	**Unengaging or boring** →	When well-executed, it's fast-paced, interactive, and satisfying—students feel successful.
Content-Focused →	Emphasises mastery of specific knowledge or skills before application.	**Lacking in agency** →	It builds student confidence and independence through guided success, not control or restriction.

Heneghan & Wing, 2025

I do	We do	You do
Explaining and Modelling *Teacher-led learning, with students alongside*	**Guided Practice** *Student-led with their teacher close alongside*	**Independent Practice** *Students working independently, with teacher support*
Identify a specific strategy for students, then model exactly where, how, and why to apply the strategy to support understanding. Demonstrate new skills using a range of models, describing what it is and is not, alongside how it fits within existent schema. Narrate ideas clearly, using consistent and relevant language.	Identify a specific strategy for students, then model exactly where, how, and why to apply the strategy to support understanding. Demonstrate new skills using a range of models, describing what it is and is not, alongside how it fits within existent schema. Narrate ideas clearly, using consistent and relevant language.	Remove teacher support and provide students with opportunities to independently practice the new learning. This may be done through presenting similar tasks or problems, having students complete tasks in smaller chunks, and through the provision of regular feedback.
Specific strategies may include: teaching examples and non-examples, the Frayer Method, effective questioning, engaged narration and storytelling, links to prior knowledge.	Specific strategies may include: Fading, Alternating, Mistakes and Explanation (i.e. the FAME model), using worked examples, "Think Pair Share", and Socratic questioning.	Specific strategies may include: Summation activities, self-testing, self-explaining, teaching others, student generated questions, and "Jigsaw" discussion approaches

'Maximising Learning Time: A Considered approach to explicit instruction', Wing & Heneghan (2024) Influenced by the work of Kirschner et al, 2006 Fisher and Frey, 2008 Archer, 2018, and Clark, 2024.

EFFECTIVE LEARNING TIME

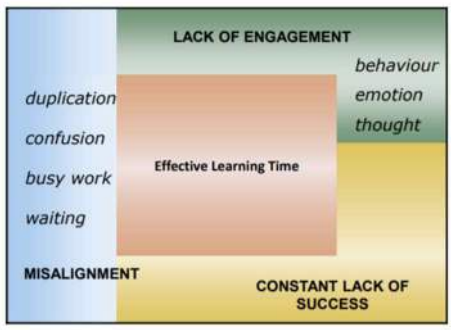
Tikanga, Ako and Mahara are our principles of exceptional learning. These principles create a shared educational philosophy across the college and provide an approach to teaching and learning that can be used in multiple classrooms.

Tikanga	Ako	Mahara
Our living classroom culture for learning.	Know the student, know what to teach, know how to teach it. Know it has been learnt.	Teaching for memory - learning is a change in memory. Teaching supports that change.

Effective Learning Time

At the base of these principles is Professor Emeritus Graeme Aitken's work on 'Effective Learning Time'. This model is about seeking to maximise learning time in the classroom by reducing misalignment and a lack of student success and increasing engagement. Graeme Aitken spoke to our staff in March 2021, introducing this model and linking it to our Principles of Exceptional Learning.

In his presentation to staff, Aitken spoke about how "the enemy is thinking there is one way of doing things". This resonated and continues to underpin our approach when considering both how we can maximise 'Effective Learning Time" in our classes, and in our approach to supporting teachers to unpack and use our 'Principles of Exceptional Learning'.



Graeme Aitken, 2009-2021

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TEACHING AS INQUIRY

“Teaching as inquiry” is described by Timperley, Hauser and Halbert as “a way of professional being”. In practice, it cultivates the inquiring and reflective teacher. For those reasons (and more) it implicitly and explicitly sits across several of our practising teacher criteria in New Zealand.

Teaching as inquiry is not the same as Formative assessment. Ways of knowing are not the same as Teaching as inquiry. *Teaching as Inquiry, Formative assessment and Ways of knowing are mutually reinforcing.*

Teaching as Inquiry

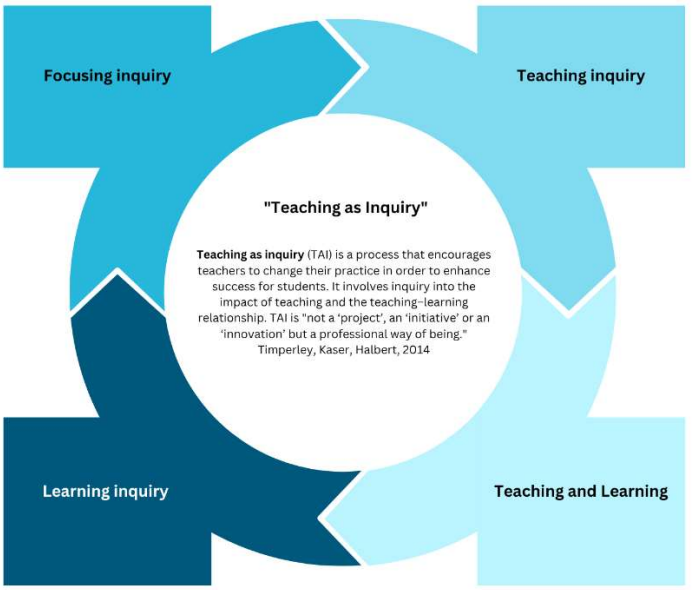
Teaching as inquiry (TAI) is a process that encourages teachers to change their practice in order to enhance success for students. It involves inquiry into the impact of teaching and the teaching–learning relationship. TAI is "not a ‘project’, an ‘initiative’ or an ‘innovation’ but a professional way of being."

Timperley, Kaser, Halbert, (2014)

Teaching as Inquiry has four parts:

Focusing inquiry - Teachers identify the outcomes they want their students to achieve. They consider how their students are doing in relation to those outcomes, and they ask what their students need to learn next in order to achieve them.

Teaching inquiry - Teachers select teaching strategies that will support their students to achieve identified outcomes. This involves asking questions about how well current strategies are working and whether others might be more successful.



Teaching and learning - Putting new strategies into action.

Learning inquiry - Teachers monitor their students' progress towards the identified outcomes and reflect on what this tells them. Teachers use this new information to decide what to do next to ensure continued improvement in student achievement and in their own practice.

New Zealand Curriculum TKI (2020)

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WAYS OF KNOWING

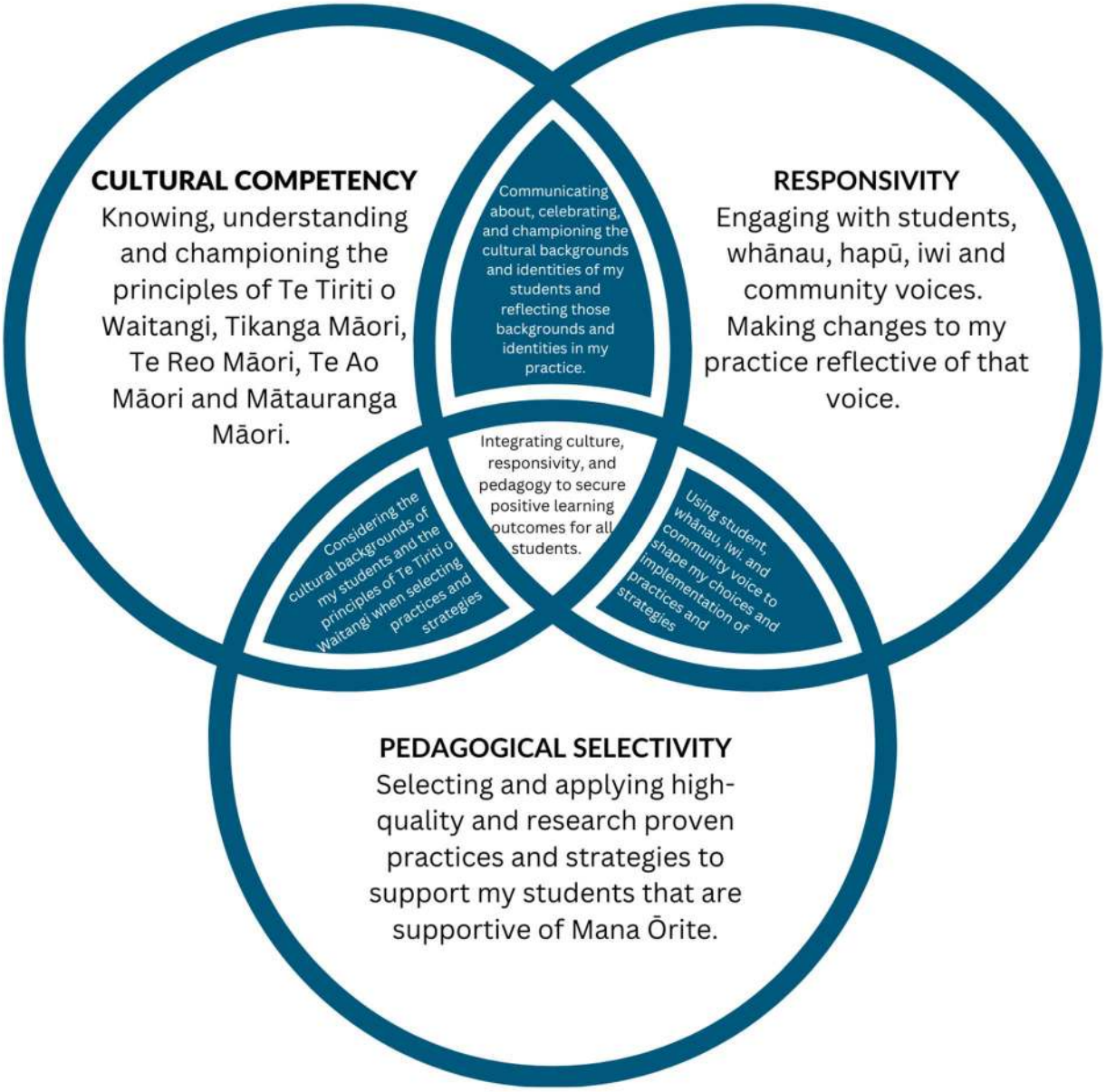
In the context of teaching and learning, ways of knowing are the sources of evidence and insight we draw upon to understand what is happening in the classroom, why it is happening, and how to improve it.

CULTURALLY RESPONSIVE PEDAGOGY

Culturally Responsive Pedagogy (or practice) is the use of pedagogical approaches that support the achievement of students, while also responding to their unique identities and backgrounds. It is about knowing the student, their family and whānau, and involving all stakeholders in the learning and progress of the student.
As a high school in Aotearoa, New Zealand, it is critical that we have a responsibility under Te Tiriti o Waitangi to ensure equitable outcomes for all students, including Māori students. Additionally, we have a responsibility to ensure that our educational provision responds to our students and addresses the harm of colonisation.

"(Culturally Responsive Pedagogy) is understood and defined differently across Aotearoa New Zealand, and indeed the world. Sometimes it appears that there are as many definitions as there are people talking about it."

Berryman et al. (2018)



Wing & Heneghan (2024).

The Overlap of Cultural Competency, Responsivity and Pedagogical Selectivity

Culturally Responsive Pedagogy means combining cultural competency with high-quality pedagogy, with responsive practice.

Culturally responsive pedagogies exist in spaces where: Power is shared, culture counts, learning is interactive and dialogic, connectedness is fundamental to relationships, there is a common vision of excellence for Māori.

Bishop & Berryman (2006)

Cultural competency is the acceptance and respect for difference, a continuous self-assessment regarding culture, an attention to the dynamics of difference, the ongoing development of cultural knowledge, and the resources and flexibility within service models to meet the needs of minority populations

Cross (1989).

Responsivity is about aligning home and school goals, engage families through respectful, meaningful partnerships. Teachers should build personal relationships with whānau, communicate openly, and involve them in setting and aligning educational goals. Allow whānau to guide their involvement and ensure discussions are reciprocal and considerate of their preferences. It is then making changes to practice reflective of that voice

Hood & Hargreaves (2022)

Culturally Responsive Pedagogy through the lens of our classroom Tikanga

Relationships are foundational to culturally responsive practice. They provide the base onto which research-based, responsive pedagogies can be effectively applied. Connectedness is fundamental to relationships

Berryman, Lawrence and Lamont (2018).

Whanaungatanga

- Thinking about what you would want for your own child or whānau member and helping this play out for other people's children in your school.
- Taking responsibility to provide care and support to students and then expecting the highest in terms of your combined endeavours.
- Being prepared to take responsibility for both the relationship and its outcomes.

Bishop, Berryman, Cavanaugh & Teddy (2007)

Building Culturally Responsive Relationships

- Nurture mind, body, and spirit for the all-round development of students
- Create a space where all students are supported to access learning and feel safe to do so.
- Build relationships that support students' mana and wellbeing.
- Recognise the potential in everyone and have high expectations for this potential.
- Value and nurture culture, language, and identity that honours and respects all people.
- Emphasise the importance of whakapapa so that students grow secure in the knowledge of their identity.
- Create a context for all students to pursue what inspires them and determine their own success.
- Encourage students to explore new challenges and take risks in learning.

Bishop & Berryman (2006); Berryman, Lawrence & Lamont (2018)

Responsive Pedagogies: There are many ways to do it

"Responsive pedagogy does not preclude any teaching and learning technique or strategy. There is value in a full range of activities, such as rote learning and repetition when developing cognitive function—just as "chalk and talk" has legitimacy. It is the over-reliance on any one strategy or approach which is problematic"

Berryman, Lawrence, and Lamont (2018).

Mauri Ora

When a person is engaged in positive relationships with others, feels a sense of belonging, is spiritually and emotionally strong, and is positive and energetic.

For Māori, this means that success enables them to walk confidently and with mana in the two worlds of Aotearoa New Zealand.

Berryman, Lawrence & Lamont (2018)

Building Mauri Ora for our Ākonga

- Manaakitanga *(Tātaiako):* Showing integrity, sincerity and respect towards Māori beliefs, language and culture.
- Tangata Whenuatanga *(Tātaiako)*: Affirming Māori students as Māori. Providing contexts for learning where the identity, language and culture of Māori students and their whānau is affirmed
- Value and legitimise multiple views of knowledge and ways of knowing
- Value and nurture culture, language, and identity that honours and respects all people Emphasise the importance of whakapapa so that students grow secure in the knowledge of their identity

Berryman, Lawrence & Lamont (2018)

The risk of Essentialism

"In their efforts to respond to a student's culture, teachers fall into the trap of essentialisation in which they, as the professional and adult, determine what that culture is or isn't, often by picking up the pieces that are most easily identified and they can make sense of".

Berryman, Lawrence & Lamont (2018)

Cultural Relationships

Shifting the focus from being responsive to the culture of others to developing and being part of cultural relationships with others, legitimates the aspects of culture that are less tangible but fundamental to the identity and wellbeing of all people.

Berryman, Lawrence & Lamont (2018)

Cultural relationships require us to create spaces in which we must first listen to our students and their whānau. Such spaces open the opportunity for the sharing of prior knowledge and experiences, identities, aspirations, concerns, and connections

Berryman, Nevin, SooHoo, & Ford (2015)

Cultural relationships can be nurtured through:

Whakapapa:

Working to know the student and their whānau, who they are, and what their experiences are. Being prepared to reciprocate by working to understand your own cultural identity, values, and assumptions and the way these can impact (both positively and negatively) your interactions and relationships with students and their whānau.

Responsivity and Cultural Relationships

Align home and school goals, engage families through respectful, meaningful partnerships. Build personal relationships with whānau, communicate openly, and involve them in setting and aligning educational goals. Allow whānau to guide their involvement and ensure discussions are reciprocal and considerate of their preferences. Make changes to practice reflective of that voice.

Hood & Hargreaves (2022)

Responsive Relationships require listening

This includes:

- Being actively engaged *as a listener*
- Listening to what is being said, and *not said*
- Listening to non-verbal messages as much as verbal messages.
- Avoiding premature judgement
- Responding after the speaker has finished.

Berryman, Lawrence, and Lamont (2018)

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MANA ŌRITE

"Teacher action lies at the heart of countering inequity for Māori" - Russell Bishop, 2009

Mana Ōrite is best understood as a metaphor. At its core it is about:

- Relationships
- Treating others how we would like to be treated.
- Directly challenging our unconscious biases.
- Creating a foundation for being responsive.
- Using what our students and their whānau bring to the classroom in a real and practical way.

	Effective Mana Ōrite relationships could look like…
Wānanga	Using a wide range of information, including what you know and are still learning about the cultural context of your student to understand what they have in their "cultural toolkit" (Bruner, 1996) as the basis for determining their next steps. A "one size fits one" approach for personalising learning.
Ako	Taking reciprocal responsibility to learn from and teach each other. Ensuring opportunities for students to question and learn from one and other as well. Finding ways to take advice and learn from and with whānau.
Mahi Ngātahi	Asking students for their ideas about the learning contexts and being prepared to act accordingly. Working together as one, collaborating to achieve common outcomes.
Whanaungatanga	Thinking about what you would want for your own child or whānau member and helping this play out for other people's children in your school. Taking responsibility to provide care and support to students and then expecting the highest in terms of your combined endeavours.
Whakapapa	Working to know the student and their whānau, who they are, and what their experiences are. Being prepared to reciprocate by working to understand your own cultural identity, values, and assumptions and the way that these can impact (both positively and negatively) your interactions and relationships with students and their whānau.
Kaupapa	Ensuring, through ongoing dialogue, and face-to-face meetings across multiple settings and with multiple groups, that what you want for the schooling of your student is the same as what they and their whānau want as well.

Berryman, Lawrence & Lamont (2018)

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TEACHING TO THE NORTH-EAST

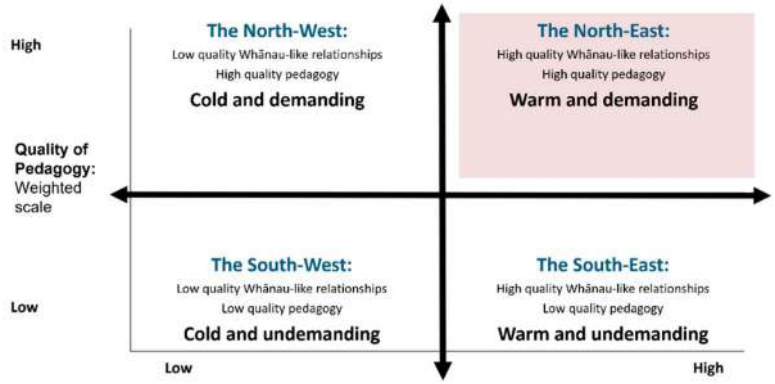
Common threads in our Professional learning
Supporting our students in "walking the spaces" they live and learn in is critical.
Positive, learning focused relationships that genuinely value the child matter to a high degree.
Good practice responds to the needs of the individual students.

Adapted from Webber, Bishop, Hammond, Berryman, Bennett, Sherrington.

Relationships: critical for learning
Accounting for Maslow (1943): "The most limiting factor on the learning of Māori (and consistently across marginalised groups) is when they view their in-class relationships as toxic."

Bishop & Berryman (2007)

Teaching To the North-East - Derived from Bishop et al (2007)



Source: Bishop et al (2007)

North-East Teaching at Long Bay College

Wing & Heneghan, unpublished (2022)

Qualities of a North-East teacher:

Explicit focus on building rapport or trust with students. Warm or firm tone when needed, some humour.

Shows personal regard for students by inquiring about important people and events in their lives.

Earns the right to demand engagement and effort.

Very competent with the technical side of instruction.

Holds high standards and offers emotional support and instructional scaffolding to dependent students for reaching the standards.

Encourages productive struggle.
Viewed by students as caring because of personal regard and "tough love" stance

Qualities of a North-West teacher:

No focus on building rapport or trust with students.

Organises instruction around independent students and provides little scaffolding.

Unconsciously holds low expectations for dependant students.

Makes certain students feel pushed out of the intellectual life of the classroom.

Mistakes cultural differences of culturally and linguistically diverse students as intellectual deficits.
Viewed by students as cold and uncaring.

Qualities of a South-East teacher:

Explicit focus on building rapport or trust with students.

Makes excuses for the lack of academic achievement of students.

Consciously holds lower expectations out of pity. Tries to protect students from failure.

Either over-scaffolds instruction or dumbs down the curriculum.
Doesn't provide opportunities for students to engage in productive struggle.

Liked by students but viewed as a push-over.

Adapted from Hammond (2014), Bishop (2019)

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TEACHING TO THE NORTH-EAST AND SUPPORTING HIGH QUALITY FORMATIVE ASSESSMENT

A key and early learning on our Tino Akoranga journey was the need for a shared understanding of what great teaching and learning is, not just as described in wider research overseas but grounded in our setting, Aotearoa, New Zealand. This work led to the development of three foundational ideas: “Tikanga”, “Ako” and “Mahara”.

Supporting Tikanga, Ako, and Mahara are:

- Evidence-Based Formative Assessment, by which we can judge the efficacy of our teaching approaches for our students, plot our next steps for their learning, and by which our students can have ownership over their own learning.
- Relational Pedagogies, supporting the development of effective learning relationships and learning interactions, as well as supporting culturally responsive practice.
- ‘Northeast’ practice, as described by Bishop (2019, 2023), anchoring good teaching as a combination of strong relationships, combined with strong teaching skill.

Northeast Pedagogies *As described by Bishop, 2019, 2023*	Evidence-Based Formative Assessment *As described by Wiliam and Leahy, 2015*
Northeast teachers should: Reject deficit explanations about their students. Care for their students. Demonstrate high expectations. Be knowledgeable about what their students need to learn, for example numeracy and literacy. Be adept in strategies to promote learning such as overt instruction and formative assessment. Promote learning through the provision of feedback. Promote learning through drawing on the prior knowledge of their students.	Formative Assessment: Is the range of evidence informed strategies that teachers can use to support their students to make progress. Can identify students’ progress as well as highlighting gaps in their knowledge and understanding to give the teacher useful insight as to what feedback and instruction can be provided to continue to move students forward. Takes place during the learning process. It continually informs the teacher and the student as to how learning can move forward as it is happening.

Relational Formative Assessment Strategies can include:

- Clarifying and sharing learning intentions and success criteria
- Engineering effective discussions, tasks and activities that elicit evidence of learning.
- Providing feedback that moves students forward.
- Activating students as learning resources for each other
- Activating students as owners of their own learning

For these practices to be most effective, teachers must actively sustain Northeast pedagogies.
This includes supporting effective learning relationships and interactions between themselves and the student, and between the students themselves.

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TEACHING TO THE NORTH EAST AND SUPPORTING HIGH QUALITY FORMATIVE ASSESSMENT

J Heneghan, L Wing, 2023.
Influenced by Russell Bishop (2019) (2023) , Wiliam and Leahy (2015)

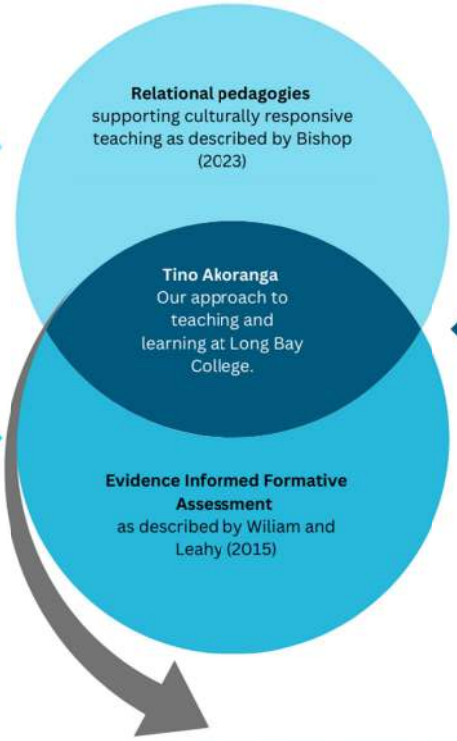
Tikanga
Tikanga is about creating a learning focused culture. This should be one where ākonga feel known, cared for and that success is highly valued. We strive to create a sense of whanaungatanga in our classrooms.

Ako and Mahara
Ako is about becoming experts in both what we teach, and how to teach it.
This includes knowing how best to teach your subject. It is knowing what strategies work best, knowing how students engage with the subject and being knowledgeable in the subject itself.

Mahara is about working with, not against the brain during the entire learning process.
This means being mindful of cognitive load, supporting students to move from novice to expert and helping new learning to eventually be stored in the long term memory.

Bishop (2019, 2023)
North East teachers should:
- Reject deficit explanations about their learners.
- Care for their learners.
- Demonstrate high expectations.
- Be knowledgeable about what their learners need to learn, for example numeracy and literacy.
- Be adept in strategies to promote learning such as overt instruction and formative assessment.
- Promote learning through the provision of feedback.
- Promote learning through drawing on the prior knowledge of their learners.

Wiliam and Leahy (2015)
Formative assessment:
- Is the range of evidence informed strategies that teachers can use to support their learners to make progress.
- Can identify students progress as well as highlighting gaps in their knowledge and understanding to give the teacher useful insight as to what feedback and instruction can be provided to continue to move learners forward.
- Takes place during the learning process. It continually informs the teacher and the student as to how learning can move forward as it is happening.



Relational Formative Assessment Strategies

Clarifying and sharing learning intentions and success criteria

Engineering effective discussions, tasks and activities that elicit evidence of learning

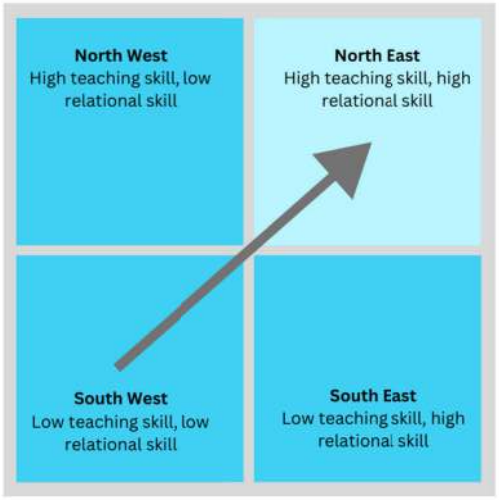
Providing feedback that moves learners forward

Activating students as learning resources for each other

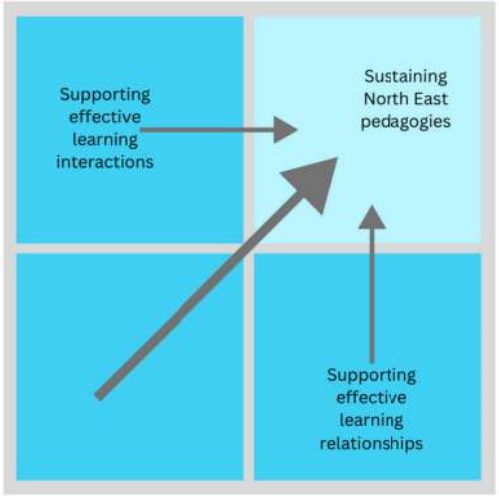
Activating students as owners of their own learning

For these practices to be most effective, teachers must actively sustain North East pedagogies. This includes supporting effective learning relationships and interactions between themselves and the learner, and between the learners themselves.

Between 2019 and 2023 we have developed adaptive routines, aligned to **Tikanga**, **Ako** and **Mahara** (Our exceptional learning principles) these explicitly supporting teachers in applying research informed practices that consider the learner, the learners backgrounds, the teacher, the subject, the classroom and the cognition of all, to support high quality teaching and learning.



Teaching to the North East is a framework devised by Russell Bishop (2019). This framework anchors good teaching as a combination of strong relationships, combined with strong teaching skill.



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TIKANGA – A PRINCIPLE FOR EXCEPTIONAL LEARNING

"Run the room, or the room will run you" – Tom Bennett

The most effective classrooms and lessons are ones in which learning is allowed to take centre stage and distractions are minimised. This is achieved through a shared classroom culture for learning, which we describe as 'Tikanga'. In Te Reo Māori, Tikanga can mean the 'ways of doing' for a group, and when applied to educational contexts it refers to the ways in which a class functions together and what is expected of them. In a class with effective Tikanga, all students know what is expected from them, have shared buy-in to the expectations, and are supported to meet expectations.

Effective Tikanga is:

- Taught, not caught with expectations taught as with other knowledge and reinforced over time.
- Considerate of maximising learning time, with the goal of ensuring that the critical resource of time is carefully used, with students supported to do so through considered routines and consistent approaches.
- Inclusive, being mindful of the need for all students in the room to be able to participate in the learning and feel safe.
- Consistently upheld and broadly the same for all students within the group.
- Aligned to Northeast Practice, with high expectations for learning and behaviour reinforced with care and respect.

This chapter explores Tikanga in more detail, providing examples of approaches and routines as well as considering areas such as digital learning, the use of AI, and working effectively with Teacher Aides.

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TIKANGA – MAXIMISING LEARNING TIME

Where attention goes, the learning flows. In our classrooms it is critical for us as teachers to act as the guardians of that attention. This means ensuring that as much as possible, the limited resource of time and attention is used to maximum effect through shared expectations and routines for learning.
The concept of 'Maximising Learning Time' applies to all three of our exceptional learning principles – Tikanga, Ako, and Mahara. For Tikanga however, it relates to how attention in the classroom is managed, and how learning is streamlined through taught routines and expectations that are consistently upheld.

Teach and maintain high expectations

Ensure that everyone is on the same page and seek to create a shared culture for learning.

Taught not caught

Consider behavioural expectations as another part of your classroom curriculum. As such, they must be taught, and your students supported to move from novices to experts in that area as well. This includes ensuring that students know how they need to behave, why those expectations exist, and how the standards and expectations will be maintained in the class. Ideally, students should have some input into the development of classroom expectations.
While outlining Tikanga at the start of the year or semester is important, so too is continuing the learning during the course of your time with the class. Reinforcement and maintenance work put in to sustain the Tikanga you outlined at the start, along with consistency of application and outcome is critical for an effective learning culture.

Reinforcing Expectations

1. Be learning focused – redirection should be your first port of call.
2. Offer choice – this allows students to make the correct choice.
3. Refer to policy – this reinforces consistency and depersonalises consequences.
4. Address what needs to be addressed, tactically ignore the secondary behaviour – some behaviour does not need to escalate. Focus on the key issue.
5. Allow take-up time – Staring at the student whilst they comply will add to tension.
6. Clarify the consequence – Be specific about what will happen, be proportionate, be consistent.
7. Partially agree – Allow for small wins and stop unnecessary arguments.

Embed routines

Routines ensure that everyone is on the same page and create a shared culture for learning.
They are sequences of specific behaviours that "are the building blocks of classroom culture".

Bennett (2020)

Behavioural routines can be embedded to ensure that students know exactly how to manage themselves during each stage of the lesson. This allows cognitive load to be spent on the learning itself, as opposed to decoding what they should be doing, becoming distracted or distracting others. Like behavioural expectations, routines must be taught, with effort put in to reinforce and sustain the learning over time.

Some common routines to maximise learning time are:

- Entry routines
- Do-Now activities
- Expected behaviours during explicit instruction, e.g. silence, note taking.
- Expected behaviours during questioning, e.g. one at a time, hands-up or no-hands-up.
- Group activity procedures and expectations.
- Routines for guided and independent practice.

Groshell (2024)

Routines allow you as the teacher to respond more effectively to questions, behaviour and other student needs. They also allow for a reduction in your own cognitive load by increasing the automaticity of your practice.

Lovell & Dowley (2024)

Embedding new routines

Routines must be planned, with clear consideration of what it is that you wish to achieve, how you will make it happen, and how it will be sustained.

Taught not caught remains relevant, and *taught* is not completed in a one-off session. You will need to return to your routine over time.

Remember also that students may not know immediately what you mean when you describe your routines, may make assumptions, or revert to practices from other classes. Explicit instruction is critical.

5 Ds of Routine Development

Design	Describe	Demonstrate	Demand	Disengage
Decide the routine that you want and need	Ensure students understand how to perform the routine.	Get students to practice the routine repeatedly	Make sure students perform it each time	Let students perform the routine without cues

Clark (2024)

Explicitly Teaching a Routine

New routines require explicit instruction. Students need the opportunity to learn the routine in a clear, straightforward way that removes mystery and guess work from the equation.

Lovell & Dowley (2024)

Prime	Make Expectations Explicit	Check for Understanding	Conditions	Positive Narration	Practice and reinforce
Give students an indication of what is about to happen – in this case, you will be "teaching them a routine for ____, which you will expect them to use ____"	*Be* clear and specific when making statements to students about what the routine will entail, and what you will expect from them.	*Ask* students to repeat your instructions to check they have understood.	*Set* the right conditions for the routine to succeed, for example by lining them up or insisting on silence at a particular time.	*Describe* the correct behaviour when you see it, providing examples to others.	*Ensure* the routine is practiced over time, with reinforcement of expected behaviours.

Routines for inconsistency

Sometimes it will not be possible to uphold the exact same routine due to something beyond your control or out of the ordinary occurring.
Routines for these situations are important as they allow students to know what to do, and how to best manage themselves during unpredictability. While you cannot plan for every eventuality, some common inconsistencies do occur and can be planned for.

During teacher absence
Students need to know that their learning is still important, even if you are absent. Make sure the work that you set is valuable, and not something skippable.
They need to know that routines still matter, even if you are not there to enforce them.
They should know where they will find their work, which other teachers they might go to if the relief teacher has questions.
Importantly, they need to know that you will follow-up with them on your return, and that you expect them to make you proud.

When a visitor is in the room
Make sure that students know how to respond to the arrival of someone else in the room.
Whether it be that you expect them to greet the visitor, explain their learning to the visitor, have a 'class ambassador' for the visitor, or simple just creating space for and being polite to the visitor.
It is helpful for students to know in advance if someone is coming into the room, as this allows them to prepare for a change to their expected norms.

If another student is working in the classroom
In some cases another student may be placed in your room to work. This can happen for a range of reasons, most of which are not the concern of your students.
They do however need to know the routine for any engagement with this person, and for allowing you as the classroom teacher to engage with the student. This might include them knowing to not call out to the student and knowing that you will likely need to speak with the student at some point.

Adapted from Swain (2025)

Leading learning with confidence and authority

Routines must be taught and reinforced with confidence and authority.
Students "need an adult sense of authority in the room, it's your right to run the room".

Bennett (2020)

Much of classroom confidence, authority and presence is non-verbal.
The following techniques can be used to support confidence and authority:

- Eye contact: scan the room before focusing on an individual.
- Pace: Speak slowly and clearly. Use pauses to maintain attention.
- Body: Chest proud, hands apart, and lean back slightly. This exudes confidence while also supporting a strong clear voice.
- Voice: Lower your voice so that it comes from your chest, not your head.
- Language: Be firm, positive, have high expectations that are warmly enforced. Expect compliance.

Clark (2024)

Manage Focus

To maximise learning, attention needs to be directed effectively.

Consider your displays

Wall visuals can distract students – choose them and place them wisely.

While we often strive to ensure our teaching, spaces are inviting and engaging, care is needed to ensure that certain spaces within our rooms do not become distracting or overwhelming. This is especially true of the spaces where you carry out explanations. Intense visual displays right next to where you present ideas and explain from will not help you or your students.

That is not to say that you should not decorate your rooms, but mindfulness is key.

Groshell (2024)

Reduce noise

Auditory stimulation can overwhelm cognitive load and disrupt focus.

This can include:

- Peer to peer chatter, especially during explanations, or periods of particular challenge in the learning.
- Peripheral noise, such as construction work or a loud neighbouring room. Ongoing peripheral noise preventing the focus to 'think hard' about learning.
- Music, especially with lyrics was found by Perham and Currie (2014) to disrupt studying by shifting focus to lyrics or onto song selection.

Where possible, seek to reduce, limit or even eliminate unnecessary noise. Insist on quiet during explanations.

Groshell (2024)

Seat for success

Seating plans are a highly recommended practice. They enable teachers to manage combinations that may not work well together in our classes. Careful seating plans reduce and even prevent distraction altogether, supporting students to focus on their learning.

Seating plans also support your students to maintain focus by positioning their seating in such a way that supports the task at hand. During explicit instruction seating plans can ensure that students are able easily engage with you as the teacher. If they are constantly needing to turn to listen to what you are explaining, the process of maintaining focus is harder than it needs to be. During pair and group work, seating plans can ensure that combinations of students are able to work effectively together.

Groshell (2024)

Keep the small thing small

Some behaviours require a significant intervention. Others should be allowed to remain small, a quick correction done with care that allows learning to continue. Keeping the small things small ensures that behaviour is not allowed to become the focus, and pointless conflict is avoided.

Clark (2024)

What you walk past, we accept

Consistency is key. For true consistency, there must be collective buy-in across a school. Ignoring behaviours that are ultimately unhelpful undermine collective efficacy, while also causing the behaviour to become more embedded, more difficult to challenge, and more likely to detract from learning.

Donohoo (2007), Hattie (2018), Lovell & Dowley (2024)

Just tell them

The clarity of the instructions we give is crucial to maintaining learning focused classrooms and avoiding adding to cognitive load.

Three areas to consider are:

- Are your instructions to the point?

Avoid rambling – this adds to the information that your students need to sift through.

- Are your instructions clear?

Where possible, avoid "ums" and "ahs", as well as incomplete sentences that trail off.

- Are your instructions precise?

Ensure that your students know exactly what you are asking them to do and where, when, and how you wish that to be done.

Goshell (2024)

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TIKANGA – BUILDING WHANAUNGATANGA

"Whanaungatanga is about relationships, kinship, and a sense of connection. It is created through shared experiences and working together and provides people with a sense of belonging. It comes with rights and obligations, which serve to strengthen each member of that whānau or group."

Ware (2009); Ware & Walsh-Tapiata (2010).

Approaches that support whanaungatanga

Reject deficit explanations for students and their learning.
This means:
Deficit explanations are not used to explain difficulties that student may experience.
Students are seen as capable and encouraged as they succeed.
Errors and mistakes are seen as being opportunities to learn and not insurmountable problems.
The language, culture and heritage of our students are seen as assets to build upon and not hindrances to learning

***Caring* for and nurturing the student, including their language and culture.**
This means:
Culturally appropriate and responsive learning contexts are provided and created.
Students can bring their own cultural experiences, knowledge, language and understanding to the learning interaction or conversation.

Voicing and demonstrating high expectations.
This means:
What is expected of students is clearly identified, as is what learning involves.
Activities are cognitively challenging.
Interactions include talk about students capability to set and reach short- and long-term goals.

Ensuring that all students can learn in a well-managed environment to promote learning.
This means:
Lesson and interactions are well organised with clear routines for students to interact and learn individually, as pairs or in groups
Classroom management and learning interactions are implemented in a non-confrontational manner.

***Knowing* what students need to learn.**
This means:
Lessons and interactions are well organised with clear routines for students to interact and learn individually, as pairs or in groups
Classroom management and learning interactions are implemented in a non-confrontational manner.

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TIKANGA – BUILDING A CLASSROOM CULTURE FOR LEARNING

Learning requires an optimised classroom culture.
Within an optimised classroom culture students know what is expected of them, know how to meet those expectations and trust in their classroom teacher to uphold those expectations. Students will not have innate knowledge of how they are to behave in your classroom. This is something that must be actively developed and sustained over time. Almost all behaviour is learnt, and classrooms are no different. You must teach the behaviour you want to see.
When we secure an optimal classroom culture, we create a space that is more likely to secure higher academic outcomes, vocational opportunities. social cohesion, creativity, wellbeing, and mental health. All students, particularly those with additional challenges are likely to be more successful in a safe, calm, and predictable learning space.

Bennett (2025)

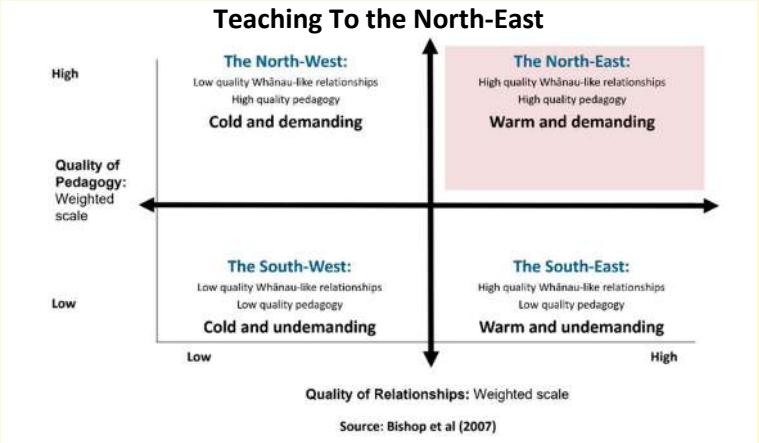
The role of student experience
There is a need to develop the classroom as a learning community.
There is a need to ensure that social relationships do not derail learning but are harnessed to enhance it.
The classroom needs to be a safe space, where calmness, predictability and dignity are sought and secured.

Nuthall (2007)

Classrooms need to feel safe	Classrooms need to be predictable and calm	Classrooms should support the dignity of all
If a student feels unsafe, this will be all they can think about. Manage social and emotional safety consciously. Pay attention to the interactions between students and insist on high regard interactions between students. A chaotic, overly loud, or untidy physical space may feel unsafe to students. Seek to minimise these factors and create a space where students can feel safe.	Students should know what is expected of them and know that others will be following the same expectations. They should know that you will be consistent in expecting them to meet those expectations. A calm classroom will look different in different learning areas, however the emotional consistency of the teacher, coupled with a minimisation of chaos and misbehaviour will support calm in a range of environments.	All individuals in the classroom should be treated in a manner that supports them in feeling cared for and valued. Students need to know that they are valued, and that you want to know them. Show an interest in them as individuals. Manners should be insisted on and reciprocal. This should include peer to peer interactions, and for any visitors to the room. Bennett (2025)

Relationships and Behaviour

Relationships are critical in any classroom. Students must trust that their teachers know them as individuals, have their best interests at heart and that they will support them in their learning. Teachers should seek to build effective learning relationships. One of the most effective ways to do this is through having strong classroom management. For this, teachers must aim to be both warm and demanding. Drawing on both the 'North' and the 'East' of North-East Pedagogies, as described earlier in this guide. Strong classroom management creates the space and safety for strong relationships to be built.



Derived from Bishop et al (2007)

If students are taught what is expected within their relationships with their teachers, their peers, and their communities they are far more likely to be successful within those relationships.
If these relationships are based in high expectations for those students, both in terms of what they can academically achieve as well as socially achieve, those relationships will be most effective in bringing out the best in the students we teach.

Building connections with students
Students learn best when they feel understood and valued, and when their interests and experiences are acknowledged. By modelling professionalism and empathy, educators create an environment where every student feels capable and motivated to succeed.

How can teachers do this when barriers to connection exist?

The students' close peers have a negative view of learning in the subject	*The student has strong interests in other subjects*	*The student dislikes the teacher in a subject*
Praise the group for small victories. Link the subject to personal interests. Link the subject to real world relevance.	Use examples from other subjects to support construction of questions. Link the learning in the subject to the students interests and pathway. Engage in conversation about their interests where appropriate.	Speak one-to-one with the student to build the relationship and trust. Praise and encourage the student when work is completed well. Model courtesy and professionalism

Nuthall (2007), Bishop (2019), Bennett (2025)

Teaching Behaviour

"If you don't run the room, then the room runs you"- Tom Bennett (2025)
As the classroom teacher it is your role to set the behavioural standard you wish to see, and to support your students to reach that expectation. Doing this proactively is a far more effective strategy than constantly responding to misbehaviour.

Teachers should consider the following points when preparing to teach their behavioural expectations:

What behaviours do I want my students to have?	*What are the micro-behaviours underpinning these behaviours?*	*How will I teach these behaviours to my students?*	*How will I reinforce these behaviours over time with my students?*
Consider both your ideal outcome, as well as the current level of the students. Aim to meet them where they are, whilst still holding high expectations for them. Get the basics right first.	At a more macro scale, behaviours are more likely to involve abstract terms such as "respect" These broader terms may have little meaning to a student unless the specific micro-behaviours that contribute to the larger ones. For example, the way that students pack up (or do not pack up) at the end of the lesson is subject to a whole selection of smaller behaviours.	The critical word here is *teach*, not *tell.* Teaching is not complete if learning is not secured. Examples need to be given. Students need to know precisely what it is, and what it is not that you are looking for from them. Scaffolding is important. Over time, scaffolding can be removed as automaticity grows, but initially verbal, and even visual reminders and cues are helpful.	Consider the types of feedback you will give to your students about their behaviour. This will include the verbal and non-verbal responses you provide, the rewards and consequences you give, and the whole-class and individual clarifications you provide.

Bennett (2025)

Countering Misbehaviour

Misbehaviour cannot be left un-countered. A lack of response to misbehaviour sanctions it, not just for the student conducting the misbehaviour, but also those witnessing it.
This includes significant misbehaviour, such as that which breaks school rules, as well as the misbehaviours that go against established classroom routines. For example, the requirement for students to put their hands-up when answering a question. Secondary misbehaviour must also be challenged as again, a lack of response sanctions further such behaviour. For example, a student laughing at someone else's actions.

Helpful approaches to support this countering include:
Having scripted or stock phrases ready to go (see below).
Being precise about the behaviour you need to change, and what behaviour you wish to see.
Acknowledge the correct behaviour when it is present in tandem. For example, "great that you knew the answer today, next time please have your hand-up when answering a question". Bennett (2025)

Scripting

Decisions made under pressure are lower quality decisions.
When a teacher prepares a verbal response to a behaviour, this is known as scripting.
Scripting supports the teacher in having the right thing to say at the right time, and being able to more effectively respond to behavioural issues. It reduces the cognitive load of the teacher during the moment of pressure, instead allowing them to draw on what they had already planned on saying.
Teachers looking to develop scripts might use the following strategies:

- Consider the types of behaviour, or student responses to you that you may encounter.
- Develop clear responses to the above that communicate the concern, what you would like to see, where relevant and appropriate, the possible outcomes of the student continuing, and again where relevant and appropriate, their choices in the matter.
- Write these scripts down, practice them aloud, and even roleplay them with others.
- Build their use as a habit, and do not be afraid to adjust them should adjustment be needed over time.

Bennett (2025)

Threshold Conversations

A "Threshold Conversation" is a tool that allows a teacher and a student to discuss a behaviour without the wider involvement and audience of their peers and the wider class. It is held on the threshold of the classroom, or learning area. They should seek to support a student in understanding and owning their behaviour, create a shared understanding between teacher and student, and ensure a pathway forward for the student.

A routine for a threshold conversation:
Establish that this conversation is happening because the student and their learning is important.
Clearly and neutrally outline the behavioural issue to the student.
Have the student take accountability for their actions (where possible)
Outline what they should have done, or have been doing instead
Ask them to for their input, if they understand, and if there is anything you need to know.
Ask them if there is anything you can do to help them to meet your expectations or with their learning, or if something pastorally is raised what support might be available – remember to raise pastoral issues to the appropriate teams.
Outline what will happen next, whether this be in terms of returning to the lesson, or future lessons, or in terms of consequences. There may, or may not be a consequence. This depends on the nature of the behaviour in question.
Reiterate your belief in the student, that they can do this, and that you value them and their learning.
The conversation should be positive but assertive. It may not solve the issue, but it is a step in the right direction of solving it. Bennett (2025)

Behavioural feedback systems - Consequences

Behavioural feedback systems provide students with information about how you wish for them to behave through the outcomes that come from their enacted behaviours.
Consequences are feedback for students to desist with certain behaviours. Consequences teach students that their actions do matter, that they matter, and the learning of others matters.
While some may shy away from consequences, fearing them as draconian or as being counter to their ethos, it is important to remember that not all consequences are created equal, nor do societies and communities without any form of consequences work.
Students are not natural saints, just as no person is. Even civil minded individuals will do the wrong thing if no consequences exist to curb behaviours.
The important part of a consequence is not its severity, rather its certainty.
Consequences can take a range of forms: Conversational, non-verbal, informal, formal.
"Pastorally educative"
Consequences should be “pastorally educative” and apply "assertive pressure" – a warm and demanding piece of feedback about their behaviour and a deterrent to repeating the same behaviour.
They should never be an act of retribution, revenge, score setting.
While they may not work for all students, that is not an indicator that they should not be done at all.
No-one should enjoy giving a consequence however done well, the more you use them the less you will need to use them.

Bennett (2025)

Behavioural feedback systems - Rewards

Rewards also act as a behavioural feedback system. They can indicate that a behaviour was correct, and encourage more of the same. That said, much like consequences, a reward system must be used with care and consistency. Rewards can include praise, material goods, or even privileges. Rewards should align with the expectations of the wider school. The most effective rewards are sincere, proportionate and targeted.

Be careful what and how you reward. Some considerations to support the use of rewards include:
Consider if the reward matches the behaviour, and if a reward is really justified.
Consider if rewarding this behaviour is something you can maintain over time with multiple students.
Consider frequency and scale. Are you rewarding too often or providing rewards beyond what is really deserved. Same the big rewards for when they really matter.
Consider your consistency. Are you giving the same level of reward to all your students, and are you able to (and should you) maintain this?

Bennett (2025)

Common mistakes

Trying to make the students happy
Students that are learning, and flourishing at school is your principal aim. This might include being too easy on students, either in your expectations or in your follow-through on expectations.
Being inconsistent
Maintaining consistency in the classroom is critical. Students are watching to see how you respond to behaviours, using this as a guide for their own behaviour and their views on you as a classroom teacher. Emotional consistency is also important – a calm and consistent response from a teacher is reassuring, outbursts are unsettling.
Being submissive or aggressive
Teach to the North-East. To be warm, a teacher does not require submissive behaviour, to be demanding aggression is unnecessary. Both behaviours undermine the building of a safe and consistent environment for students.
Not using school-wide supports, systems and processes.
When things go wrong, or support is needed engage with the systems and processes that are in place in the school. These are here to help you and your students.

Bennett (2025)

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TIKANGA – SUSTAINING A CLASSROOM CULTURE FOR LEARNING

Tikanga: Our living classroom culture for learning.

Tikanga in our classrooms needs to be established and cultivated. As teachers, we have guardianship for our students, their learning, and our classroom tikanga. We can sustain tikanga through whole class and individual approaches.

Whole class approaches:

For the most part, when sustaining tikanga, we act at the 'whole class level'.

Be proactive: we create an environment in which students understand our expectations of behaviour, engagement, and learning.

Be responsive: we acknowledge and celebrate good behaviour and correct behaviour that runs counter to our desired classroom tikanga.

Proactive Strategies:	**Responsive Strategies:**
You noticed that, in the previous lesson, some students were chatting or not working well together. You change the seating plan for the next lesson.	If students are slow to begin the lesson: "Awesome to see that Mary, Hyungmin and Frano have taken their books out and are ready to start the lesson."
Routines are newly established. You continue to practise routines to ensure routines do not slip/are forgotten.	When one or two students have slowed down or have drifted off task: "It's excellent to see most people have started task one and our now moving onto task two."
Attention is waning when giving instructions. In the next lesson, you carefully script your instructions to ensure they are clear, concise, and precise.	When students take time to transition from group work to teacher talk: "I am waiting for two groups [looks at groups still talking]. Awesome. I am now waiting for one group to be listening and not talking."
Transitions are beginning to slow down or are becoming 'messy'. You plan, in advance, each step of the transitions in the next lesson, reminding students, at each step, what they need to do.	Reminder about classroom tikanga is positive and specific: "Remember in *our* class, we work co-operatively by each contributing our ideas to the group we are working in."

Individual approaches:

At times, an individual student may require further support to ensure they are able to contribute positively to the classroom tikanga. This could mean **clarifying** instructions or tasks and then **redirecting** students back to learning or onto the next step, considering the specific learning needs of the student, and, finally, actively **teaching** and supporting the student in the behaviour that you need from them. Apply restorative practices to build and sustain positive learning relationships.

Clarify and Redirect:

Check that the student knows what to do. Students may not behave in the way that we expect them to due to confusion. Our instructions may have been a mystery to them; they may not know how to start the task, or they may not know what to do once the task or activity is complete.

Have a plan for when students don't know what to do and respond with clarifying instructions or information and redirect students to the behaviour we expect from them.

Note: we cannot just use this strategy in isolation – it is for low level support only. If we use it too frequently then off task behaviours may persist.

Examples: Clarify: "What is the activity that we are working on now?" Redirect: "Awesome, Billy, you know exactly what to do; now let's work silently to complete this task."

Clarify: "Can you explain to me what we are doing in this task?" Redirect: "Great, so you've got the first part; remember that we also need to make a brainstorm for question two. Can you do that as well?

Clarify: "Frank, where are you up to?" Redirect: "Great! You've finished. Now, in this class, what do we do when we have completed all of the tasks?"

Specify: All students are individuals. They come with different learning needs that are specific to them. At different times, they need assistance to help them to access learning. We try to understand what barriers are in place for students so that we can assist them to access the learning. This often requires a specific one-on-one conversation. Note: once we have understood some of the barriers to learning, we may require support from colleagues, specialists and/or whanau.	**Examples:** "What are you finding challenging about this work?" "Can you tell me why you weren't able to finish your homework?" "What have you enjoyed so far about Spanish? What have you found challenging? What makes it challenging?" "What do you feel most confident doing? What questions do you have about titrations?" What could we do differently next time to help you meet the next checkpoint?"
Teach: As kaitiaki of our classroom tikanga we sometimes will need to explicitly teach students the behaviour we wish to see from them. This might involve a conversation about behaviour, one-on-one. Keep this interaction restorative and supportive of the learning relationship. If possible, deliver the messages privately by speaking quietly or taking the students aside. Keep your focus on the primary misbehaviour and do not allow the student to move you on to side issues and to get you into public arguments. **Note**: if this continues, then follow restorative and faculty policies to support appropriately.	**Examples:** Name the behaviour that is occurring: *"Harrison, you are talking when I am giving an instruction to the class."* State why this behaviour is a problem: *"This is a problem because when I am giving an instruction, and you are talking others can't hear what the instruction is."* Describe the specific behaviour that you would like to see: "*When I am standing at the front and giving the class an instruction, you need to be silently listening without speaking."* Check for understanding: *"Can you do that for me?"* End on a positive: *"Awesome, Harrison, I look forward to seeing you tomorrow."*

TIKANGA - INCLUSIVITY, AND THE IMPORTANCE OF CONSISTENCY

The Tikanga in our classrooms needs to be established and cultivated. As teachers, we have guardianship for our students, their learning, and our classroom tikanga.

Tikanga and Teaching to the North-East
Effective Tikanga can come from us aiming for the Northeast quadrant.
In that quadrant, our focus is on ensuring learning, with the relationships we hold being a combination of *warm* and *demanding,* coupled with high expectations teaching and effective pedagogical approaches.
A team requires everyone to be working towards the same goal.
This can be called 'collective efficacy'.
Collective efficacy is about teachers working in the same direction to support student outcomes (Donohoo 2017).
John Hattie's Meta-study (2016, 2017, 2018) describes teacher collective efficacy as having the greatest impact out of all interventions on student outcomes.

Barriers to Collective Efficacy:
A lack of clarity or understanding around what is expected
Teachers not seeing the value in the change or agreed approach for them, or their students.
Teachers reverting to practices that feel more natural or comfortable to them Van Veen & Sleegers (2006)

Why be consistent in our classroom approaches?
"Having consistently high expectations and behaviour has got to be the fundamental base to build from to support students with special educational needs. Without a clear, consistent and relentless drive to ensure the school's

behaviour policy is followed by adults and students, the school culture can be seen as unsafe, unreliable and raising anxiety in many students" Reaves et al. (2018).

Working Memory Limitations

According to Miller, 1956: the brain can hold seven pieces of information in the working memory at once. This can include information from learning, as well as attention being paid to environmental and emotional factors

In a classroom this is more likely to be between three to five pieces of information, depending on inhibits around the person. It can be lower when there are other peripheral factors affecting working memory, such as neurodiversity. Miller (1956), Cowan (2001), Figueira et al (2017)

Reduce the non-productive drains on working memory, to enable its devotion to learning.

These non-productive drains can be called 'extraneous load'. This is cognitive load stemming from the way that information is being presented, and stimuli in the classroom. It does not aid learning, instead taking up working memory space.

Factors adding to Extraneous Load and considerations for addressing them	
Environmental factors such as noise, sights and smells, proximity to others and the role of devices. Inconsistency within and between classes	- How are you managing noise? - How are you managing seating? - Where is attention being directed? - What is your classroom environment like? - How are elements such as devices are managed to reduce distraction and secure attention? Bar Anan et al(2006); Cohen et al, (1980); Evans and Steckler (2004) Lang (2016, 2020) Montello, (1988) Uline et al, (2008)
Student hauora, including self-esteem, physical and mental health.	- Are your students ready and able to learn? - How do they feel about themselves, and how do they feel about themselves as students in your subject? - What do they think you think about them? - Do the students interact positively with each other? How is this supported, and what do you do when this is not the case? Baddeley, (1974), Cowan (2001) Figueira et al, (2017)
Inconsistency within and between classes	- What classroom culture have you shaped? - What roles are played by each student in the room? - How do you respond to behaviours that do not align with expectations? - What other routines are in place? How are these kept consistent? - How do you know these routines are understood by all? Bishop (2019; Reaves et al (2018)

TIKANGA – ENGAGEMENT NORMS FOR CLASSROOMS

As described by Bennett, supporting students to know *how* to behave in a classroom is a significant aspect of effective classroom management. One way that this can be supported is through the use of consistent *engagement norms.* Engagement norms reduce the overall cognitive load of an activity by reducing the amount of thinking a student will do around *how to* engage and indeed whether they will engage at all, instead allowing them to focus on the task at hand, and their engagement with it. They are a useful formative assessment strategy as well, with non-engagement visible and audible, suggesting the need for either further academic support or behavioural intervention.

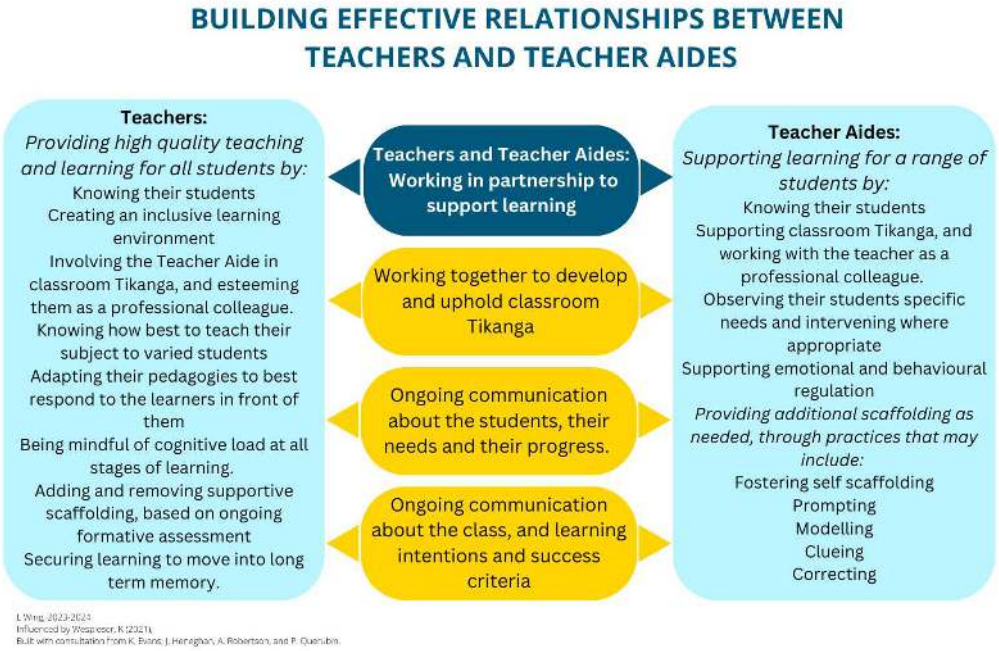
As with routines and classroom expectations, engagement norms should be actively taught and consistently reinforced. The engagement norm should not be a mystery for students to work out, nor should they be a one-hit wonder to be forgotten or only optionally present in lessons.

Examples of engagement norms and elaborations	
Attention norms, using cues such as “eyes front”, “listening this way”	*This should be coupled with teaching around the behaviours that would accompany such a cue. For example, do you expect them to turn and look at you or the board, to stop speaking, to take notes at the same time?*
Focus norms during direct instruction, with cues such as “track with me”, “listening only, no notes”	*Board instruction can devolve into students passively disengaging or being unsure of what it is they should be doing. Focus signals allow them to know for sure what it is they need to be doing. Again, when accompanied with explicit teaching of the engagement norm, students know what they need to be doing – for example, looking at the board, listening to the teacher.*
Verbalisation norms during vocabulary teaching, for example “let’s say it together” or “let’s break it down together”	*Expecting students to say new words with you, particularly breaking down complex words into their parts supports them in not only being able to use the word, but also being able to recall the word at a later date.*
Reading norms during teacher-led whole class reading, such as “read with me”, “bold words aloud only”, “group 1, read this line”	*This allows for students to remain engaged in group reading, with the expectation that they track the progress of the reading so as to allow them to vocalise their reading when cued to do so.*
Gesture norms, for example asking students to move their hands in different ways to denote different meanings of what is being taught.	*Enaction is an effective encoding and retrieval tool, allowing knowledge to be attached to certain gestures. When used during a period of direct instruction, students are more likely to be ‘thinking hard’ about what is being taught.*
Answering norms, such as expecting students to answer questions in full sentences, or include the question in their answer.	*This supports connection to the question, higher quality answers, and the application of the tier two vocabulary and complex sentences students need for academic writing.*
Think-Pair-Share norms, for example the number of students you will call on, how you expect them to engage with their peers, how you expect them to answer etc.	*Students knowing exactly how your use of think-pair-share will work, alongside their role within the think-pair-share will maximise its effectiveness and reduce wasted or inefficient time.*
Mini-Whiteboard norms, including how boards are collected and used, how answers are recorded onto boards, how boards are shown – for example, “3-2-1-show me”.	*Mini-Whiteboards can pose a distraction if there is uncertainty or low expectations around their use. Making the engagement norms for these boards very clear and ensuring that these norms remain consistent can support the boards to remain a highly effective tool.*

Adapted from Swain (2025)

TIKANGA – WORKING EFFECTIVELY WITH TEACHER AIDES

Teacher Aides play a critical role in supporting the learning of all students and should actively be integrated classroom Tikanga. Work with the Teacher Aide to establish how best to work together to support student learning and how you will work in tandem together. When establishing Tikanga with the class, ensure that there is direct consideration and reference to the Teacher Aide – your students need to know how they fit, and that you esteem them as a professional.



While they often may be attached to one specific student, they also can work with a range of students, or indeed support with an entire class. Along with supporting learning, behaviour, focus and emotional regulation, Teacher Aides can bring another perspective to planning and classroom approaches, as well as often holding specific knowledge of students as they journey through the day and their various subjects.

Teacher Aides can provide the following layers of support:

Layer of support	Explanation
Self-scaffolding	The TAs default position is to observe student performance, allowing time and space for them to process, think and try the task independently. TAs need to get comfortable with students struggling a bit and recognise this as an essential component of learning.
Prompting	This is where TAs might intervene with a "nudge": 'What do you need to do first?'; 'What's your plan?'; 'You can do this!'
Clueing	Often student know the problem-solving strategies that prompts are designed to elicit, but they find it difficult to call them to mind. Clues are a question or small piece of information to help student work out how to move forward. They should be drip-fed; always start with a small clue.
Modelling	Prompts and clues are less effective when student encounter a task that requires a new skill or strategy. This calls for layer four: modelling. TAs, as confident and competent experts, can model while student actively watch and listen, then try the same step for themselves afterwards.
Correcting	Correcting is where TAs provide answers and requires no independent thinking.

Parker & Webster (2021)

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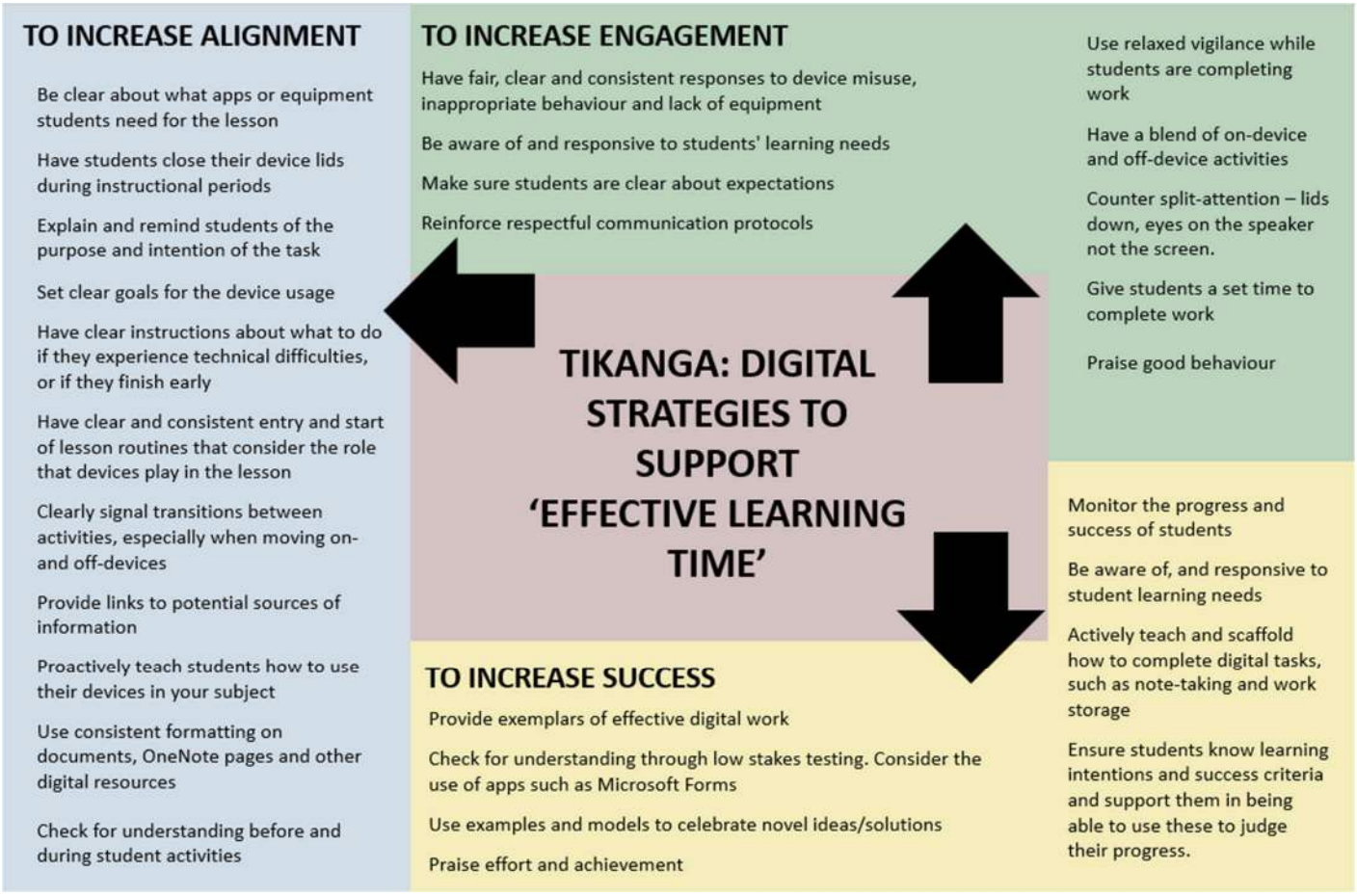
TIKANGA – DIGITAL STRATEGIES TO SUPPORT EFFECTIVE LEARNING TIME

Tikanga is our living classroom culture for learning.
This includes:

- Values of care, respect, creativity, and community being built, celebrated, and sustained.
- Interactions through a restorative lens.
- Positive relationships for learning.
- High expectations set, established, and sustained.
- Routines and expected behaviours being taught and sustained over time.
- Minimised disruption, providing greater opportunity to question, explore and think creatively.

Tikanga And Digital Technologies
The Tikanga we establish and sustain in our classrooms should be mindful of, and responsive to, the opportunities and challenges presented by digital technologies.
"Effective learning time" can be increased in our classrooms through a variety of strategies. These can be both *proactive* and *responsive.* These strategies are supportive of building Tikanga in our classrooms.

Proactive Strategies	**Responsive Strategies**
Create an environment where students know how they are expected to behave in advance	Acknowledge correct behaviour, correct incorrect behaviour



Simons, Lacey &Hughes (2022)

AKO – A PRINCIPLE FOR EXCEPTIONAL LEARNING

"Teaching is interesting because students are so different, but it is only possible because they are so similar" - Dylan William

Ako, our second principle of exceptional learning is about being experts in what we teach, and how to teach it. This includes knowing how best to teach your subject. It is knowing what strategies work best, predicting misconceptions, knowing how students engage with the subject and being knowledgeable in the subject itself.
In the classroom, this looks like sharing learning intentions and success criteria, asking frequent questions, checking for understanding and balancing challenge with confidence building. It includes strategies that support students in knowing that they have secured the learning they have undertaken.
Ako is about providing students with the opportunity to connect with teachers and their peers, as well as connecting themselves, their lives and their backgrounds to the learning. These practices can include student generated questions, co-operative learning and supporting students to meaningfully engage with feedback.
This chapter explores Ako in more detail, providing a range approaches and strategies that we have contextualised and trialled for Long Bay College. The chapter also explores formative assessment, as a tool for supporting both students and teachers to know how learning is going, and to identify next steps. Literacy is also featured, with supports for both reading and writing. Curriculum design is also covered in this chapter, with guidance around the components of effective schemes of work, as well as lesson design. We have also sought to engage with the challenges and benefits of artificial intelligence on the education sector, and as such, guidance on this area is included.

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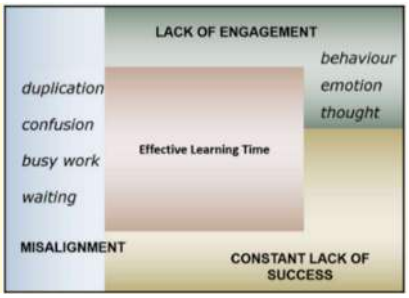
AKO – AN OUTLINE

Ako: know the student, know what to teach, know how to teach it. Know it has been learnt.
Ako is about supporting the best possible outcomes for our students. Ako is reciprocal. That means that it places the student at its centre and recognises that the teacher acts as kaitiaki of the learning of their students.

Graeme Aitken's "Effective Learning Time" model
Effective learning time refers to methods of teaching and learning that actively involve students in their own learning and personal development. Specific strategies addressing alignment, engagement and success grow the effective learning time in the classroom.

Graeme Aitken
'Effective Learning Time/Academic Learning Time' (2009-2021)



Know the student, know what to teach, know how to teach it. Know it has been learnt.
For exceptional learning to happen in our classrooms, we must be experts in both what we teach, and how to teach it. Pedagogical content knowledge is about knowing how best to teach your subject. It is knowing what strategies work best, predicting misconceptions, knowing how students engage with the subject and being knowledgeable in the subject itself.
In the classroom, this looks like sharing learning intentions and success criteria, asking frequent questions, checking for understanding and balancing challenge with confidence building.

When we 'know' the student, this means we:
Know the needs of your student, their background, their aspirations, and goals.
Centre the student within the learning in ways that respond to their interests, questions, and inspirations.
Listen beyond their words and respond to the person in front of you rather than your assumptions of who they may be.
Have high expectations of all students.
Add and remove scaffolds to support students.

When we know 'what to teach', this means we:
Take the perspective of your students – anticipate their misconceptions and build their confidence around core concepts.
Consider which key ideas and concepts need to be understood.
Consider what prior learning may have already occurred and connect new learning to this.
Consider what parts of this learning may be challenging for novices.
Share examples that support students in identifying how to approach a problem.

When we know 'how' to teach it, this means we:
Reduce duplication, confusion, busy work and waiting.
Use stories, models, and pictures to assist descriptions and explanations.
Ask regular, probing, and open questions to as many students as possible.
Share learning intentions and success criteria so students and teachers know where they are heading and whether they have arrived.
Make thinking clear to support student understanding.
Guide practice by providing clear expectations of great work and highlighting potential misconceptions.
Use models of excellence to support student responses.

When we know it has 'been learnt', this means we:
Check for understanding through questions that require students to demonstrate their understanding or level of fluency with a skill.
Support polished responses by asking for a verbal answer before a written one.
Provide students with feedback that supports continued learning.

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AKO – THE HIDDEN LIVES OF LEARNERS

Graham Nuthall, a professor at the University of Canterbury, conducted long running detailed studies of teaching and learning in real classrooms. His research spanned over 40 years and involved observation, audio/video recordings and interviews. Nuthall's *The Hidden Lives of Learners* has been a foundational text for both teachers and researchers. Based on decades of empirical work, Nuthall provides insight into both how learning happens, as well as suggestions for practitioners to secure learning in their classrooms.

The "Three-World" Classroom model

Students are heavily impacted by their individual experiences in the classroom. Nuthall posed a "three-world classroom" model that described the various "worlds" that students interacted with and within.

The Public World	The Social World	The Private World of the Mind
This is the visible and formal world, managed by the teacher. It is based around the planned activities, lessons, rules, and customs associated with the school environments and the curriculum. Teachers primarily operate within this world, observing students as they move through the teacher's routines, instructions, and planned learning tasks. At times, the teacher may have limited awareness of the other worlds.	In this world students are establishing and maintaining their social roles, something that for many is of great importance. It has its own rules and customs, and students are acutely aware of these as they navigate both this world, and the public world of the teacher. A significant degree of knowledge is passed through these social relationships, about the learning, the teaching, and about the social expectations of this world.	In this world the individual thinks and learns. They are making sense of information and are constructing knowledge, attitudes, and beliefs. The private world of the mind operates continuously between home and school, combining new learning with personal background knowledge and experiences. Self-beliefs and attitudes further shape how sense-making occurs, and the identities as a learner the student comes to hold.
This world is critical for student learning, with the decisions made by the classroom teacher shaping what and how learning occurs. Along with the management of the room and the activities, the teacher must also be monitoring student learning, making adjustments as needed. The teacher must take care to not attribute compliance with learning instead using varied formative assessment strategies, including those requiring the student to reflect upon their own learning.	The social world of peer relationships plays a critical role in shaping what is learned. Student talk facilitated by the teacher, and that which occurs organically, compounds learning. Teachers should facilitate student-talk as a tool for learning, providing opportunities for structured, rich talk in which students are able to learn effectively from each other. Importantly, teachers need to monitor all student talk carefully, securing a safe and calm classroom, supporting on-task engagement, and ensuring that student misconceptions are not spread and compounded.	It can be challenging ascertain for sure what and how learning has occurred. It is dependent on the often-unsaid thoughts and perceptions of the individual student. The role of the teacher is again to use formative assessment to ascertain the extent to which learning has occurred through strategies which require students to externalise their inner thoughts. This may include mini-whiteboards, cold-calling, show-calling with a projected exemplar, active circulation and talking with students, journaling, and exit-tickets.

Nuthall (2007)

The role of dialogue

Nuthall believed that the social world of the classroom was critical for the transmission and securing of learning and knowledge. Talk, both structured and unstructured is described as having great power. To harness this power, Nuthall suggested the teacher model and nurture inquisitiveness. Foundational to this, dialogic approaches.

"Dialogic teaching approaches involve teachers extending students thinking and understanding through talk, enabling them to expose and address misconceptions and gather real time information on student progress and achievement. It requires skilled teachers who can balance productive dialogue, critical thinking, and respectful interaction across different contexts". Geoff Barton, Oracy Education Commission (2024)

Modelling inquisitiveness	Strategy	Example
Ask open-ended questions	Use questions that invite exploration rather than yes/no answers.	What do you think might happen if we change this variable?' Why do you think this pattern occurs?
Think aloud	Verbalise your own curiosity and reasoning process.	'I'm wondering why this solution works, let's check the steps together. I don't know the answer yet, but here's how I'd start finding out.
Admit when you don't know	Show that not knowing is part of learning.	That's a great question! I'm not sure, let's research it together.
Model research skills	Demonstrate how to find answers using credible sources.	Let's check two different sources and compare what they say.
Encourage student questions	Create structures for curiosity	Wonder Wall: Students post questions they want to explore. Question of the Day: Dedicate time for inquiry-based discussion.
Connect to real-world context	Relate topics to authentic problems or current events	How might this concept help us solve real-world challenges like climate change?
Celebrate curiosity	Praise thoughtful questions and exploration.	That's an interesting question, what made you think of that? Great thinking! Let's see where this idea takes us.

Nuthall (2007)

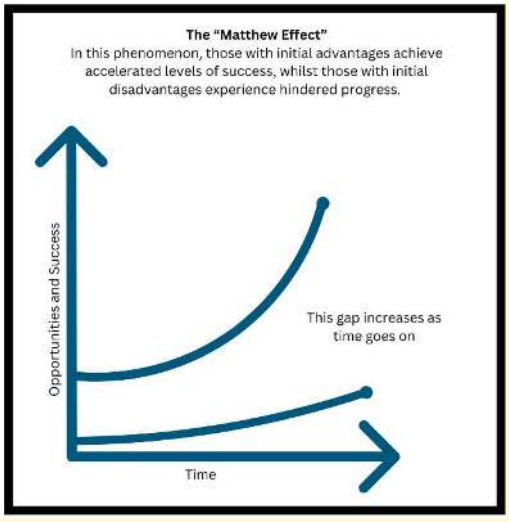
AKO - CONSIDERATIONS FOR CURRICULUM DESIGN AND APPLICATION

Curriculum is at its most effective when it is clear about the knowledge and skills that cannot be left to chance and need to be secured. Knowledge and skills are inextricably linked to pedagogy and assessment, with pedagogy supporting sense making for students, and assessment informing next steps for both teachers and students.

When knowledge, pedagogy and assessment are aligned, and of high quality, the magic happens. Our students are equipped to achieve their own very best. With that comes access to opportunities and equitable outcomes.

A Knowledge-Rich Curriculum

A Knowledge-Rich Curriculum sequences specific knowledge (including skills) as cumulative building blocks, both within and between years.
A well sequenced, considered knowledge rich curriculum supports equity by ensuring that no learning is left to chance.
"Closing equity gaps requires deliberately building prior knowledge for all students, especially those from disadvantaged backgrounds who may not have access to rich cultural or academic experiences outside school". Hammond (2025)



A knowledge-rich curriculum prioritises explicit, carefully sequenced knowledge as the foundation for learning.
It is not just about covering topics but ensuring that:
- Content is specified in detail, taught to be remembered, and sequenced coherently.
- Students build schemas - networks of connected ideas - so they can think deeply and critically.

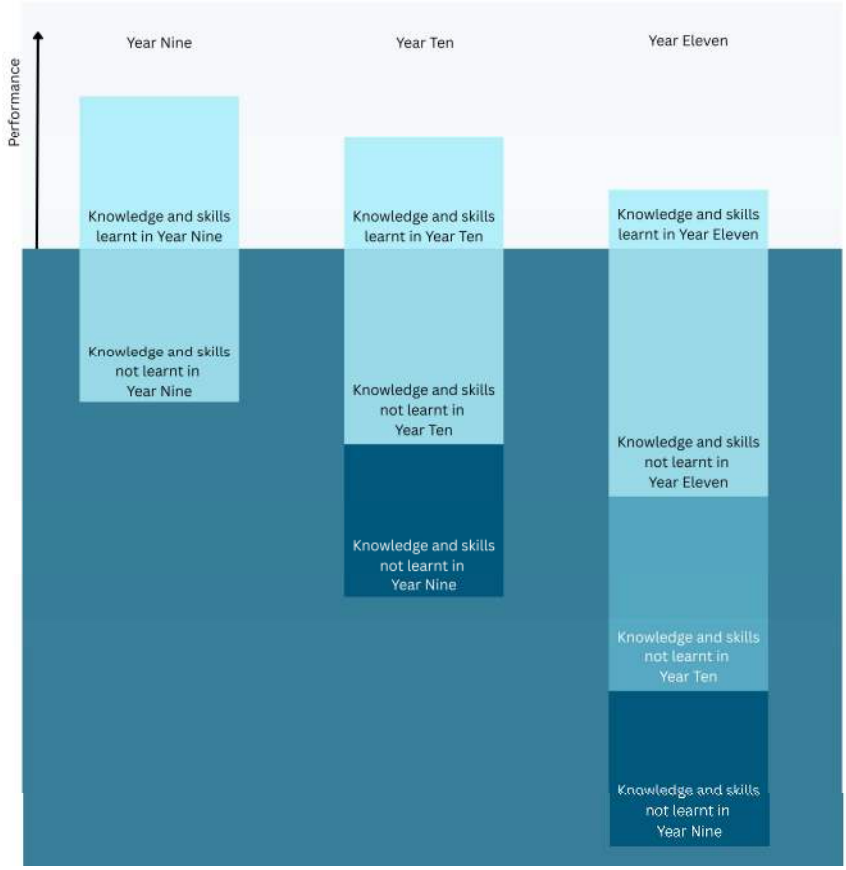
Effective Planning considerations

- Using the teaching sequence statements to ensure that all students experience the full scope of curriculum content.
- Designing units and plans that build logically across the year and connect to students' prior learning.
- Teaching statements from the teaching sequence together; these may be from the same strand, across several strands, and/or across learning areas to make authentic connections.
- Allocating sufficient time to key concepts and content, with opportunities to revisit and extend learning.
- Structuring learning experiences to deepen understanding through repetition, variation, and application.
- Planning for equitable access by identifying and removing barriers and intentionally building universal supports into the learning environment.
- Designing multiple pathways for students to engage meaningfully in learning experiences and demonstrate their progress.
- Using assessment to inform instructional decisions and support progress for all students.
- Supportive of the teaching of disciplinary literacy, and key numeracy skills.

The Impact of Missed Learning

The common phrase "just the tip of the iceberg" is often used when describing an issue that is larger than what is seen on the surface. Learning can be represented through the analogy of an iceberg. The bulk of an iceberg exists out of sight - 10% above the water, 90% below, and out of sight. When it comes to missed learning, whether it be literacy, numeracy, or indeed prior knowledge, the iceberg analogy is apt - while it may be clear that a gap may exist, the scale of the gap may be larger than initially speculated, and efforts to support a student in closing that gap may be woefully insufficient. These gaps tend to also compound over time if equity is not secured. The more a student misses, or lags behind in, the worse the effect may be.

The Impact of Missed Learning – The Iceberg Analogy



Mitigating the effects of the iceberg

The effect of missed learning can be mitigated by a knowledge rich curriculum and high-quality pedagogy. Learning that is deliberately sequenced and content rich ensures students build a strong foundation of concepts and skills, this reduces the risk of gaps that hinder future learning.

A well-planned curriculum alone is insufficient without the pedagogies that make the knowledge accessible, engaging, and deeply understood. High-quality teaching strategies, such as explicit instruction, scaffolding, and formative assessment, help all students connect new ideas to prior knowledge and apply them meaningfully.

These elements having the potential to ensure students can progress confidently and avoid the compounding impact of missed learning.

Adapted from Rose (2019) and Hammond (2025

CONSIDERATIONS FOR CURRICULUM DESIGN AND APPLICATION

L Wing, J Heneghan, 2023.
Influenced by R Bishop (2023), R Coe (2019), J Hattie (2012), T Sherrington (2016), R Tyler (1949) and D Wiliam (2011).

Knowledge and Skills

What do we need our ākonga to learn?

The curriculum we teach should reflect the most important learning for our ākonga, that cannot be left to chance. It should serve as a driving, underpinning philosophy.

Knowledge and skills should:

- Consider the futures of all ākonga and their needs for equitable access to opportunities.
- Be specific and clearly outlined to ensure equity for all ākonga.
- Be coherently sequenced and mapped to support ākonga to move from novices to experts. That sequence should be considerate of the order in which knowledge and skills is best learnt and the language that ākonga need to access the learning.
- Be responsive to our bicultural partnership and responsibilities under Te Tiriti o Waitangi.

Assessment

How will we know that learning has occurred? How will that inform teaching and learning?

Good assessment is a tool to gauge the success of teaching, provides ākonga with feedback about their learning mastery and allows teachers to plan responsive next step for learning.

Assessment should:

- Be coherently connected to taught knowledge and skills.
- Connect to learning intentions and success criteria.
- Comprise of both formative and summative elements to check progress during and at the end of the teaching process.
- Allow teachers to judge the efficacy of their pedagogies in supporting ākonga to engage with the learning of knowledge and skills.

Pedagogy

How will our ākonga learn most effectively?

Effective, proven in research and contextually relevant pedagogies are needed to support ākonga to engage with taught knowledge and skills and support its transition into long term memory.

Pedagogies should:

- Value ākonga, their cultural capital and their prior learning.
- Support ākonga to move from novices to experts.
- Allow ākonga to 'think hard' about the learning
- Consider the role of cognitive load and the zone of proximal learning.
- Encourage ownership and agency through clear learning intentions linked to performative success criteria.

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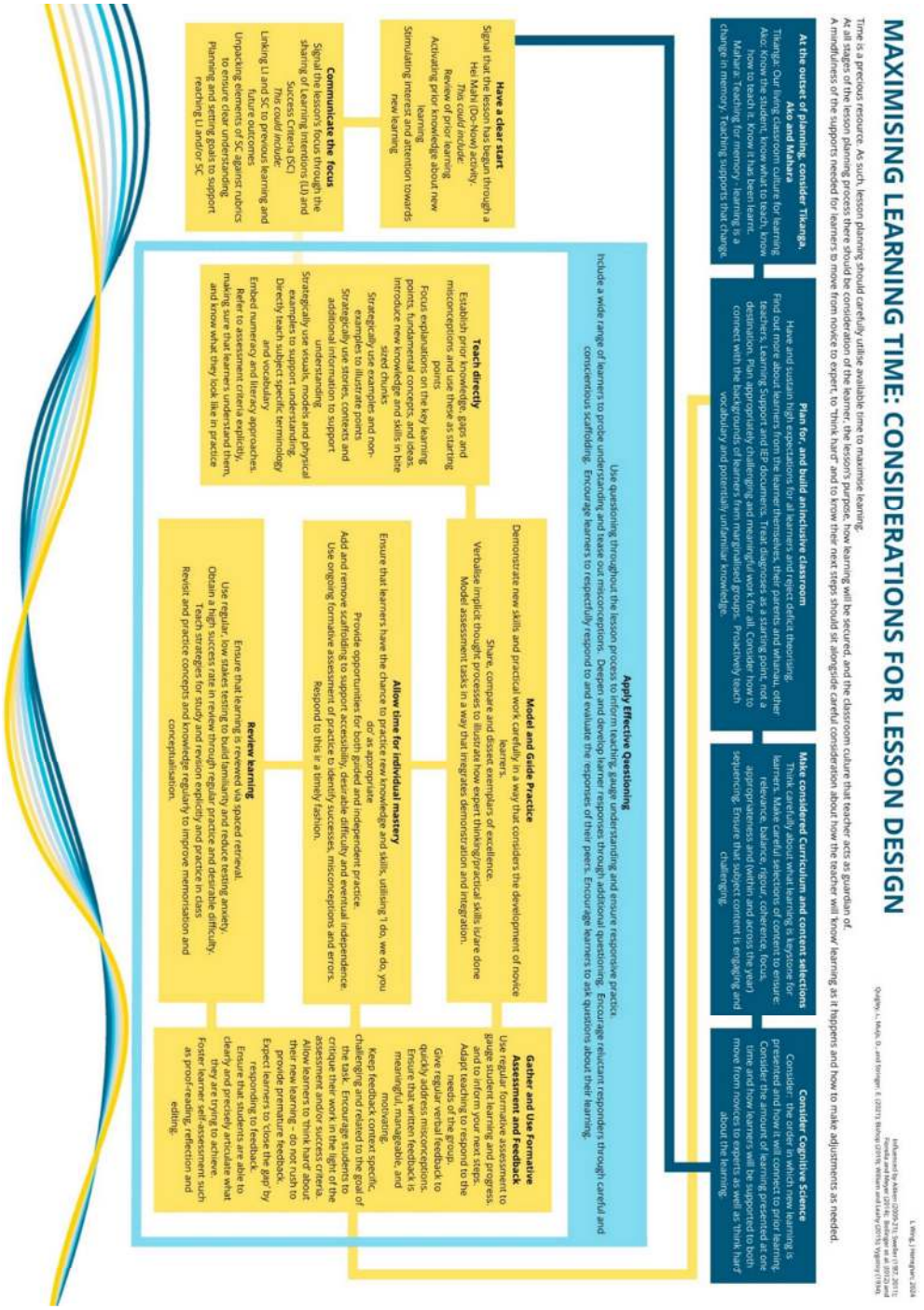
AKO – MAXIMISING LEARNING TIME: CONSIDERATIONS FOR LESSON DESIGN

To maximise effective learning time, lesson planning should be carried out with consideration and care. The graphic below discusses a series of considerations that are supportive of effective lesson planning and design at Long Bay College. Please refer to Tino Akoranga for further details about concepts and approaches detailed in the graphic.



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AKO - LEARNING INTENTIONS AND SUCCESS CRITERIA

"There is a need to make clear to students the type or level of performance that they need to attain, so that they understand where and when to invest energies, strategies and thinking and where they are positioned along the trajectory toward successful learning. In this way, they know when they have achieved the intended learning. Effective teachers plan effectively by deciding on challenging goals and then structuring situations so that students can reach those goals" – Hattie (2012)

Learning intentions and Success Criteria

Effect size of Teaching Strategies

Teaching Strategy	Hattie effect size
Learning intentions vs, no learning intentions	0.68
Clear learning intentions	0.48
Appropriately challenging goals	0.59
Teacher clarity	0.75
Collective teacher efficacy	1.57

Hattie (2009)

Developing high-quality learning intentions	
Characteristics of high-quality learning intentions.	- Clearly stated. - Brief. - Observable. - Statement of behaviour. - Distinct. - Written in language students understand. - Shared in advance.
Guidelines for developing learning intentions.	- Limit the number of intentions; keep them related to the key ideas the lesson is focused on. - Do not try to assess everything on every task. - Remember that smaller, less significant tasks typically require fewer criteria.
Questions to ask when evaluating learning intentions.	- Do the intentions make sense? - Can you distinguish one from another? - Can you envision examples of each? - Are they all worth assessing? - How will they be assessed?

What are learning intentions? *The planned input*	What are success criteria? *The performed output*
Signals to students: *"Where am I going?"*	**Signals to students: *"How am I doing?"***
Statement that explicitly describes what students should know, understand, or be able to do as a result of teaching and learning. - to understand - to know - be able to do Learning intentions identify new learning and focus on transferable skills.	Describes what successful attainment of the learning intention looks like. Success Criteria are the measures used to determine whether and how well a student has met a learning intention. Allows the teacher and students to make judgements about the quality of learning.
Archer (2018)	Archer (2018)

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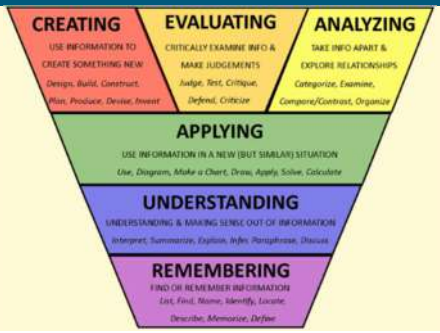
Learning intentions checklist	Success Criteria Checklist
I create and set learning intentions for my students. **The learning intentions are:** - Focused on what students are learning *(not the activity)* - Written clearly in student-friendly language. - Written without context/content *(when possible)* - Specific, Measurable, Achievable. - **Revisited throughout the lesson** Archer (2018)	**I create and set success criteria for my students OR create the success criteria with my students.** **The success criteria are:** - Performative (they are visible in the lesson) - Linked to learning intention - Easy to understand - Written in language that students understand. - Specific, concrete, and measurable - Scaffolding to support student performance. - The basis of feedback (teacher feedback, peer feedback, self-evaluation) - Supported by necessary exemplars or work samples if needed - **Revisited throughout the lesson** Archer (2018)

A routine to consider	High-quality success criteria should:
1. Learning intention statement constructed using active verb, specific to skill, knowledge, or understanding and written in developmentally appropriate language. 2. Unpacking of learning intention with class at the beginning of lesson. 3. Constantly displayed during class. 4. Use of examples and learning connected to learning intention. 5. Use of performance of understanding (what students are doing, saying, making, doing, or writing) to link to learning intentions. 6. Learning related to the learning intention is formatively assessed during the lesson. 7. Progress related to the learning intention is reviewed with the class at the end of the lesson. Randall (2020)	- Focus on the end-product - What should student know or be able to do at the end of the lesson or sequence of lessons? - Avoid vague or fuzzy terms. Example: Students will appreciate diverse perspectives. Better: Students will demonstrate consideration of divergent perspectives in their analysis of historical events by outlining the key views held by at least two key subgroups. - Appropriate level of specificity Too broad: Students will think critically. Too specific: Students correctly answer the critical thinking item on the final exam. Better: Students will analyse and evaluate arguments related to reasons for historical events. - Use concrete action words and relate to Bloom's taxonomy. Too fuzzy: Know, appreciate, understand, be encouraged. Better: Describe, write, create, explain, demonstrate

Bloom's taxonomy (1956)



Bloom's taxonomy of educational objectives identifies different cognitive domains associated with levels of learning.
Bloom's is hierarchical, meaning that learning at the higher levels is dependent on having attained prerequisite knowledge and skills at lower levels. High quality learning intentions directly consider Blooms taxonomy as they are developed.

Image: National Improvement Hub – Education Scotland 'Bloom's Revised Taxonomy Planning Tool' Adapted from the National Centre for Excellence in the Teaching of Mathematics, UK.

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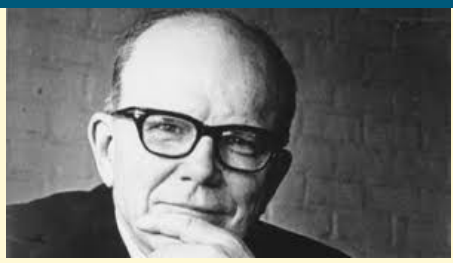
AKO – FORMATIVE AND SUMMATIVE ASSESSMENT

Assessment is a fundamental and vital part of curriculum. It can, and should take a range of forms, and be used at a range of stages within a teaching and learning cycle.
Assessment plays a crucial role in ensuring that learning progress and overall learning outcomes are known. It ensures that we can effectively judge what learning has been achieved, what has been retained in the long-term memory for later use, and what learning is still to come. Formative and summative assessment both play a role in this process, providing information about progress towards, and attainment of a learning goal.

The Tyler Rationale

The **Tyler rationale** is a foundational model for curriculum development in education, created by **Ralph Tyler** in his 1949 book *Basic Principles of Curriculum and Instruction*. It is one of the most influential curriculum theories of the 20th century and focuses on a systematic, goal-oriented approach to teaching and learning.



What educational purposes should the school seek to attain?
Establish clear learning objectives based on students' needs, societal demands, and subject matter.

What educational experiences can be provided that are likely to attain these purposes?
Choose learning activities that help students meet the objectives.

How can these educational experiences be effectively organised?
Sequence and structure learning experiences for coherence, continuity, and progression.

How can we determine whether these purposes are being attained?
Use assessment and evaluation to measure if students have achieved the learning objectives.

Intended (planned) Curriculum	Enacted Curriculum
What is planned for courses of learning, based on standardised approaches. *Summative assessment used to make judgements of student mastery*	What actually happens in classrooms to achieve the 'intended curriculum'. *Formative assessment pedagogies used as a key 'way of knowing*

Formative Assessment	Summative Assessment
Takes place during the learning process, as students move from novices to experts. It continually informs the teacher and the student as to how learning can move forward as it happens and Typically has lower stakes and is not used for formal reporting. Should be geared toward "identifying consequences." To be effective assessments, need to have the following features: **Specific:** focused on narrow concept domains – to allow precise gaps to be identified. **Frequent:** building on the idea of regular retrieval to develop long term memory. **Repetitive:** To ensure skills and retrieval are practised in a focused manner.	Focuses on evaluation of student learning at the end of the process. For example, an end of topic test is not used as a low stakes strategy but has increased stakes and is often used for more formal recording and reporting. Should be aimed at "creating shared meaning" – has meaning beyond an individual classroom allowing comparison. To be effective, assessments need to have the following features: **Standard Conditions:** Time, resources, assessed task are the same for all as much as possible. **Scaled Scores:** Allowing comparison between classes in a cohort. **Sampling a large curriculum domain:** Supporting broad curriculum delivery. **Infrequent:** Supporting teachers in having more time to teach.

ASSESSMENT MYTHS

Assessment, both formative and summative can often be misunderstood. This misunderstanding driving disengagement from what is a critical aspect of teaching and learning and an essential tool in the teacher tool-kit.

FORMATIVE ASSESSMENT MYTHS	SUMMATIVE ASSESSMENT MYTHS
Formative assessment is a noun.	Summative assessment is always a test.
Formative assessment is a verb. It happens multiple times during the instructional period. It is ongoing, and a way of knowing if the students are understanding the new learning that they are engaging in.	Summative assessment can take many forms —projects, essays, oral presentations, portfolios — as long as it judges learning at a point in time, and is representative of the breadth of knowledge that has been taught.
Practice assessments are formative assessments.	Summative assessment is only for grading.
A practice assessment generally assesses a substantial amount of knowledge from across an instructional period. Even if it is a practice-run, and may not be reported on, it is still a summative assessment	While it contributes to grades, it can also guide curriculum decisions and inform system-level planning. It also provides teachers with feedback on the effectiveness of the pedagogical choices they have made during the teaching and learning cycle.
Formative assessment is just quizzes and tests.	Summative assessment cannot be used formatively.
Formative assessment includes a wide range of strategies beyond tests—such as observations, discussions, peer feedback, self-assessment, and exit tickets.	When used reflectively (e.g., error analysis), summative tasks can help inform teaching and learning, including the identification of misconceptions, and areas in need of further support.
Formative assessment is always marked.	Summative assessment is always stressful for students.
Formative assessment may not be marked, and fed-back on. It depends on the formative, and your intentions for the formative for the students and yourself as the teacher.	While testing can cause some anxiety and stress for students, regular exposure to testing, coupled with a classroom culture where mistakes are framed as part of learning can support summative testing to be a positive experience for students.
Formative assessment does not require planning in advance.	Summative assessment should reflect everything a student knows.
Effective formative assessment requires intentional design and alignment with learning goals. This ensures that the formative assessment provides meaningful feedback on learning.	Summative assessments should be broad, and representative of the learning of across a sequence of learning, however they do not need to include all aspects of that sequence
Formative assessment should occur at the end of the lesson.	Summative assessment is unfair.
Formative assessment can be done at any point in the lesson. It can even be done the following lesson. The more important element is that it happens continually.	Teachers should consider their students in the design of their assessment, and ensure that accommodations can be used alongside the assessment by students entitled to them.

Wing & Heneghan, 2025

Considering The Formative Process

Formative assessment design and implementation should consider:

Intentions, approaches, outputs, adaptations

- **Intentions** – How are students doing, what do students need to learn, what do students already know.
- **Approaches** – The supplication of a strategy as a tool for formative assessment. The strategy in isolation is not formative assessment.
- **Outputs** – Demonstration of success criteria, evidence of learning, the feedback that moves the student forward, Student understanding of their own learning.
- **Adaptations** – the changes made to practice considering inputs and outputs.

Within this process should be the consideration of the following questions:

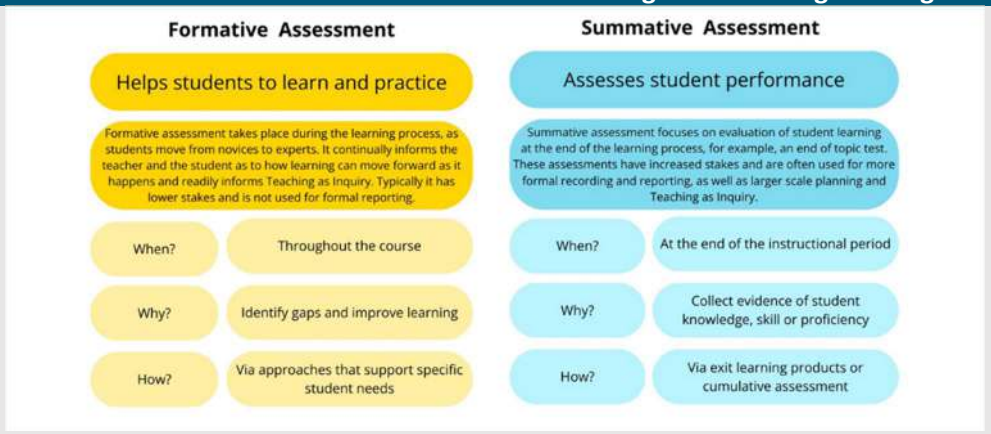
- How am I supporting my students to move from novices to experts?
- What are the next steps for my students, and how do they know these steps?
- How am I adding and removing scaffolds along the way to ensure my students remain in the Zone of Proximal Learning?
- How can I adapt my teaching to support my students to reach the destination?

Change up your formative approaches

Critically, the approaches used for formative assessment should not remain static. The same formative assessment approach when used repetitively reduces its overall efficacy with students lose the opportunity to learn in different ways.

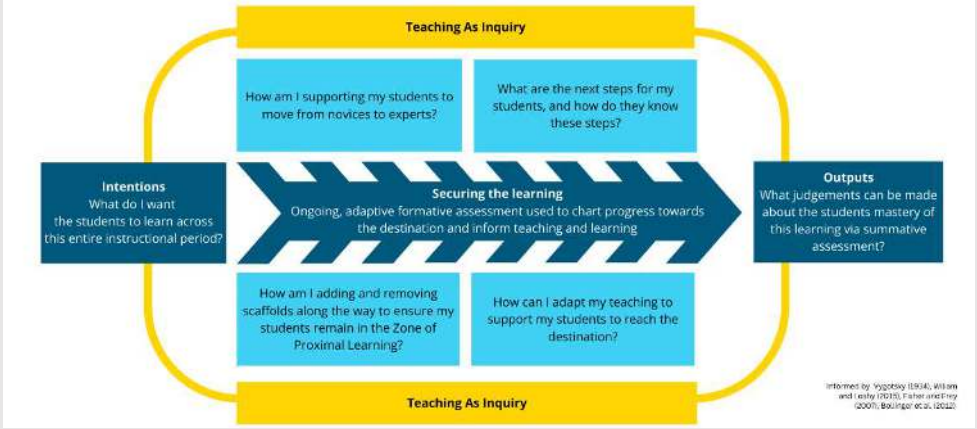
A range of formative assessment approaches ensure that learning remains diverse and interesting.

Formative and summative assessment: informing and assessing learning



Wing & Heneghan (2024)

Formative Assessment: informing the teaching and learning journey

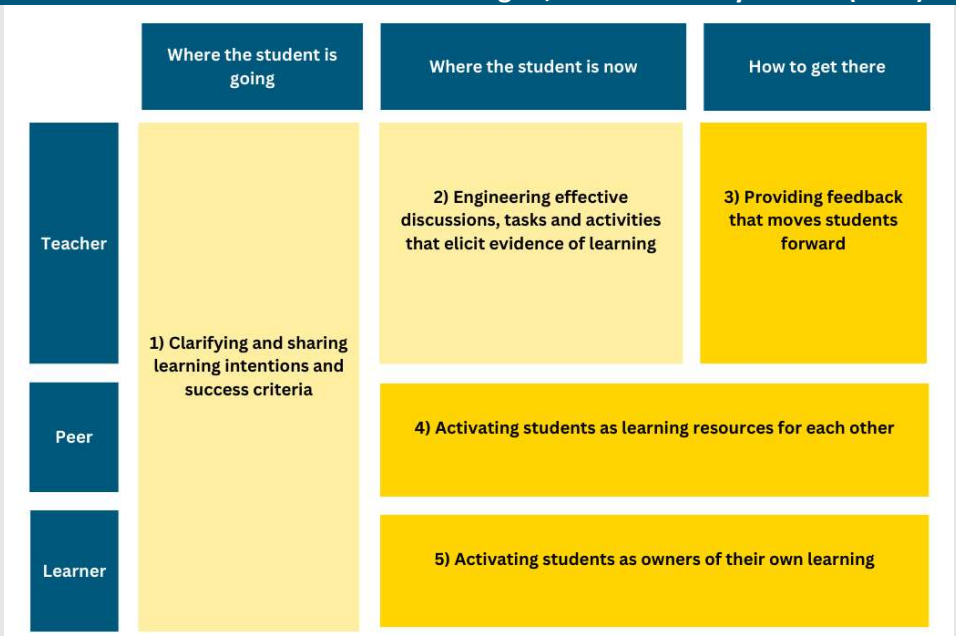


Wing & Heneghan (2024)

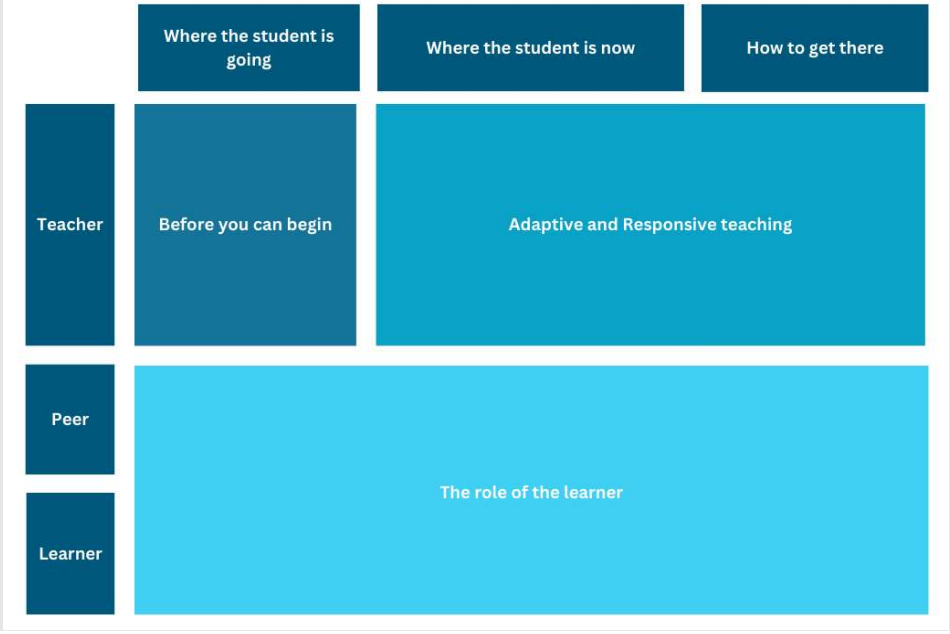
AKO – ESSENTIAL FORMATIVE ASSESSMENT APPROACHES

Dylan Wiliam (2011) describes five essential formative assessment approaches, which, when used in conjunction with each other ensure that teachers have a clear understanding of where their students are at, and what their next steps are. The approaches also supporting student to be in the drivers' seats of their own learning, by ensuring that they too know where it is that they are going with their learning, what their next steps are, and what success looks like for themselves and their peers.
The images below map out these approaches, considering who is essentially 'doing' the appropriate, and the stage aspect of formative assessment that is being responded to. The first graphic provides the specific approaches, whilst the second graphic considers the stages of learning and assessment.

Effective Formative Assessment strategies, as described by Wiliam (2011)



Teacher and student roles within formative assessment, as described by Wiliam (2011)



Graphics adapted from Wiliam (2011) by Heneghan and Wing (2024).

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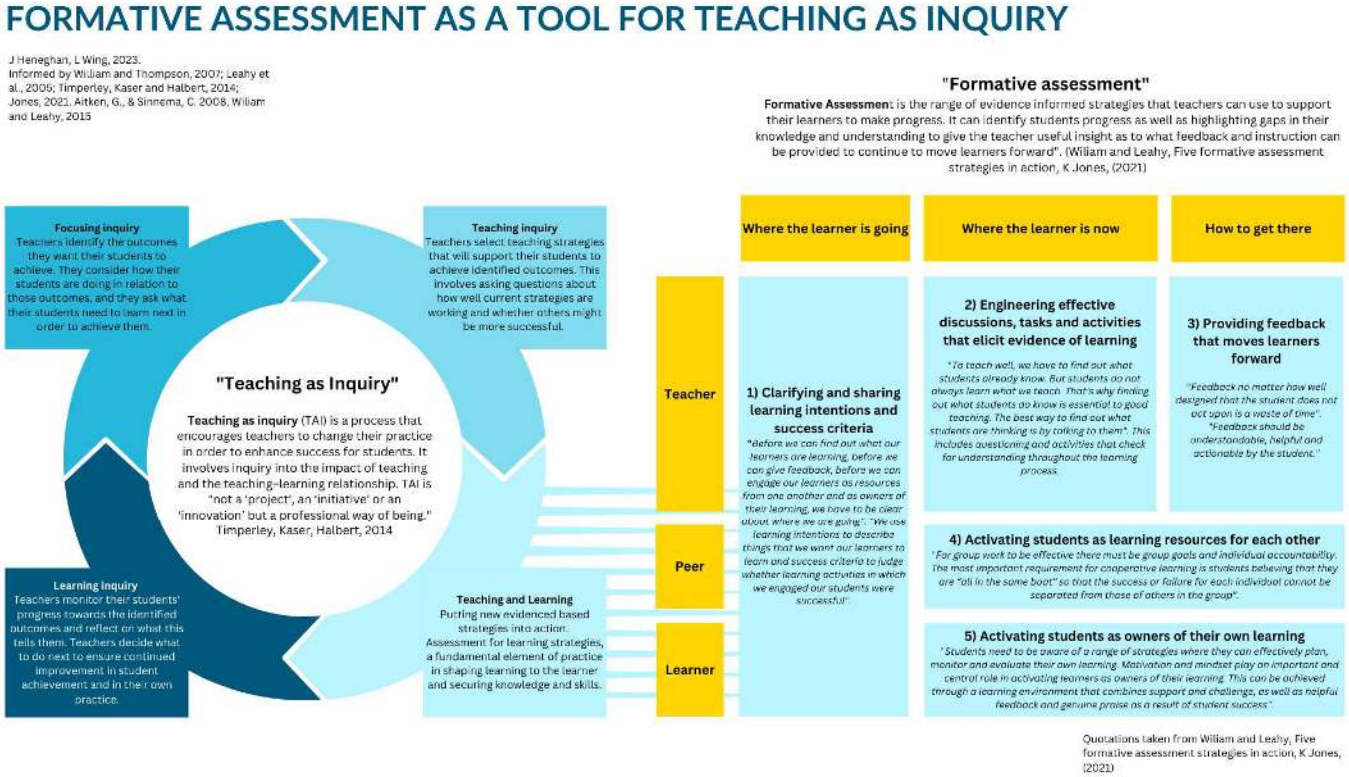
AKO - FORMATIVE ASSESSMENT AS A TOOL FOR TEACHING AS INQUIRY

Assessment is a fundamental and vital part of curriculum. It can, and should take a range of forms, and be used at a range of stages within a teaching and learning cycle. Formative Assessment, carried out during a course of learning can inform teachers and students about progress made, and next steps for learning.

"Teaching as inquiry" is described by Timperley, Hauser and Halbert as "a way of professional being". In practice, it cultivates the inquiring and reflective teacher. The adaptation of teaching to learning and to the student, a fundamental of practice that relies on a toolkit of formative assessment strategies. The graphic below considers both "Teaching as inquiry" and five key strategies supporting formative assessment that support an inquiring mindset.



AKO – RELATIONAL PEDAGOGIES AS AN APPROACH TO FORMATIVE ASSESSMENT

Many teaching approaches can be used as formative assessment. That said, robust planning and consideration of intentions, specific approaches, outputs and adaptations are critical to ensuring that formative assessment actually occurs, and that it occurs as intended. Effective relational formative assessment allows students to consider their own learning in the context of their peers, share in the learning of their peers, and collectively make academic progress with their peers. Done well, and with consideration of high-quality pedagogy, co-operative formative assessment is relational, and fundamental to culturally responsive practice.

Effective Relational Pedagogies as an approach to formative assessment	
Why relational pedagogies via group work? Adults are required to work together in their jobs and communities, schools should prepare young people to work in this way.Having students work together can produce greater learning of subject matter than would be possible by having students work individually or in competition with their peers. Students are also able to judge their own learning compared to their peers, giving them a clearer picture as to their own progress.	**Group work and broccoli?** Group work can be like broccoli. Not everyone likes broccoli. Like broccoli, not everyone loves group work. But broccoli is good for you, and when prepared well it can be fantastic. Group work is the same – set up well and with a clear purpose, and it can be both enjoyable and educational for all involved.

The benefits of group work

Motivation: students help their peers to learn because, in well-structured cooperative learning settings, it is in their own interests to do so, and so effort is increased.
Social cohesion: students help their peers because they care about the group, again leading to increased effort.
Personalisation: students learn more because more able peers can engage with the particular difficulties a student is having.
Cognitive elaboration: those who provide help in group settings are forced to think through the ideas more clearly.

Effective Group Work

"*For group work to be effective there must be **group goals** and **individual accountability**. The most important requirement for cooperative learning is students believing that they are **"all in the same boat"** so that the success or failure for each individual cannot be separated from those of others in the group".*
- Dylan Wiliam

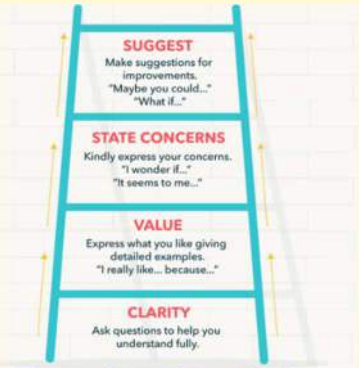
Starting with pairs

A culture of group work starts small. Pair work allows for the fundamental roles in the group to be very clear and mutual interdependence to be assured – the success or the failure of the pair is dependent on both members.
This is described as the Ringelmann effect, where the addition of more people does not improve outcomes after a point, and in fact individual outcomes decrease.
Approaches can include:

- Think, Pair, Share
- Peer Assessment

Supports for Peer assessment can include:

- The Perkins Feedback ladder
- Peer Assessment Guides for receiving and giving peer feedback such as those by Ron Berger (2003).



Wilson (2018)

Progressing to larger groups

Larger groups pose a greater challenge than pair work.
Students must know what is expected of them, be invested in the success of the group and have clear scaffolds to support their success.

Metacognitive Training To Develop Comprehension
Guided small group discussion:

- Discuss the problem with the others in your group.

Use the following questions:

- Diagnostic: What is the problem about?
- Strategic: Which strategy is appropriate for solving the problem?
- Connection: How is this problem/task different from what you have already solved?
- Reflection: What were the difficulties you felt during the solution process

Approaches can include:

- The use of discussion scaffolds such as those of Barnett, Lawless, Kim, & Vista (2017)
- Jigsaw methodology Socratic Conversations

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AKO - FEEDBACK

Feedback is information that a student receives about their performance in relation to a learning goal, given with the intent of securing improvement in the students' learning. As such, teachers need to ensure that they are giving feedback that is geared to and capable of securing this improvement. Feedback is also a powerful tool for addressing student misconceptions, allowing for teachers to identify, correct and re-teach areas that have been misunderstood during the teaching process, ideally before these misconceptions are committed to memory.
Feedback can take a range of forms – verbal, written, on tests, or digitally, from a teacher, a teacher aide, or even from the peers of the student. The form of the feedback will shape the outcomes that it is able to secure and a mindfulness of what is best for the student should be centred in all approaches.

Collin & Quigley (2021)

"Feedback, no matter how well designed, that the student does not act upon is a waste of time"
Wiliam & Leahy (2015).

Feedback should consider

The groundwork that is laid before feedback is be given	What information is given, how it is given, and when it is given	How students use the information that is given to them

Effective feedback answers three questions:
Where am I going?
How am I going?
Where to next?

Hattie and Timperley (2007)

"Students want to learn, but they want to do so in a context where they are not embarrassed, where feedback is normal and not something to be feared, where they are not singled out from their peers, and where achievement is a common goal."

Russell Bishop (2019)

Key Features of feedback

Feedback must connect to the Learner's Experience
Nuthall argued that teaching and feedback only matter if they intersect with what students are actually thinking and doing. He noted that to understand teaching's impact, we must start "at the closest point to learning: the student's experience"

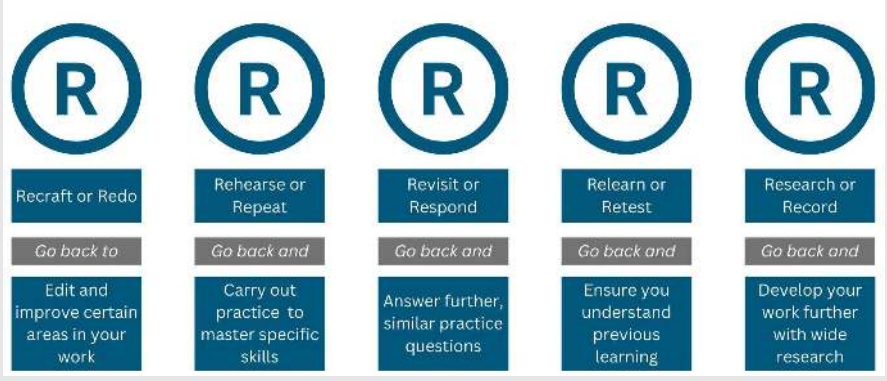
Feedback should be formative and interactive
Nuthall's research highlighted the need for formative assessment and feedback that helps students answer three critical questions: Where am I going? How am I doing? Where to next?

Social context shapes feedback
Nuthall showed that peer influence and classroom social dynamics strongly affect how feedback is received. Peer culture can amplify or undermine teacher feedback, making the classroom a complex ecosystem for learning.

Nuthall (2007)

Feedback should:
Cause "thinking" and invoke "doing"
Provide guidance on how to improve
Be precise – do not give vague praise (or critique!) or suggestions that the student cannot action.
Make explicit reference to mark-schemes/rubrics
Not give complete solutions – the student should be doing some of the "detective work" and responding to the feedback.

Sherrington's 'Five Rs' of Feedback Adapted from Sherrington (2017)



Good feedback is actionable feedback. Students need to be able to 'do' something, based on the feedback you have given.

Feedback as "detective" work

Students need to be spending more time with the feedback we give them, then we spent giving them the feedback.
This supports them to have greater metacognition and ownership of their learning.
One approach for this is to turn your students into detectives through the phrasing of the feedback we give.
Essentially, aiming to turn statements into questions or prompts for students to respond to. As we do this, it is helpful to consider the specificity of the feedback being given, as well as Sherrington's Five 'Rs' .

Feedback as information	Feedback as detective work
"You've done a really great job here! The final two blocks are the wrong way around though! Shall we try again with these different objects?"	"You're nearly there, but two of these are the wrong way round. Can you see which ones they are?"
This feedback has offered praise, without being specific about what was "really great". It then gives the answer without requiring the student to make corrections to their original work.	*This feedback requires the student to take further action. They know something is not right, but they need to look closely to find out which.*

Wiliam and Leahy (2015)

Laying the ground work for effective feedback

Provide high-quality initial instruction

'Feedback can only build on something; it is of little use when there is no initial learning or surface information. Feedback is what happens second' (Hattie & Timperley, 2007).

If you teach well initially, you will not need to give as much feedback. Ensure that your teaching has been delivered in such a way that students are able to learn.

High-quality, or effective teaching may include:

- Managing learning opportunities
- Ethnicity informs culturally responsive practices but does not overshadow the teacher's role in creating equitable learning opportunities.
- Creating a culture of enquiry
- Using a range of data to inform practice
- Providing multiple encounters of learning
- Engaging in frequent formative feedback
- Focusing on individual students' needs
- Understanding the learning process
- Recognising the role of student experience.
- Understanding the limits of "I do" practice.
- Activation of prior knowledge.
- The use of rich examples, analogies, illustrations, explanations, comparisons, and demonstrations.
- A consideration of cognitive load and how knowledge can be chunked and sequenced.
- The use of modelling and exemplars to support student understanding, with these accompanied by fading and the removal of scaffolding to support student independence.

Nuthall (2007), Collin & Quigley (2021)

Use formative assessment to ascertain student learning during the teaching period

As described in other parts of this book, formative assessment is an integral part of the teaching and learning process. Formative assessment ensures that your teaching can adapt to the needs of your students, and your students are aware of their own progress in their learning.

Effective formative assessment should include all elements considered in the Wiliam grid.

- Sharing learning intentions and success criteria, including guidance around what 'success' embodies, and providing students with opportunities to judge if they have met the criteria.
- Eliciting evidence of learning to support teachers in knowing what has and has not been learnt. This including the use of questioning, student response systems, and carefully designed tasks.
- Providing feedback to move students forward, in this case this the smaller, less formal feedback that allows students to continue to progress in their overall learning.
- Activating students as instructional resources for one and other, for example through pair and group activities, discussions, pair-feedback and teaching approaches.
- Activating students as owners of their own learning through the use of rubrics, self-review, and metacognitive approaches.

Wiliam (2018)

The right feedback at the right time

Once students have completed their initial learning, and formative assessment has been applied, feedback should follow. This should provide students with information on their learning, and, as discussed, provide information on how they may improve their learning.

Effective feedback

- Addresses task goals directly.
- Draws attention to positive elements of performance.
- Refers to changes from previous performance.
- Element of self-assessment by students.
- Processing: focus on learning processes needed to understand and perform task.

Hattie and Clark (2019)

Ineffective feedback

- Is given to students who do not understand the goals of the task, or its success criteria.
- Is solely focused on errors (includes punishment).
- Is focused on comparison with other students, or marks and grades.
- Has a reliance on extrinsic rewards.

Comments on personal qualities that provide little information about processes or performance.

Effective timing?

There is no consensus on the exact right time to give feedback. There does not appear to be a simple answer. However, we do know that best time to give feedback depends on the task, the student themselves, the wider class, and the timelines present for their learning, and their progress.

The Task

The timing of the feedback may depend on the task the students have completed. If it is a self-marking task, little feedback may be needed at all, the same with a task requiring the student to self-evaluate. Additionally, if the task signals to the student the mistakes that they may have made along the way, additional feedback may not be necessary.

Alternatively, other tasks may not, and in these cases timely feedback is important to ensure that errors are not codified into practice.

Some tasks may require more time spent by teachers giving feedback due to their complexity. With these tasks it is helpful to consider if smaller chunks of the task can be reviewed, and feedback given along the way.

Collin & Quigley (2021)

The Student

The timing of feedback can differ from student to student. Some benefit from immediate intervention, whereas others benefit from more time to process and problem solve with greater independence.

Teachers should monitor their students' engagement and progress in tasks, watching for unproductive struggle and intervening where they are needed. Conversely, in other cases unnecessary intervention can be counter-productive for some students, who in would have benefitted from working through the problem with greater independence. Finally, some students benefit from a little bit of well-timed feedback, without the need for great detail at any one time.

Fyfe & Rittle-Johnson (2017) Fletcher-Wood (2018), Wiliam (2019)

The class

Where is becomes evident that a misconception is widespread it is often beneficial to provide feedback to students before the misconception becomes further embedded. This may be through the provision of whole-class feedback, reteaching, or through checking individual work for the same issue then giving collective as well as individualised feedback to students.

Collin & Quigley (2021)

At times, the teaching and learning sequence may dictate the timing of feedback. If students are working towards the completion of a particular unit, feedback given within a timeframe that allows for improvement to be made is important.

Supporting students to use the feedback we give them

Student may or may not seek, engage, or indeed even welcome feedback. Furthermore, students may not be able to use the feedback we give them. As with timing, there is no perfect, one-size solution here.

Factors that can impact how students do (or do not) engage with feedback include:

Motivation and desire for feedback	Self-confidence and self-concept	Trust in the teacher	Working memory

Motivation and desire for feedback

Students must *want* feedback for it to be effective. Not all students are motivated by the same feedback either. Some will desire feedback about their learning and skills, others will want feedback directly addressing assessment performance.

Beckmann, Beckmann & Elliot (2009)

Trust in the teacher

Where trust does not exist between the student and the teacher, the likelihood of feedback being rejected increases. They may see feedback as criticisms, or unfair. Students also need to trust that their teacher is an expert in their subject, and that their feedback on their learning is worth engaging with. Where students trust their teacher and their competency as a teacher feedback is far more likely to be internalised.

Yeager et al (2014)

Self-confidence and self-concept

What students believe about their abilities, and their confidence in their academic performance shapes how they will and will not engage with feedback. If the feedback affirms their self-confidence and self-concept, they are more likely to engage with it, and the inverse is also true.

Baadte & Schnotz (2014)

Working Memory

If the working memory (see Mahara chapters) becomes overloaded, students are not able to engage with the feedback they are given. While the commonly understood range of working memory is 4-7 pieces at any one time different students will have different capacities to engage with information, with additional learning needs, pastoral and wellbeing challenges, and existent schemata all impacting this number.

Fyfe & Rittle-Johnson (2016)

Intentional approaches to secure student engagement with feedback

Use learning intentions and success criteria as the foundation for peer feedback.

- Students need to know what "quality" looks like before they can evaluate each other's work effectively.

Focus feedback on process, not just product.

- Encourage students to comment on how the work was done (strategies, reasoning) rather than only correctness. This deepens understanding and avoids superficial feedback.
- Avoid comparisons with other students or comments on personal qualities, keep feedback task-focused and constructive.

Teach feedback protocols explicitly

- Introduce structured routines such as: Where am I going? How am I going? Where to next?
- These questions guide students to give feedback that is goal-oriented and actionable.

Provide exemplars or work samples to model expectations.

- This reduces ambiguity and helps students anchor their feedback in concrete standards.

Model how to respond to feedback and act upon it.

- Without explicit modelling, students may ignore feedback or fail to use it productively.

Use collaborative structures (Think-Pair-Share).

- Students first reflect individually, then discuss with a partner, and finally share with the class.
- This encourages attentive listening and nuanced questioning, which improves the quality of peer feedback.
- Assign roles and provide clear prompts for each stage to ensure accountability and depth.

Build a Safe and Respectful Environment.

- Normalise feedback as part of learning so students do not fear embarrassment.
- Frame it as a shared goal for improvement rather than judgment.
- Promote a growth mindset so students see feedback as an opportunity to improve, not as criticism.

Nuthall (2007)

Classroom approaches for encouraging students to engage with feedback:

Discussing the purpose of feedback
Providing clear, focused and concise feedback
Making sure that the feedback given is understandable to the student, and that it is understood.
Actively planning time for students to engage with the feedback they have been given.

This may include detective-style activities, where students might be given clues about their work, such as "one of these is incorrect, tell me which"; class discussions of the feedback; the "three-questions" approach, where students are given three questions as part of their feedback that they must answer; being given similar tasks to complete, based on the feedback they were given; and last but not least, recrafting the work, based upon the given feedback. Collin & Quigley (2021)

Types of feedback

Types of feedback	Main feature	Includes	Example from a more knowledgeable other	Example provided by self
Task/product (corrective feedback)	Feedback is aimed at whether the work is correct or incorrect.	Directions to acquire more, different, or correct information and building more surface knowledge.	"Your paragraph does not yet match the criteria for what makes up a paragraph."	"My answer is not correct yet. I checked it against the criteria for what makes up a paragraph."
Process	Feedback is aimed at the process used to create a product or extend or to complete a task.	Feedback provided on the means of processing information, learning processes regarding understanding, or completing a task, detecting errors or error correction.	"To meet the criteria, you need to expand the sentences so that they cover all the parts you have signalled in the topic sentence.	"I need to check to see if my paragraph matches the criteria. I will check to see if I have covered everything, and will add anything I have missed."
Self-regulation (the metacognitive attribute of the task)	Feedback is aimed at improving student's self-evaluation or confidence to engage further on a task.	Students gaining greater skills or confidence to engage further in a task. Developing capability to create internal feedback and to self-assess. Developing the willingness to access and engage with feedback. Increasing the degree of confidence or certainty in responses. Identifying the attributes of success or failure.	**"**What happened when you checked the paragraph against the criteria we developed at the outset of the lesson?" "Is there a match? If not, how can you explain the difference? And how would you rectify any omissions?"	"I think I could expand on the sentences I have provided by sticking more closely to the structure I signalled in the original plan." "I can improve on the quality of these sentences by offering more elaboration of the main points and providing examples for each main point."
Personal/behaviour	Feedback is aimed at personal attributes and behaviour, rather than at the task or the process.	Feedback to the person, their behaviour, and aspirations for praise.	"Well done. You are an excellent student". "Your behaviour is excellent."	"I am behaving as expected by my teachers and my peers."

Bishop (2019)

Verbal feedback

Verbal feedback should go beyond simply explaining marks. It should open a dialogue that helps students understand their progress and next steps.

Practical strategies to support verbal feedback include:

Group observation and feedback:

Students complete work during the lesson while the teacher observes, questions and gives feedback to a specific group of students.

All students are spoken to on rotation within a group over a given period of time.

One to one feedback:

The teacher calls students up one at a time to ask probing questions about their learning, rather than just explaining a mark on a piece of work.

Review lessons:

These lessons provide focused time for teachers to engage with students in a dialogue about learning.

These may occur in the middle or at the end of a unit of work. In this time students can complete reflections on their learning in writing, while the teacher circulates. Nuthall (2007)

Targeting verbal feedback at the learning intentions and success criteria.

Ensure that your verbal feedback uses the same language of your initial learning intentions and success criteria, as this demystifies the process and supports greater structure and focus.

'Action points'.

When too much verbal feedback is given at once, working memory may become overloaded.

Have students record the key ideas, actions, goals, or next steps from your verbal feedback. Provide them with opportunities to act upon these points.

Verbal feedback using a visualiser.

A visualiser of previously completed and ongoing work presented alongside the verbal feedback can act as an anchor and support focus.

Video or audio recording.

Video and audio recording can support teachers to record feedback that students can then replay.

Technology may be useful to the feedback process; however it must fulfil the principles of effective feedback.

Quigley & Collin (2021)

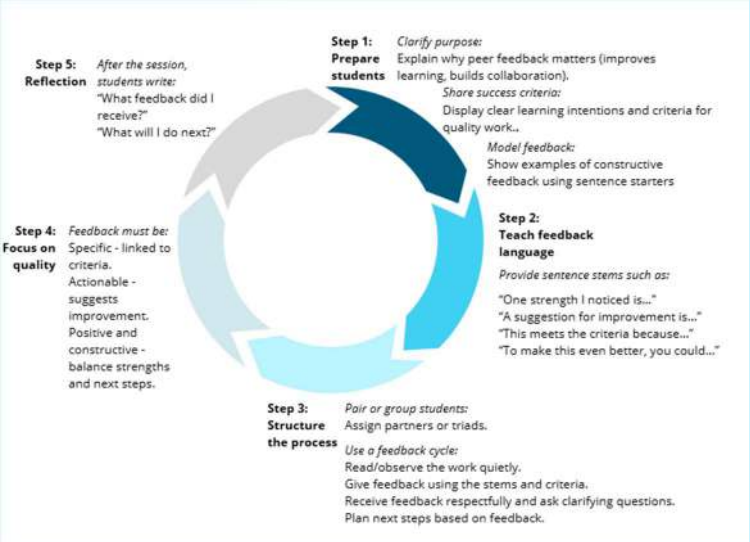
Peer feedback

Peer feedback is inherently complex because it is wrapped up in social relationships. Nuthall describes that students do not inherently know how to provide helpful feedback to each other. Students need to be given clear direction as to how to give each other feedback that is impactful and allows for social status and relationships to be maintained.

A routine for supporting peer feedback

By embedding clarity, actionable suggestions and reflection, the routine to the right aligns with Nuthall's belief that learning thrives in environments where students can safely share, question, and build on ideas together.

A routine for supporting peer feedback



Nuthall (2007), Kara (2025).
Graphic developed by Wing & Heneghan (2026)

Written feedback

Written feedback has the potential to be highly impactful on student achievement. It also has the potential be very draining on the precious resource of teacher time. Effective written feedback should engage the principles of effective feedback as described above.

Some strategies to support effective written feedback

Live marking

Feedback and marking is given during, rather than after the lesson

This may occur with individuals during the lesson itself, if appropriate given the wider needs of the class, or with the wider class using a visualiser.

Coded marking

Build a shared understanding with students about what 'good' is, based on success criteria, and use codes to denote when these aspects appear in the work.

Build further (shared and understood) codes for additional action points, such as "Q" for "are you referring to the question", and "E" for "can you add evidence here?"

'Thinking like the teacher'.

Have students review their own work, role-playing as the teacher before you do.

This will reduce the number of small errors they may have and will support some feedback to have already been given.

Careful checking is required to make sure that student misconceptions are countered and corrected. Incorrect, self-provided feedback will not help them!

Written comments.

Written comments provide invaluable feedback on task, subject, and self-regulation.

Comments should be succinct, require students to *act*, and should be considerate of moving the student forward.

Opportunities should be given for students to review and act upon this feedback. Quigley & Collin (2021)

AKO – STUDENTS AS OWNERS OF THEIR LEARNING

Effective formative assessment involves the student in their learning. This can also be supported by empowering students to regulate their learning through self-review, motivation and ownership of their achievement.

Achievement as a major influence on motivation

Nuthall (2007) and Hendrik & Kirschner (2020) describe that *motivation doesn't always lead to achievement, but achievement often leads to motivation.*

Our efforts should be fully invested in ensuring that our students make *academic progress.*

The knock-on effect of this will be increased motivation to further succeed and grow, particularly when students are supported to see the connection between their work, their progress and their outcomes.

Knowing that a teacher can support academic progress is also trust-building between student and teacher (Harvey et al, 2019).

Activating Students as Owners of their Own Learning

To ensure students take responsibility and ownership for their learning it requires a lot of **planning, explanation, modelling, instruction and support from the teacher**, as well **as investment, attention and effort from the student.**

Wing & Heneghan (2024)

Supportive strategies that can activate students as "owners of their own learning" include:

Self-Testing: for example, traffic Light review:

Traffic Light Review self-testing is an approach that asks students to identify their level of confidence for various success criteria within a topic. Red, amber, and green are used to signal confidence before, during and after self-testing. This process encourages self-reflection and refinement of retrieval and revision needs.

The review can then be used to create flashcards, which can then be used to further review a topic and then reassess progress towards success criteria.

Checking for Understanding: for example, mini white boards

An instant formative assessment tool that allow teachers to engage with the thinking, understanding and progress of all students at once, and that allow students to know their own progress as well. They allow teachers to give immediate feedback – and ask follow-up questions. Mini whiteboards ensure participation from all students. They literally visualise thinking.

Summarisation

Summarisation is at its most effective when time is devoted to its direct teaching, including how to select key points, remove irrelevant material, select, and generate topic sentences. Asking students to summarise key points from a text, limiting them to no more than 30 words (sometimes reducing this to no more than 10) to ensure a focus on retaining salient points. Summaries then being shared and discussed in order to explore the elements chosen, which may have been omitted and if the summary is a clear representation of the source material.

Self-interrogation

Self-interrogation means students asking themselves ongoing 'why', 'what', and 'how' questions about their own answers. Self-interrogation is about digging into the next layer of each idea, scratching through to consider the next layer of thinking.

We can support self-interrogation by modelling it aloud, ourselves when explaining ideas, processes, or opinions. Explaining it as a meta-cognitive strategy – what it is, why it is done, how it will help.

Teaching Others

For example, "Think-Pair-Share" is a form of structured discussion supporting individual reflection and peer supported learning in response to a directed prompt from the teacher.

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AKO - STUDENT GENERATED QUESTIONS

Student Generated Questions are questions asked by students from a teacher prompt. They can be used to generate interest, stimulate new thinking, deepen comprehension, gather information about student understanding, provide a bank of questions to return to over time, use to plan responsively from, use for student tasks or assessments, or for revision purposes. They can be used as a successful revision tool – get students to write the questions, plus multi-choice answers, then evaluate each other's questions and answers.
They require careful pre-planning, plus a routine for their use to support their success. This includes planning to ensure you are using the right prompt, in the right way, to achieve the outcome you are looking for, as well as having a routine to support students knowing what to do and being safe and empowered to ask the questions.

Informed by Rothstein & Santana (2011) Luxton-Reilly et al. (2012), Hancock et al., (2018),

"If students are always placed in the position of responding rather than initiating, then we can hardly be surprised if at times they seem passive and flounder when given open-ended tasks".

Foster (2011)

"Having a process for students to develop and ask questions offers an invaluable opportunity to become independent thinkers".

Rothstein & Santana (2011)

A routine for successfully facilitating Student Generated Questions	
Discuss different types of questions	Talk students through the idea of different types of questions, e.g., open and closed – you might find it helpful to refer to Bloom's Taxonomy with some classes or use a handout. It depends on the class.
Explain what you are going to be doing. Make sure you tell them the purpose, and what will happen to the questions	"I am going to show you a prompt. I want you to think of as many questions as you can about that prompt. Try to go beyond questions that could be answered with one word. Remember when we talked about open and closed questions/Bloom's Taxonomy. The purpose of this is to…, I am going to ____ with your questions. You need to write all your questions in your…, you need to work individually/in pairs/in threes".
Give students a prompt.	This prompt should be pre-planned to support success – see later suggestions.
Encourage students to record as many questions as they can.	Treat all questions as valid. Be neutral in your responses to the questions being recorded. If they are working individually, you might get them to share their questions with a peer after they first record some.
Get students to rework questions.	"Are any of the questions statements? – Can you turn these into questions?"
Get students to revisit open/closed questions or Bloom's taxonomy.	"Are there any other questions here that you could ask?" "Could you adapt any questions to be more open?"
Collect in questions.	Remain neutral or positive. You might like to answer some to the class.
Additional extra.	If using for revision, get students to work in small groups to come up with multi-choice answers to one or more questions. Then share their question and answers with another group to evaluate.

Designing your own 'Student Generated Questions' prompts – A routine. **Adapted from Rothstein and Santana (2011)**	
Define the purpose of the student generated question prompt – what do you want to achieve?	Keep your learning intentions and success criteria at the centre while doing this. Are you aiming to: - Generate interest? - Stimulate new thinking? - Deepen comprehension. - Gather information about student understanding?
Generate possible prompt ideas	Brainstorm lots of possible options. Consider several ways to present the same idea. Could be: - A provocative statement – e.g. "We *must* always follow the scientific method". - An image, video, or recording. - Avoid using questions, or you will get answers, not questions.
Identify the pros and cons of each, based on the following criteria	Does your prompt: - Have a clear focus? - Not ask a question? - Provoke and stimulate new thinking? - Show teacher preference or bias? - Achieve what you need it to do in relation to your learning outcomes?
Select the best option based on that evaluation	Out of your evaluated prompts, which prompt responds to each of the criteria the best? Use that one!
Imagine the questions your students may come up with	This allows you to: - Ensure that there are questions that could reasonably be asked – avoids cricket noises! - Be able to respond to some of the questions then and there – builds interest and excitement.

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AKO - JIGSAW TEACHING AND HIGH EFFICACY GROUP WORK

Allocating students to groups and instructing them to "work together" or "co-operate" will not bring about the academic or social outcomes that co-operative learning promises. Because traditional group work is widely implemented, particularly in primary classrooms, it is easy for teachers to assume that group work equates to co-operative learning. It does not. Working round a table on individual tasks with opportunity for discussion is not co-operative learning. Nor is having a team discussion, where some students can dominate or "hitchhike".

Thomson & Brown (2000)

PIGSLY Model for Effective Group Work - Thompson & Brown (2000)

Positive Interdependence

Interdependence = a mutually dependent relationship. This can be created through:

- Having a mutual or common goal
- Dividing labour to ensure that everyone contributes to the final product and has individual responsibility.
- Designing tasks that encourage students to share resources and knowledge among other members of the group.
- Establishing 'group roles' and students "actively engaging" in these roles (Hattie, 2017)
- Establishing "ground rules" for how groups operate (Hattie, 2017).

Individual Accountability

Students should feel responsible for their own learning and the learning of the group. To do this, teachers should monitor the learning of each student. This could be done by:

- Testing and assessing students individually.
- Randomly allocating students to share back the wider class after group work.
- Monitoring groupwork and asking questions of individual students to check understanding.
- Include time for students to self-reflect on their learning and group contributions.

Group Reflection

Each time students engage in co-operative learning group work is an opportunity for them to learn about working in a team and reflect on their learning. This might involve asking questions such as:

- How well did students achieve their goals or their final product?
- How well did students work together?
- What helped in the running of the group?
- What were some of the problems the group faced?
- How might the group function better in the future?

Include time for student to self-reflect on their learning and group contributions.

Small Group Skills

Skills for effective group work need to be taught. These skills sit in two categories - skills for learning and interpersonal skills.

- How do we teach these skills?
- Teacher-modelling and student practicing.
- In context

Face-to-face Interaction

Groups need to be "eye to eye and "knee to knee".

Fostering an environment where student are encouraging, listening, questioning, explaining, challenging with, and to, each other.

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AKO – STARTERS AND PLENARIES

The beginning and ends of lessons are critical periods. An effective start can set the tone for the whole lesson and maximise the learning that will occur. A strong finish can secure the learning of the lesson, whilst also setting the tone for the next lesson to come.

Getting the Start Right: Expectations and tone

"The start of a lesson is a critical moment. It sets the tone, establishes expectations, and signals that learning is about to begin. Teachers who greet students, establish calm routines, and begin with purposeful activity are far more likely to maintain focus and minimise disruption."

The start of a lesson is a critical period for setting the tone and momentum for the remainder of the lesson.

Starter activities can support:

- Students settling into the lesson (securing focus).
- Students receiving a clear message that learning has begun.
- A reduction in wasted down-time at the start of the lesson.
- The reinforcement of routines for learning.
- The reinforcement of expectations such as punctuality, equipment.
- Teachers having time to respond to the needs of particular students as they arrive.

Bennett (2020)

Getting the Start Right: Activating Prior Learning

"…the whole of a person's actual knowledge, available before a certain learning task, structured in schemata, declarative and procedural, partly explicit and partly tacit, and dynamic in nature". Tarchi (2015)

Before embarking on a sequence of learning, it can be incredibly helpful for students to consider what they already know. That way, new learning can be attached to pre-existing schema. Think building a house onto a prepared foundation.

Strategies to support this might include:

- Broad questions such as "what do you…?", "have you ever…?"
- Multiple choice questions (more to come on this in 2026).
- Student Generated Questions using a semi-familiar source material, demonstration or prompt.
- Brainstorming individually or in groups in response to a semi-familiar source material, demonstration or prompt.

Getting the Start Right: Recalling previous learning

"Daily review can strengthen previous learning and can lead to fluent recall" Rosenshine (2017)

Once knowledge has been taught, recalling it regularly will help with increasing its "stickiness".

Strategies to support this might include:

- Multiple choice questioning
- Short or medium form free answers
- Brainstorming, or free recall based on a prompt.
- The use of visual or audio prompts to stimulate memory.

Getting the Start Right: Self-Regulating (Metacognitive) approaches

"Self-regulation is about the extent to which students are aware of their strengths and weaknesses and the strategies they use to learn." Quigley, Muijs, & Stringer (2021)

Cognition is the mental process involved in knowing, understanding, and learning – for example, how to memorise, use a tool, solve equations.

Metacognition is about the ways students monitor and purposefully direct their learning - for example, planning an approach, and evaluating how it has gone.

Motivation is about our willingness to engage our metacognitive and cognitive skills and apply them to learning – for example, having the discipline to revise for an upcoming test.

Strategies to support this in starter activities might include:

- Going over the steps for a previously taught process, perhaps with some aspects removed in a cloze activity, or through the FAME method.
- Setting goals for the lesson or reviewing their progress from the previous lesson.
- Prioritisation of a range of aspects needing revision, or tasks needing completion.
- Explaining why the steps of a process work, or do not work.

Finishing Strong – Reinforce, Review, Reflect, Preview

"Every lesson should have a clear beginning, middle and end. The end of a lesson is not a time to relax expectations—it's a time to reinforce them." Tom Bennett (2017)

"Every lesson should have a purposeful ending that reinforces learning and sets up future success. This might include a review, a reflection, or a preview of what's next." Tom Sherrington (2020)

Reinforce

The end of a lesson provides an opportunity to reinforce your expectations as well as learning.

This can include:

- Reinforcing behaviour norms: ensuring students remain focused and respectful until the final moment.
- Reinforcing learning: using the end of the lesson to consolidate key ideas, check understanding, and preview next steps.
- Avoiding soft endings: where students disengage early, or routines break down.

Reflect

Like starters, plenaries can also support self-regulated learning.

Supporting students to reflect on their learning at the end of a lesson can encourage thoughtfulness about their learning, their progress and their next steps. It can also encourage greater ownership and regulation.

Plenary reflection questions may include:

- What went well today?
- What was a barrier today?
- What areas need further attention tomorrow?
- What do you need to be successful tomorrow?

Review

Reviewing learning at the end of the lesson is a critical tool for supporting learning in its journey into long term memory. It signals to students "the key learning", while also (with regular and spaced recall) helping learning become and stay "sticky". Review also helps with checking for understanding, with errors often easy to identify and able to be rectified in subsequent teaching.

Plenary review strategies may include:

- Open or closed questions
- Multiple choice questions, completed into books, forms, OneNote, or elsewhere.
- Post-it notes - anything from "five key ideas about pseudocode" to "write me a haiku poem about Tsar Nicolas, using what we learnt today.
- Exit cards and tickets

Preview

Warming up students for upcoming learning can support them in making connections to what they may already know ahead of time. In that strand, previewing can act as an advance 'activation' of prior learning.

As such, the same strategies that you might use for a starter, apply also as plenaries.

- Broad questions such as "what do you…?", "have you ever…?"
- Multiple choice questions
- Student Generated Questions using a semi-familiar source material, demonstration or prompt.
- Brainstorming individually or in groups in response to a semi-familiar source material, demonstration or prompt.

Starters and Plenaries as a Support for Literacy

"Vocabulary is key to reading comprehension, and there are effective ways to teach it. But the only way to enable children to acquire the massive amount of vocabulary they need is to build their knowledge." Wexler (2023)

Starters and plenaries *can* help with literacy, *but* they are not a silver bullet. Considered approaches, with words taught in context are helpful.

Strategies to support this in starter activities might include:

- Recalling the spelling, definitions or usage of vocabulary previously taught
- Sentence prompts that encourage students to use combinations of tier 2 and tier 3 vocabulary – eg, "fast fashion is an environmental issue… "however…", "therefore…", "because…"
- Word building – identifying prefixes and suffixes for a word
- Making predictions about something they will be reading as a class.

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AKO – CHECKING FOR UNDERSTANDING AND ACTIVE PARTICIPATION

Checking for understanding refers to the methods by which we 'verify that students are learning what is being taught, while it is being taught'.
Checking for understanding can involve a variety of techniques, such as: asking questions, having students summarise what has been taught, giving students short quizzes. By regularly checking for understanding, a teacher can adjust their instruction as needed to better meet the needs of their students and make sure that they are making progress. Rosenshine (2012).
Explicit instruction requires students to be active participants in their learning, and teachers to be monitoring the learning and engagement of their students. This means ensuring that students are providing live feedback about their learning through responses elicited by their teachers.
These responses allow teachers to know how the learning is going, whilst also supporting the cultivation of a positive and engaging learning environment.
Active participation is supported by:

- Frequent opportunities for participation, and high expectations of student participation.
- A repeated cycle of input, question, response.
- A brisk pace, high quality questioning approaches and warm but direct feedback. Archer (2010)

Active Participation		
Physical responses *A low stakes, immediate approach to collect simple data on attainment and understanding from individuals and the whole class.*	**Oral responses** *Oral feedback provides a versatile way to collect a range of learning feedback from individuals, pairs, or the whole class.*	**Written responses** *Individual written responses support teachers to convincingly identify next learning steps for individuals and the wider group.*
Approaches may include: - Action responses - Hand signals - Gestures and facial expressions - Enaction - Movement to a specified location	Approaches may include: - Class responses - Choral chanting - Partners responses - Think-Pair-Share - Individual responses - Cold calling	Approaches may include: - 'Show-me' responses - Mini whiteboards - Response cards (yes/no, true/false) - Writing tasks - Hinge questions - Summaries and diagrams

AKO – CHECKING FOR UNDERSTANDING THROUGH COLD CALLING

Cold Calling is a technique that creates an expectation that all students are ready to answer every question. This promotes attention, engagement, and participation. Rather than asking for a volunteer, the teacher poses a question, pauses (allowing all students to think and answer in their heads) and then calls on a particular student to respond. The benefits of this technique include increased thinking and participation in learning; improved momentum and pace; more strategic checking of mastery; and greater inclusion.
Posing a question to a specific student without them volunteering can be a powerful classroom strategy when used thoughtfully. Cold calling promotes accountability, increases engagement, and ensures broad participation.
Cold calling requires a "culture of error" in the classroom – mistakes must be seen as part of the learning process.
Doug Lemov (2015), Sherrington & Stafford (2018), Swain (2024).

Cold calling should not be uncomfortable - consider how students can be supported to participate through warm and demanding expectations.
This can include:
Random selection: Use a random method, such as calling cards or popsicle sticks with student names on them, to select students to participate.
Fairness: To ensure fairness, rotate through different students and make sure that all students have an equal opportunity to participate.
Non-threatening environment: Create a non-threatening environment in the classroom by praising and encouraging students for their participation, and by not criticising or punishing them for incorrect answers.
Prepare the students: Teach and model how to respond to a question before calling on them.
Give thinking time: Allow students time to think before answering, this can help to reduce anxiety and increase participation.
Insist on no-opt out: normalise that students cannot 'opt-out.

Set the Conditions	Use with Intention	Reinforce Learning
Build a Safe Culture Normalise mistakes as part of learning. Use phrases like "We learn by trying."	*Scan the Room* Choose students from all ability levels and backgrounds to avoid bias or predictability.	*Bounce and Build* "Do you agree with ___?" or "Can you add to what ___ said?"
Make the Purpose Clear Tell students: "I cold call so everyone is thinking, not to catch anyone out."	*Use a Calm Tone* Ask questions neutrally, not with pressure or performativity.	*Circulate Back* If a student couldn't answer earlier, return to them This builds persistence and inclusion.
Use Wait Time Pose the question, then pause (3–5 seconds) to allow all students to think before calling on someone.	*Follow-Up and Scaffold* If the student struggles, rephrase, break it down, or ask another to help build the answer.	*Capture Responses Publicly* Add student contributions to the board or a shared document to validate their thinking.
Think-Pair-Share First Give students time to discuss with a partner before cold calling, increasing confidence and quality of responses.	*Praise the Thinking, Not Just Accuracy* "That's an interesting idea," or "Good approach—let's explore that more."	*Clarify misconceptions.* If student answers suggest misconceptions across the class, take the opportunity to clarify and reteach.

Give thinking time
What does 'thinking time' need to be?
Silent, no fidgeting, absolutely no talking (including the teacher), timed
How do we achieve this?

- Clearly name the behaviors that we want to see.
- During the activity, do not be a distraction. Sit still, at the front of the room and look at the students.
- Respond to incorrect behaviors using non-verbal gestures.
- Clearly build thinking time into a lesson.

Respond to 'I don't know' (aka 'opting out')
In response to "I don't know", **Choose two basic formats to respond:**
You provide a cue; your student uses it to find the answer.
Another student provides a cue; the initial student uses it to find the answer.

Supporting cold calling

Build up the 'warm' before and around the 'call.'

Pre-Call: This is when you tell one or more students that you will ask them to respond after you have given an explanation, read a passage or watched a video. This gives them time to prepare.

Batched Cold-Call: Prepare several students to give answers in a predefined order.

Rehearse and Affirm: Check answers non-verbally first. Then select answers that are correct or interesting and then cold call the student to ask them to expand.

Name what you will do and why: "Sometimes I will call on you even if your hand is not raised. I do that because I really want to know what you are thinking. And sometimes it's my job to know what you are thinking and how much you understand so I can make sure you learn as much as you can. So be ready and know that when it happens it's because I care about your thinking."

Select students either randomly, or purposefully with care

Randomly, using popsicle sticks, random number generators, names out of a box.

Purposefully

Start with groups and ask two people to share. A confident student in the group will volunteer. Make sure that you ask other students in the group questions.

Lead with the name and make it safe through your questioning frame. E.g., "Now, this was quite a challenging question, what did you think, Jayden?" We always want it to be as open and warm as possible. If students say they do not know, then, have a simpler back-up question.

Let students know who will be called upon first during the activity. For example, write the first five names on the board. This lets everyone know that you are going to follow through. While you move around the room as students are writing or thinking, let them know that they are going to share.

Reach to the corners: "The teacher conspicuously always reaches into the corners of the class; there are no no-go areas; no silent tables."

Effective Questioning strategies that promote noticing and linking

Who…	does this help?	talks about this issue?
	does this hurt?	knows about this area?
	makes decisions about this?	is most directly affected?
What…	is your main point?	are you assuming?
	would be an example?	would change your mind?
	other information do you need?	do you think the main issue here is?
	do you know for sure?	has been done in relation to this in the past?
	are you uncertain about?	do you see?
	evidence do you have?	is going on here?
	questions do you have?	might happen next?
Where…	do we see this happen?	are the places that this doesn't happen?
	are similar situations?	should we go for help with this?
	is the most need for this?	
When…	does this happen?	has this occurred in the past?
	doesn't this happen?	did it improve?
	would it cause a problem?	would we know if we had made a difference?
Why…	do you think that is true?	should people know about this?
	is this relevant?	should people care?
		do you think this happens?
How…	do you know?	will we know if it improves?
	does…. relate to….?	will we know if it gets worse?
		does this apply to this case?
Why not…	consider if you could wave a magic wand and change all of this – what would happen?	consider if you were wrong about this or the reverse of what you think was true - what would that mean?

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AKO – CHECKING FOR UNDERSTANDING THROUGH 'THINK-PAIR-SHARE'

Think-Pair-Share is a form of structured discussion supporting individual reflection and peer supported learning in response to a directed prompt from the teacher.

Think	Pair	Share
Each student thinks about the question individually and is encouraged to take notes. This stage helps to activate prior knowledge.	Students pair up to exchange and discuss their ideas. Students should listen attentively and ask each other specific and nuanced questions	Students share their validated and maybe extended ideas with the whole class. They should explain their partner's main points as this helps to reduce the fear of failure for more reluctant students.

Benefits of Think-Pair-Share as described by Busch and Watson, and Sherrington

Developed Perspectives	Increased Participation	Added Accountability
Promotes Problem Solving	Makes Students Feel Heard	Gets Full Participation
If students are working with others, they are more likely to experiment with different techniques when solving a problem. This suggests that the phrase 'two heads are better than one' has some merit. Students learn by discussing each other's opinions and reasoning and by examining different perspectives.	Think, Pair, Share can improve students participation. The combined effect of individual preparation and receiving validation of their ideas from their partner increases students self-confidence, making them more likely to speak up. This is especially applicable to shy students.	When students verbalise their ideas to their peers during the PAIR and SHARE stages, they learn to take responsibility for what they say as they become involved in the learning process of their partner and the class. By sharing their partner's answers, it helps students avoid repeating the same points.

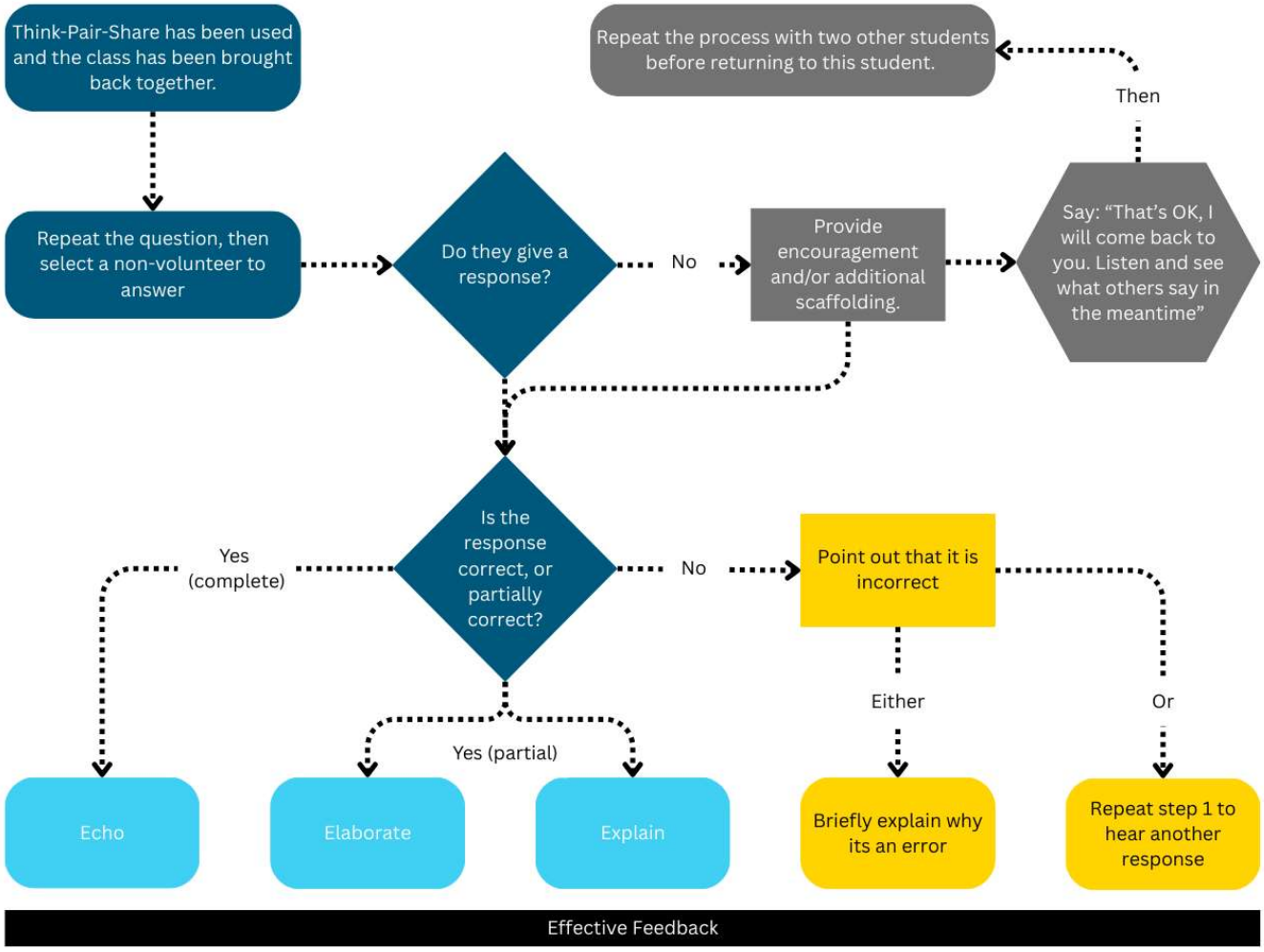
Fundamentals of Think-Pair-Share

Build Routines	Responsive Practice
Embed over time	Adapt to the student, demonstrate high expectations
To encourage students to engage in the process fully, strong routines are essential. Scaffolds such as the one opposite and verbal prompts train students how to conduct structured discussions. Before they begin TPS, write the focus question or statement on the board. Aim to be as specific as possible - nothing too broad or vague. Provide a time frame for each stage of the TPS process or you might run the risk of it fizzling out. During the THINK phase, it is useful to get students used to recalling knowledge and writing down notes.	When student are in the PAIR stage, it is essential that you monitor discussions and listen to their ideas. In your interactions, support certain students with careful questions or probe them to extend their ideas further. Make students aware that random pairs will be selected to share their points later. A useful strategy is to pre-select and ask one or two pairs to share their points in the final stage. During the SHARE stage, it is useful to capture a summary of points by writing the ideas of your students on the board. This helps make it concrete.

Maximising a 'Think-Pair-Share'

- Have assigned roles – A and B for example.
- Have clear prompts for each member of the pair.
- Narrate what they are expected to do and how they are expected to do it.
- Have a plan for how you, as the teacher will navigate each stage of the 'Think-Pair-Share'

Navigating a 'Think-Paire-Share'



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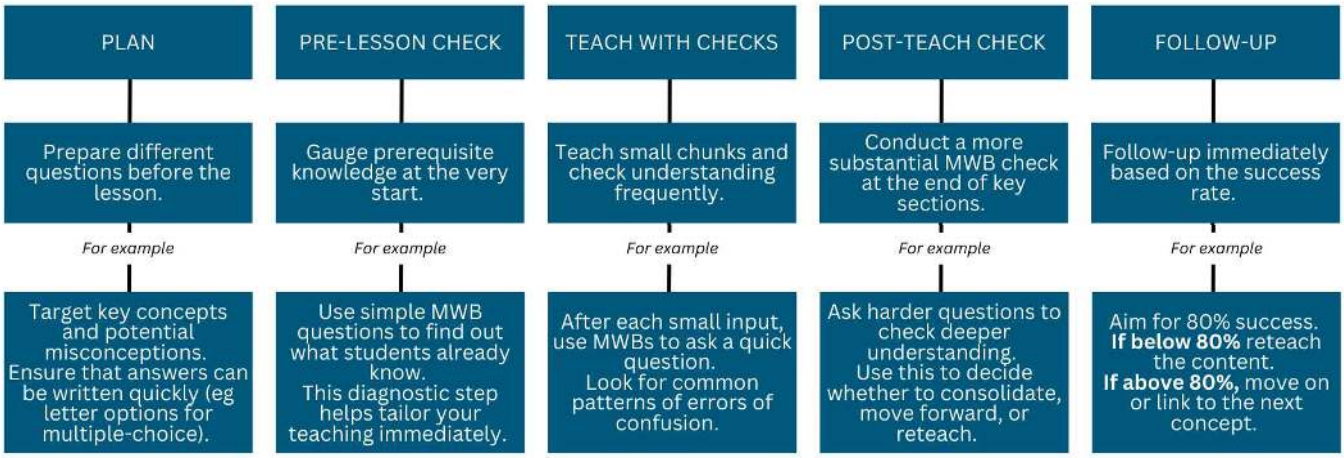
AKO – CHECKING FOR UNDERSTANDING WITH MINI-WHITEBOARDS

Mini-whiteboards are small, wipe-clean surfaces. They are an instant formative assessment tool that allow teachers to engage with the thinking, understanding and progress of all students at once.
There is no more efficient way to find out a) who knows and b) who doesn't. They allow teachers to give immediate feedback – and ask follow-up questions (think of it as 'doing' formative assessment).
Mini whiteboards ensure participation from all students. They literally visualise thinking.
They encourage students to forego neatness in favour of risk-taking.

Using Mini-Whiteboards

- Plan questions in advance.
- Be clear about expectations from the start, and enforce those expectations – pen use, when they are and are not writing etc.
- Standardise response format (fill the board, write a letter or 2-3 words).
- Standardise the show me format - "3-2-1 show me!", "write-hide-show me", "write-hover-chin it!"
- Scan from front, but slightly to the side of the class – this allows you to see most boards, and ideally, what is being written.
- Correct most common errors or misunderstandings straight away in class. Harris Federation (2020), Swain (2024)

Using Mini-Whiteboards at different stages of a lesson



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AKO – LITERACY: INTRODUCTION

Literacy is foundational. Enhancing students' reading and writing skills ensures that they are equipped with the necessary language proficiency to access the curriculum and prepare for their future endeavours.

Why is literacy important?	
Empowerment and Independence	Literacy gives individuals the tools to access information, communicate effectively, and make informed decisions.
Educational Success	Literacy is the foundation for learning across all subjects, enhancing comprehension, critical thinking, and problem-solving skills.
Economic Advancement	Literacy improves employability, opening doors to better-paying careers and more fulfilling jobs.
Civic Participation	Literacy enables individuals to engage meaningfully in civic life, including participating in elections and understanding laws.
Cognitive and Personal Development	Literacy fosters critical thinking, creativity, and personal growth through exposure to diverse perspectives.
Social Inclusion	Literate individuals can communicate, understand different cultures, and build stronger social connections.
Health and Well-being	Literacy helps individuals understand health information and make informed decisions about medical care and well-being.
Poverty Alleviation	Literacy is key to breaking the cycle of poverty by providing access to education, jobs, and economic opportunities.
Cultural Preservation and Expression	Literacy allows individuals to access and contribute to their cultural heritage, preserving traditions and fostering creative expression.
Global Competitiveness	Literacy is crucial for a nation's economic development and global competitiveness in a rapidly changing world.

Additional thoughts

Literacy is a major factor in achieving a qualification in New Zealand, as well as supporting feelings of self-efficacy and success. 60% of New Zealand Prison inmates have not got NCEA Level 1, or its equivalent.
We have a moral imperative to support our students to be as literate as possible.
We also need to be cognisant of 'Shame fatigue' – the effect of a constant lack of success and feelings of failure, leading to a numbness and disengagement.
"Children's potential knows no race, income, ethnicity or gender". Nahna (2025)

Long Bay College Literacy Profile

Excels in writing
Is capable of writing to a range of disciplinary styles and can produce cohesive texts tailored to specific contexts.
Reads aloud to assess fluency and to ensure coherence and effectiveness of what they have written

Engages with texts
Has a genuine appreciation for reading and finds enjoyment in exploring texts and literature.
Can grasp the full depth and breadth of meaning within texts, interpreting them both literally and inferentially.
Engages with a range of text types and forms of communication, including from a variety of cultural backgrounds.

Expresses ideas verbally
Is confident in verbal expression, using language with flair, precision, and voice.
Approaches communication with empathy, considering diverse perspectives in interpretation.

Understands language nuances
Understands the function and purpose of grammar within written communication.
Can identify layers of meaning embedded within texts through various language techniques.
Uses complex sentence structures effectively to articulate thoughts, construct arguments, and present perspectives.
Adapts discipline-specific, formal, abstract, and technical language appropriately to suit different contexts.

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AKO – LITERACY: TARGETED VOCABULARY INSTRUCTION

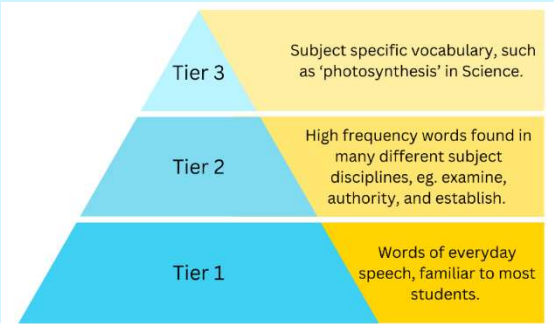
Secondary school is a critical period for literacy development. This development comes from activities such as in-class reading, independent reading, listening, and though academic talk. It is critical to nurture the development of the academic language of secondary school is as a response to the increasingly specialised language of subject disciplines. Targeted vocabulary instruction supports this. Quigley & Coleman (2021)

Etymology	Morphology
The study of the origins of words In Biology, a teacher who is introducing the concept of "symbiosis" might emphasise the origin of the word in a memorable way, in this case "symbiosis" comes from the Greek word for "companion" or "living together"	*The study of the structure and parts of words* A Maths teacher might explore the Latin prefixes in shapes and key terms to explicitly support students to see the patterns between words. For example, between "quarter" and "quadrilateral" and "triangle" and "triple"

The Tiered Vocabulary Model

Presents the different levels of vocabulary used in subject domains and across the curriculum. It is critical to explicitly teach Tier 2 and Tier 3 vocabulary, which will often be unfamiliar to students. The model was developed by Isabel Beck, Margaret McKeown, and Linda Kucan in 2013.

Adapted from Beck et al. (2013)



Strategies for promoting targeted instruction of academic language	Additional Detail
Exploring common word roots	For example, in science, analysing the etymology of 'photo' ('light') and generate other scientific vocabulary that includes the root 'photo' such as 'photosynthesis', 'photobiotic' and 'photon'.
Undertaking 'word building' activities	This includes matching prefixes and root words for example, 'anti-body' or 'anti-matter.'
Encouraging independent word-learning strategies	This includes how to break down words into parts and how to use dictionaries, to support students as they read more widely
Using graphic organisers and concept maps	For example, breaking down complex academic terms in visual ways to aid understanding
Undertaking regular low-stakes assessment	Providing multiple exposures to complex subject specific vocabulary, before applying this vocabulary in use; for example, in essay writing.
Consistently signposting synonyms	This supports students to recognise how some Tier 2 vocabulary items can enhance the accuracy and sophistication of their talk and writing in the subject domain.
Combining vocabulary development with spelling instruction	This highlights morphological patterns that determine complex spelling of subject specific vocabulary

"False Friends"

When using the tiers of vocabulary model, one complexity relates to Tier 2 words that are "false friends," in that they are used in multiple subjects, but have different meanings in each.

Exam command words often fit within this category. The existence of false friends demonstrates why it is important for subject teachers to develop confidence teaching what words mean in their subjects.

Strategies	Additional Detail
Bespoke Definitions	For example, in science, analysing the etymology of 'photo' ('light') and generate other scientific vocabulary that includes the root 'photo' such as 'photosynthesis', 'photobiotic' and 'photon'.
Purposeful Variation	This includes matching prefixes and root words for example, 'anti-body' or 'anti-matter.'
Immediate Interaction	This includes how to break down words into parts and how to use dictionaries, to support students as they read more widely
Deep Processing	For example, breaking down complex academic terms in visual ways to aid understanding
Active Interest	Providing multiple exposures to complex subject specific vocabulary, before applying this vocabulary in use; for example, in essay writing.
Repetition	This supports students to recognise how some Tier 2 vocabulary items can enhance the accuracy and sophistication of their talk and writing in the subject domain.
Bespoke Definitions	This highlights morphological patterns that determine complex spelling of subject specific vocabulary

Beck et al. (2013).

Putting it into practice	
Level 2 History- Russian Revolution Unit Context: Lots of unfamiliar Tier 2, and particularly Tier 3 vocabulary which is central to student understanding of key ideas, and their ability to explain them in assessment. *Autocracy, orthodoxy, communism, turning points, revolution, tsarism, alienation etc.*	**Exploring common root words** e.g. **auto**cracy can be linked to more familiar words like **auto**biography or **auto**matic **Using bespoke definitions**- avoiding dictionary definitions in student facing resourcing. Defining concepts in everyday language verbally, writing definitions together based on this. Student workbook tasks for these definitions to be recorded. LOTS of signposting of synonyms by exploring how we can use synonyms to produce variation in our writing. Regular Interaction and repetition this unit to deliberately build vocabulary in starter activities by asking students to revisit vocabulary in different ways *e.g. predicting meaning, defining in own words, giving examples from prior learning in the unit, or connecting to other pieces of vocabulary*

AKO – LITERACY: COMBINING READING AND WRITING INTO EVERY COURSE

Reading and writing are overlapping, complementary skills. As students read or write, they draw on a common body of knowledge, related to the topic being studied, and to their understanding of texts, syntax, and vocabulary. Reading and writing also enhance one another. Reading has been shown to improve the quality of students' writing, while writing about texts improves students' reading comprehension and fluency.
It is helpful to integrate reading and writing instruction instead of treating writing as something that happens after students have 'learned the material'. EEF (2021)

Effective ways of combining reading and writing	
Writing before reading	Have students complete a witing task before beginning a reading. This might be by asking students to bullet what they currently know about a topic or generate questions they will later try to answer through reading; *Examples: Have students generate questions about stimulus material such as a short video or image. Use starter questions at the beginning of the lesson to prime students on a reading activity that may be to come in the lesson.*
Using annotations	To identify information or explore key features of texts e.g. underlining information about the types of evidence being cited in a science textbook.

	Examples: teach explicitly, then give students examples of expected annotations, fading the level of support provided as they progress. Cloze-style annotations can be helpful here, as well as word banks and sentence-type examples.
Asking students to write short summaries of texts they read	Although this is a skill which some students may struggle with initially, writing a one sentence summary of a paragraph, for example, can help students think more carefully about the meaning of what is written, and monitor their comprehension of the text *Example: Have students add short summaries for each paragraph of a complex text they have been asked to read through.*
Creating checklists based on examples of good writing in each subject.	Be explicit about what 'good' writing is within your subject domain. Highlight examples to students, and create rubrics that students can use to review their work. *For example, while reading a geography textbook, ask students to highlight words related to cause and effect, such as 'Due to this…'; 'A contributory factor was…'. Students can subsequently use checklists and examples in their own answers.* *Ask students to highlight different information, word-types, writing features in different colours based on a checklist. Have students read through an exemplar and note the aspects that meet the required aspects of a provided checklist. Have students utilise, and where expertise has been built, develop a checklist for their own writing.*
Anticipating common misconceptions or errors and highlighting how writers avoid them in high quality texts.	Be explicit about where writing can go astray, or where a word choice may undermine a point. *For example, in Psychology, students might mistakenly believe that theories can be 'proved'; it would therefore be beneficial to highlight phrases that experienced writers use instead. For example, instead of saying "This proves the theory that…" expert writers say: "This theory is supported by the fact that…" or "This evidence is consistent with the theory that.."* *Proactively teach sentence structures that you wish your students to use in their writing. This can be done well through the use of starters and plenaries, using sentence starters and example sentences to support the development of automaticity.*

Adapted from Quigley & Coleman, Education Endowment Foundation (2021)

Effective Approaches to Teaching Spelling

Reading supports spelling development. Through their teaching of text reading and vocabulary teachers can support children's use of multiple strategies for generating word spellings. Having explicit attention drawn to patterns in multiple words helps to establish these, and this then can feed into the extension of word-specific knowledge.

Young & Ferguson (2020)

Fast and accurate spelling is a key component of writing fluency. While there is limited high quality evidence about how best to teach spelling, one core principle is that spelling should be *actively taught,* rather than simply tested.

- Teaching groups of related spellings alongside a discussion of the morphology and etymology (see Recommendation 2), prioritising words that are linked to content that is currently being studied rather than from decontextualized word lists.
- Pre-teaching spellings of challenging words and anticipating common errors, for example, 'government' in politics or 'Shakespeare' in English Literature, homophones such as 'there' vs. 'their' or joining errors, for example, 'alot' instead of 'a lot'.
- Helping students recognise familiar patterns of letters within words and sound out words based on their knowledge of phonics.
- Collaborative approaches, for example, grouping students and asking pairs to produce memorable strategies for spelling challenging words.
- Teaching students to self-quiz using retrieval practice, for example, using flash cards.

Quigley & Coleman, Education Endowment Foundation (2021)

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AKO – LITERACY: READING COMPLEX ACADEMIC TEXTS

A major part of the challenge of literacy in secondary school is related to demands of academic reading. Whilst some students may learn to navigate subject specific texts naturally, others struggle - particularly when asked to work independently. Academic reading is challenging because it requires students to actively engage with complex, subject specific texts. For most, reading comprehension is much more challenging than verbal comprehension.

The "Situation" Model
As students tackle a text, they make sense of it by constructing a rich mental representation (a 'situation model") that goes far beyond a simple, literal interpretation. Drawing on their language skills, relevant background knowledge and ability to infer, readers develop their understanding, which is refined as they learn more.

The purpose of reading strategies
Reading strategies should aim to support the active engagement with texts that improve comprehension. Given the complexity of academic reading, students need to be able to deploy an array of reading strategies, which can be modelled and practised in the classroom to develop students as strategic readers.

Activating prior knowledge:
Students think about what they already know about a topic from reading or other experiences. This helps students to infer and elaborate, fill in missing information and to build a fuller 'mental model' of the text. *Example: students are asked to recall the 'push and pull factors' that determine international migration.*

Clarifying:
Students identify areas of uncertainty, which may be individual words or phrases, and seek information to clarify meaning. *Example: students check their understanding of a graphic presenting net migration data presented alongside the text.*

Sourcing:
As students read a text, they consider factors such as origin, bias, usefulness and reliability, making annotations what they read. *Example: students annotate information related to the origin of a historical source, to establish its significance and evaluate the degree of certainty that can be attached to claims made in the source.*

Summarising:
Students summarise the meaning of sections of the text to consolidate and elaborate upon their understanding. This causes students to focus on the key content, which in turn supports comprehension monitoring.
Example: students generate a short summary of the impact of internal migration on the UK since 2004.

Contextualising:
As students read a text (particularly a non-fiction one), they identify information that would support locating the text within the context in which it was written and the audience that it was written for.
Example: Students underline and annotate key information related to the social and political context of a source was created, including considering the purpose of the text and for whom it was written.

Questioning:
Students generate their own questions about a text to check their comprehension and monitor their subject knowledge. *Example: students generate five key questions on 'the impact of increased net migration into NZ'*

Prediction:
Students predict what might happen as a text is read. This causes them to pay close attention to the text, which means they can closely monitor their own comprehension. *Example: students could be asked to predict the impact of international migration on English seaside towns.*

Corroborating:
As students engage with various texts, they consider the overarching narrative that is being built, as well as where information is contradictory. *Example: students carefully compare sources, to create and refine an 'event model'. Some details may be raised to the level of facts, whilst others are rejected as false, or categorised as possibilities*.

Resnik et al. (2018)

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AKO – LITERACY: BREAKING DOWN COMPLEX WRITING TASKS

Writing is demanding because it requires students to combine three processes:
Transcription: The physical act of writing or typing, ensuring that ideas are accurately recorded.
Composition: The process of generating ideas and translating them into coherent words, sentences, and well-structured texts.
Executive Functions: The skills required to plan writing tasks, stay motivated, and critically review or redraft the text for improvement.
Students' working memory can become overwhelmed when any aspect of the writing process becomes overly challenging.
The interplay between different elements of writing can be highlighted through simple tasks. For example, even straightforward activities like writing a diary can become significantly more difficult if an unnatural transcription method, such as writing entirely in block capitals, is enforced.
If a student is accustomed to typing and must handwrite a test, their performance may be impeded.

Berninger et al. (2002), Breadmore et al (2019).

Transcription

As students are beginning to write much of the attention is given to transcription skills.
They will concentrate on spelling individual words and forming letters. As these processes become more automatic, they will also begin to organise writing into more complex sentences and begin to compose larger texts. However, the ability to compose these texts will largely depend on students' writing fluency, which will be affected if they are paying too much attention to any of these aspects. Millar (2023)

Breaking it down – Strategies to support writers to move from Novices to Experts.

Teachers can help students cope with the challenge of writing in several ways, but a common theme running through effective forms of writing instruction is that they support students to break down complex writing tasks and help students to become fluent in as many of the processes involved in writing as possible.
In common with wider evidence about modelling and scaffolding, it is recommended that over time assistance from the teacher is gradually removed, supporting students to become increasingly independent. Strategies can also be grouped together into sequences to create longer writing.

Quigley & Coleman, Education Endowment Foundation (2021)

Teach Tier 2 Vocabulary

Ensure that students understand the subject specific connotations of Tier 2 vocabulary used in writing questions. Tier 2 vocabulary includes high frequency words that are common in academic and written contexts but less common in everyday speech.

Provide Clarity

Providing word-level, sentence-level and whole text level instruction. There is evidence to suggest that by focusing on the micro elements of writing for longer, students will ultimately be able to write longer, high quality responses. For example, in history, sentence starters can encourage students to analyse sources more deeply (for example, 'While initially it might appear that…, on closer inspection…).

WAG stands for Writing Assessment Guide. It includes all the information that a student should need to complete a writing task.
A WAG will typically include:

- **Writing Task:** A description of the assignment, including the type of writing (informational, opinion/argument, narrative, etc).
- **Audience:** Identification of the intended readers (e.g., the teacher, peers, or an authentic audience).
- **Purpose:** The reason for the writing, such as reinforcing content learning, assessment, developing writing skills, or fulfilling a specific purpose related to a particular audience

- **Length:** Requirements for the length of the writing piece, represented by a range for the number of words, sentences, paragraphs, or pages.
- **Directions & Requirements:** Specific expectations and requirements related to the content and text structure, including introductions and conclusions, use of certain vocabulary or transition words and phrases, formatting (e.g., font style and size, line spacing and page margins, etc.), suggested timeline and due dates, citation requirements, and grading criteria.
- **Writing Supports:** Scaffolds and supports available to help some or all of the students complete the assignment.

Teach Planning Strategies

Explicitly teach students planning strategies, such as how to use graphic organisers. Over time students should develop proficiency using a range of strategies and develop the ability to choose between them depending on task and audience.

Multiple stages are involved in a successful response

Understanding the question

- This involves deconstructing the question, identifying keywords and any specific aspects to focus on.

Brainstorming

Can be a simple list of key points, a traditional cloud-type brainstorm, or brain dumping onto a page or mini whiteboard.

Creating an outline

Once you have all your main points, examples, quotes etc., down on the page, create a structured plan, which mirrors the paragraphs in your response.

Writing

Students should understand the structure, tone and style required for a particular task.

Sentence starters, templates and paragraph models (e.g. SEAL) are all scaffolds which can be used in practice pieces, to guide students through that 'Novice to Expert' journey.

Reviewing and Reflecting

See below.

Support Review and Reflection

Help students to monitor and review their writing, for example by providing a checklist of features included in high quality answers or using it as a self- or peer-assessment tool.

This may include checklists, review templates, acronyms, and routines that students can automate to ensure quality work is submitted.

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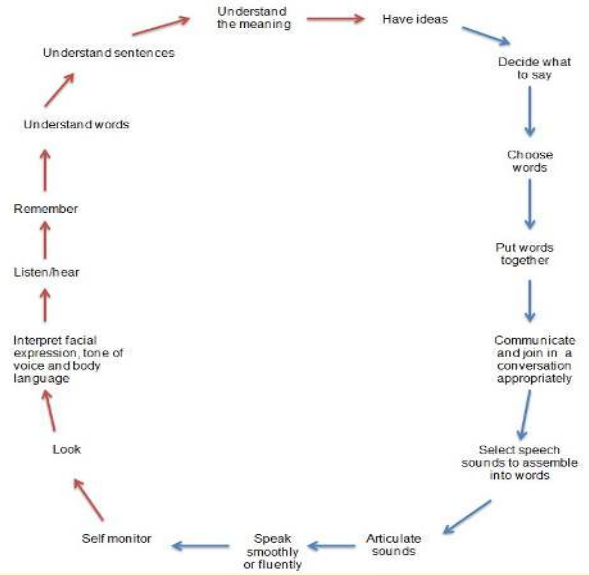
AKO – LITERACY: STRUCTURED TALK

Talk is an important tool for learning and literacy. It can improve reading and writing outcomes, enhance communication skills, and increase students' understanding across the curriculum.
While all students benefit from classroom discussion activities, talk also appears to be particularly beneficial for low attaining students and those from disadvantaged backgrounds.

The importance of speech and talk as a tool for literacy

Speech and language are considered biologically primary. That is, almost all humans will learn speech and language without formal instruction. Reading and writing are considered biologically secondary – they must be taught. Speaking is critical for reading and writing. Listening and understanding are critical for speaking.
Brain scans show that that the speech and language parts of the brain are integral to the circuit that develops to enable reading.
Is all talk, good talk? No.
Talk without alignment, structure, and purpose is just talk. The **quality** of talk is likely to be more important than the **quantity**.
Improving quality means much more than getting students to talk more, or, as a teacher, trying to talk less. Instead, quality is more likely to be improved by considering **structure and variety**.



McLachlan & Elks (2012)

Accountable Talk

An accountability centred approach to discussion in the classroom, developed by the academic Lauren Resnick and colleagues, is known as "accountable talk".

Knowledge	By seeking to be accurate and true	In seeking to make students accountable to knowledge during a debate, a teacher could prompt speakers to refer back to quotes from key texts. Likewise, the teacher will be prepared to step in to correct misconceptions that arise as the debate develops.
Reasoning	By providing justifications for claims	The word 'evaluate' has different meanings across different subjects. Some subjects will require students to assess the reliability of sources, while others will invite personal responses. While some students may pick up these subtleties implicitly, the majority are likely to benefit from explicit teaching of how to reason within each discipline.
Community (Tikanga)	By listening and showing respect to others	In addition to expectations about conduct, accountability to community also emphasises the importance of making students feel that their contributions in class matter, for example, by emphasising the value of errors.

Osborne (2010), Resnik et al. (2018)

Metacognitive self-talk

Students also benefit from metacognitive talk, which focuses on the processes of learning, and on dealing with barriers to learning.
For example, in art, metacognitive talk seeks to answer questions like: 'What equipment do I need before I begin my art?' or 'What will I do if I fall behind on my portfolio development?'

Two forms of self-talk are:

Elaborative interrogation – students develop explanations as to why something is true. For example, 'Why does performing the same operation on both sides of an equation not change the answer?'
Self-explanation - students ask themselves questions about what they are studying. For example, 'How does this pair of equations compare to others I have solved?'.

Adapted from Quigley & Coleman (2021)

Putting it into Practice	
Deliberately sequence talk activities	Plan to do "talk" activities alongside reading and writing tasks to give students opportunities to practise using new vocabulary, develop ideas before writing, or discuss ways to overcome common challenges.
Consider questions carefully	Select questions that are open-ended, well-suited to discussion and allow opportunity for authentic student response rather than direct replication of teaching.
Use wait time to develop student responses	Give students time to think, before selecting answers to a question. Be overt about this as a practice. Leave a pause after students answer to let them give greater detail, which gives them a chance to reframe, extend, or justify their reasoning.
Using sentence starters and prompts to help students to structure and extend their responses.	For example, starters such as 'my claim is based on the fact that…' can help students link to evidence, while a shorthand like ABCQ (Agree, Build, Challenge, Question) sets out different ways to contribute to a discussion. Teachers can prompt students to extend their answers with questions, e.g. 'Can you use 'moreover' to link to a second piece of evidence?
Teachers modelling what effective talk sounds like in their subjects	This includes using subject specific language and vocabulary, explicitly introducing the ways of reasoning that matter within their discipline, and the ways in which experts use metacognitive talk.
Set goals and roles, particularly for small group discussions.	By ensuring students have a clear goal—for example, a question to answer— it is more likely that talk will be focused and that students fully participate. It can also be beneficial to assign roles, such as summariser or questioner, though as students become more used to routines, it may not be necessary to make roles explicit. This type of approach can overlap with some reciprocal reading activities
Give precise feedback relating to different elements of accountability.	For example, in addition to praising a student's use of evidence, teachers might praise the way in which students follow the norms of discussion, for example, by naming classmates or linking new contributions explicitly to previous points. Students can also be trained to provide peer feedback during talk activities, for example, related to the use of new vocabulary.

Resnik et al. (2018)

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AKO – LITERACY: INTERVENTIONS FOR NEURODIVERSE STUDENTS

Effective teaching throughout the curriculum can minimise the need for additional literacy support. However, a small group of students will likely require extra assistance through structured, targeted, and high-quality interventions to make progress. While this additional support is essential, it should complement, not replace, efforts to enhance classroom teaching.

Secondary students can experience a variety of literacy challenges, which may involve issues with speech, language, communication, phonics, reading fluency, vocabulary, and reading comprehension.
Additionally, some students may face broader challenges, such as limited focus, sensory needs, or low eyesight.
Interventions will only be effective if they are properly tailored to address the specific underlying challenges.
For students with neurodiversities, some or all aspects of writing (as described by Berninger et al, 2002), may be affected - transcription, composition, and executive function, with supports considerate of these challenges being more effective.

Adaptations to approaches described in Literacy PLD series for Neurodiverse students				
	Autism Spectrum Disorder	**Auditory Processing Disorder**	**ADHD**	**Dyslexia**
Targeted Vocabulary Instruction Teach tiered vocabulary explicitly. Use bespoke definitions and teach the morphology and etymology of words. Teach spelling to support automaticity.	*Teach concept boundaries – what something is, plus, what it is not as part of vocabulary instruction.*	*Prioritise vocabulary instruction. Be considerate of overall load of new and challenging words.*	*Break vocabulary down into smaller chunks. Provide vocabulary lists to return to and ensure these are stored in an easily accessible place.*	*Teach the morphology of words. Provide vocabulary lists to return to and ensure these are stored in an easily accessible place. Allow time to review.*
Combining Reading and Writing Give students an opportunity to read before they write and write before they read. Encourage annotation. Discuss common errors and misconceptions, show examples of high-quality writing.	*Signal what is to come in the lesson, particularly when moving back and forth between reading and writing. Be clear about what you wish to see included in written outputs using task outlines, exemplars, and rubrics.*	*Break up extended reading with writing, and vice versa. Use structured talk as an additional circuit breaker. Make mistake-making an accepted part of learning.*	*Break up extended reading with writing, and vice versa. Use structured talk as an additional circuit breaker. Make mistake-making an accepted part of learning.*	*Give examples of successful annotation, and model the mistake-making, self-correcting process. Give extra time where possible.*
Breaking Down Complex Writing tasks Break down tasks to make it clear precisely what students need to do	*Be clear about what you wish to see included in written outputs through the use of task outlines, exemplars, and rubrics.*	*Be mindful of the portability of your instructions, and the lengthiness of each step. Use consistent routines and have*	*Use consistent routines and have these visible around the room. Insist on self-review and provide checklists to support with this.*	*Use consistent routines and have these visible around the room. Provide checklists, exemplars, and timelines. Adapt*

Teach planning and self-review strategies Teach the tier 2 vocabulary needed to connect ideas effectively.		*these visible around the room.*		*timelines where possible.*
Reading Complex Academic Texts Activate prior knowledge before reading, and have students make predictions. Support students to identify areas needing clarification in a text. Support them to judge their own comprehension through summarisation and SGQs. Have students corroborate, source, and contextualise what they have read.	*Build on student knowledge and interest before reading. Encourage predictions based on sub-headings, images, and opening of texts. Give examples and starter sentences for tasks such as corroboration and summarisation.*	*Give a written checklist for students to consider as they read. Reduce stimuli. Avoid reading at length to students or asking them to read at length. Break reading into smaller, manageable chunks.*	*Use open-ended, creative, and empathy-coded questioning to support engagement with texts. Chunk down texts into smaller passages, with decoding steps built into each chunk. Provide examples. Reduce stimuli while reading.*	*Break down long readings into smaller chunks, provide sub-headings for these chunks. Encourage students to summarise chunks as they go, generate questions, or annotate. Be mindful of asking students to read aloud. Spotlighting words and phrases as a whole class, or smaller groups may be preferable. Give extra time for reading where possible.*
Structured talk Use accountable talk to ensure that talk is accurate, on topic and safe for all. Give precise feedback on engagement in accountable talk. Support students to use self-elaboration and explaining through deliberate planning, goal setting, activity sequencing and wait time. Model self-explaining and elaboration in your own practice.	*Have a strong classroom Tikanga and be mindful of dynamics when setting up small groups. Provide thinking time for all students and build this into the routine of your class discussions. Discuss the need to consider other views, and model how this may be done verbally. Encourage body language for listening.*	*Have a strong classroom Tikanga and be mindful of dynamics when setting up small groups. Have consistent routines that are visible around the room.*	*Make talk-routines clear and reiterate these with students. Actively model expected behaviours and narrate what you are doing.*	*Use structured talk to secure understanding and build confidence. Use consistent talk-routines to build confidence and automaticity.*

Additional Guidance for Supporting Students with Specific Neurodiversities with Writing		
Dysgraphia	Dysgraphia is not related to intelligence but stems from difficulties with motor skills, leading to challenges such as trouble forming letters, unreadable handwriting, slow and laboured writing, odd spacing, incorrect pencil grip, and run-on sentences with no paragraph breaks. These difficulties can cause frustration, low self-esteem, and a sense of inadequacy in students.	Effective strategies include using checklists for reviewing and editing work, assistive technology or word processors to ease the writing process, keyboarding instruction, and allowing extended time for tests and assignments involving writing. Providing frequent breaks during writing tasks can also help reduce fatigue and frustration.
Dyspraxia	Dyspraxia affects fine and gross motor skills, leading to difficulties with tasks like handwriting and body coordination. Pupils may struggle with tasks such as forming letters, holding a pencil, and maintaining neat, legible handwriting. Dyspraxia can coexist with other learning differences like dysgraphia, dyscalculia, and ADHD, though it is not the cause of these conditions. Common challenges include trouble throwing a ball, bumping into objects, and delayed hand dominance.	Strategies include providing sentence starters, extended time for writing tasks, using a keyboard or word processor, and offering alternative ways to respond that don't involve writing.
Autism Spectrum Disorder (ASD)	Children with Autism Spectrum Disorder (ASD) often face challenges in written expression due to difficulties with imagination, abstract thinking, perspective-taking, and envisioning future events or hypothetical scenarios. These characteristics can result in a literal approach to writing tasks and difficulties in understanding or using metaphors, idioms, or rhetorical questions. Additionally, they may struggle with exploring counter-arguments and multiple perspectives	Strategies include linking writing tasks to their areas of interest, providing story openers and atmospheric vocabulary, using images for inspiration, and supporting writing through mind mapping, peer planning, modelled examples, and scaffolds.
Dyslexia	Dyslexia affects the ability to process phonological information, which is essential for both decoding when reading and encoding when writing. As a result, students with dyslexia often struggle with writing, including frequent letter reversals (e.g., confusing b and d) and poor handwriting. While visual tasks not involving letters pose no issue, pairing visuals with sounds can lead to confusion. Research shows that teaching handwriting can improve legibility and fluency.	Effective strategies include helping students break words into syllables, identifying prefixes and suffixes, using flashcards or matching games, and reinforcing learning with mnemonics and spelling rules.

Berninger et al. (2002b).

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AKO – LITERACY: SUPPORTING ENGLISH LANGUAGE LEARNERS

"Academic language refers to the specialist vocabulary, grammar, discourse, textual and functional skills associated with academic instruction and mastery of academic materials and tasks" (Saunders, 2010). Academic language isn't just a list of words to memorise. It's a way of using language that's different from everyday speech, like what you find in textbooks, lectures, and essays. To turn a regular sentence into academic language, you need to think about word choice and sentence structure.

Learning another language, and learning in another language

The best time to learn a language is in early childhood. Penfield & Roberts (1959); Singleton & Ryan (2004)

That said, while age is an important factor in the ability of individuals to develop second or third languages, it is not as critical as some believe. Many 'late to start' students do catch up quickly, *if they are resourced* to learn.

Pfenninger & Singleton, (2017)

A greater predictor of English Language Learning success is socio-economic status.

This status is shaped by factors such as:

- Parental education
- Family income
- Access to books in the home
- Parent engagement and work hours

Whiteside et al. (2016)

Other risk factors for English Language Learners (ELLS) include:

- Having Special Educational Needs (SEN)
- International arrival during the key stage
- Student school mobility - changing schools, especially in later years.
- Assumed proficiency before proficiency has been gained.
- Assumed non-ELL status, particularly for students that may not look like a stereotypical ELL student or may have the same accent as their locally born peers.

Chalmers & Bennett (2022).

BICS AND CALP

BICS (Basic interpersonal communication skills) refers to **conversational fluency** – the ability to talk about objects or experiences in face-to-face and familiar contexts.

CALP (Cognitive academic language proficiency) is the oral and written **language needed to succeed in school** subjects.

ELLs usually master BICS within one or two years of learning English, while mastery of CALP can take significantly longer even with English, approximately 6 years.

It can be significantly longer for those students who have had disrupted or limited education, depending on when students commenced school

Lu et al (2025), Cummins (1981), Thomas & Collier (1997)

Tiered Vocabulary and BICS and CALP

Tier 1 words are everyday words (like "run," "book," "school") that students use in daily conversations. These words are part of BICS and are usually learned through talking with others in class or around school.

Tier 2 words are less common in speech but appear often in books and academic work. They help students understand and use academic language, supporting CALP.

Learning Tier 2 words helps ELLs succeed in school subjects.

Tier 3 words are specific to certain subjects (like "photosynthesis" in science) and are mostly used in academic settings. These words are important for mastering subject content.

Chalmers & Bennett (2022).

ELLPs, BICS, and CALP

- ELLP stands for English Language Learning Progressions.
- The **ELLP documents** guide assessment, planning, and teaching by helping teachers select age- and stage-appropriate content, vocabulary, and tasks for students who are learning English as an additional language.
- Early stages of ELLP focus on developing BICS through scaffolded, context-rich activities.
- Later stages target CALP by introducing academic vocabulary, abstract concepts, and subject-specific language.

Nicholls, H., & van Hees, J. (2008)

English Language Learning Across the Curriculum

Students need to learn about language in the context of their other learning. This means giving meaningful attention to the language around the content. An explicit focus on language connected to content will help them to develop their academic English in ways that will have an immediate impact.

Chalmers & Bennett (2022).

New to English students	Students developing competency in spoken English	Advanced English Language Leaners
- Provide opportunities for students to be silent and to listen. - Provide opportunities to show their understanding in non-verbal ways. - For example, through gestures, use of picture-based cue cards, drawing. - Opportunities to talk with peers who model good spoken English. - Opportunities to use their first language as a language for thinking. - Explicit teaching of the sounds (phonemes) in the English language. - Visualise and scaffold understanding of new language and vocabulary - Use of close questions.	- Speaking frames that focus on individual language needs for example the development of correct use of past tense, understanding the use of determiners etc. - Opportunities for meaningful interaction and collaborative dialogue with peers and adults within a clear learning context. - Opportunities to speak about aspects of home and school that particularly interests them. - Use of picture books for all storytelling. - Engaging in role play. This will support understanding of vocabulary and a rate wide range of subject areas.	- Speaking frames that focus on the development of higher-level English and the expansion of vocabulary and concepts for curriculum areas. - Retaining the use of first language as a language for thinking about new and more complex ideas. - Retaining pre teaching as a strategy to introduce new and complex vocabulary in concerts. - Provide opportunities to work with talk partners to develop ideas and expressive language. - Use role play to support capacity for deduction and inference for reading, and to support understanding in other curriculum areas. - Use explicit instruction to teach the conventions of written English through modelling and discussion by the teacher.

Chalmers & Bennett (2022).

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AKO – LITERACY: SIMPLE, COMPOUND, AND COMPLEX SENTENCES.

Fluent writing will almost always combine a mixture of sentence types. This is to ensure the writing has flow, that it does not feel repetitive, and that ideas are able to be expressed in a way that befits the audience and purpose of the text. Sentence-use might also be influenced by the curriculum area that the writing is responding to, as well as the genre of the writing itself – for example, a poem versus an essay, a technical report versus brief development.

AERO (2025a, 2025b).

Simple Sentences

A simple sentence must make complete sense or represent a complete thought on its own.
It must have a subject and a verb. It will generally have an object, especially if the verb requires an object to make sense (transitive). Simple sentences are good for clarity, brevity, and precision. The use and requirements of a simple sentence will vary from subject area to subject area. They might include:

- The use of specific details such as data, measurements etc
- The use of adjectives, or their avoidance
- The use of key terminology, or words from a question to focus a piece of writing.
- The use of specific language features designed to convey meaning or create impact. AERO (2025c)

Teaching Simple Sentences

Plan in advance – identify where they would be best taught and embed their teaching into schemes of work.
Apply the "I do, We do, You do" model.
I do:
Explicitly teach students about what a simple sentence is, and how you would like them used in your subject area. This includes:

- The need for a subject, a verb, and an object
- The use of nouns, verbs, adverbs and adjectives
- The use of tier 1, 2, and 3 vocabularies

Provide and unpack exemplars as part of this process.
We do:
Have students engage with a range of simple sentences.

- Ask them to identify the subject, verb, and object OR the noun, verb, adjective, and adverbs
- Ask them to swap out the subject, verb, and object OR the noun, verb, adjectives, or adverbs for similar ones.
- Ask them to complete simple sentences used guided or faded practice.

You do:
Ask them to write a range of simple sentences using content you have taught them.

AERO (2025c), Heneghan and Wing- *Maximising Learning Time* (2024)

Compound Sentences

Two independent clauses joined by a **coordinating conjunction** – both would make sense individually.
Coordinating conjunctions are words that join two or more words, phrases, or independent clauses sentence. They help connect ideas without making one idea dependent on the other.

AERO (2025d)

Coordinating conjunctions can be remembered through the acronym, FANBOYS.
F - for, A - and, N - nor, B - but, O - or, Y - yet, S – so.

Why use a compound sentence?
Compound sentences create writing that is smoother and easier to follow than a simple sentences.
Compound sentences create space for additional information and interest within writing.
This additional information may include the elaboration, detail, analysis, as well as other higher order thinking needed to higher marks in assessments.
The use of compound sentences also ensures our students are more fluent writers, a skill that is important beyond the realms of assessment. AERO (2025d)

Teaching Compound Sentences

Plan in advance – identify where they would be best taught and embed their teaching into schemes of work.
Apply an I do, We do, You do model:
I do:
Introduce compound sentences, providing subject specific examples and explaining what a coordinating conjunction is.
We do:
Unpack worked examples of compound sentences before asking students to construct their own from a bank of simple sentences.
You do:
Ask students to create their own subject-specific compound sentences.
Repeat as needed.
Highlight examples of compound sentences when reading texts as a class.
Be specific about their use when requesting written form answers.
Provide precise feedback on their use. AERO (2025d), Heneghan and Wing- *Maximising Learning Time* (2024)

Complex Sentences

A dependent and an independent **clause** – half of it does not make sense on its own.
Clauses are groups of words that contain a verb and its subject. Clauses are the key to understanding simple, compound, and complex sentences because they determine the structure.
The two types of clauses we are focusing on are independent clauses and dependent clauses.
An independent clause generally makes sense on its own. Dependent clauses need independent clauses.
The dependent clause provides the sentence with more information.
Subordinating conjunctions connect a dependent clause to an independent clause. They show the relationship between the two clauses. AERO (2025e)

Common subordinating clauses include…
AWIUBUS (A woo bus)
After, While, If, Unless, Because, Until, Since

Why use a complex sentence?

- Complex sentences have a more sophisticated structure than simple and compound sentences.
- They provide greater opportunity for elaboration than a compound sentence, particularly when students are required to provide evaluation and justification within their answers.
- Like compound sentences, they allow writing to access the higher-grade boundaries needed in assessments, whilst also supporting greater writing fluency. AERO (2025e)

Teaching Complex Sentences

Plan in advance – identify where they would be best taught and embed their teaching into schemes of work.
Apply an I do, We do, You do model:
I do:
Introduce complex sentences, providing subject specific examples and explaining clauses and subordinating conjunctions.
We do:
Unpack worked examples of complex sentences, asking students to identify independent and dependent clauses.
Have complete incomplete complex sentences.
You do:
Ask students to create their own subject-specific complex sentences.
Repeat as needed.
Highlight examples of compound sentences when reading texts as a class.
Be specific about their use when requesting written form answers.
Provide precise feedback on their use. AERO (2025e), Heneghan & Wing- *Maximising Learning Time* (2024)

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AKO – LITERACY: PARAGRAPH DEVELOPMENT

Paragraph writing takes the sentences written by students and combines them into longer bodies of work, allowing for ideas to be communicated through and across sustained writing.
Students need to know how to structure different types of paragraphs, and how to apply these paragraphs across subject areas.
These include:

- Short responses: describe, explain and discuss paragraphs
- Extended responses: introduction, analyse, evaluate and conclusion paragraphs.

Descriptive Paragraphs

A descriptive paragraph requires students to give an account of characteristics or features.
Descriptive paragraphs are common across a range of subjects.
They are useful as a gauge of a student's knowledge and understanding of the key features of a concept, person, or thing. Precise language is important to ensure that ideas are communicated logically and clearly.

A suggested structure:	**An example:**
Introduce the topic What does it look like? What does or did it do? Conclude with a summarising sentence. Note – each point can be more than one sentence	"Describe one pest that is significantly impacting New Zealand wildlife" *Introduce the topic* Stoats are one of the most damaging pests affecting New Zealand's native wildlife. *What does it look like?* They are small, slender predators with brown fur, sharp teeth, and quick movements. *What does or did it do?* These animals hunt birds, eggs, and young chicks, causing severe declines in vulnerable native species such as kiwi and whio. *Concluding summarising sentence* Overall, stoats remain a major threat to New Zealand's ecosystems and require ongoing control to protect native wildlife. AERO (2025f)

Explanation Paragraphs

Explanation requires students to address the how and why of something in a way that shows cause, effect, and relationships. At higher levels this might involve more abstract concepts – theories, conceptual frameworks, past events, and their own metacognitive approaches. An explain paragraph can help to scaffold the language and connection of ideas required for logical and clear explanation.

A suggested structure:	**An example:**
Introduce the topic How did it or does it happen? Why did it or does it happen? Conclude with a summarising sentence (e.g. what is the relationship between these things). Note – each point can be more than one sentence.	"Explain how identified visual and technical features are used to create specific effects and communicate particular meanings" *Introduce the topic* In his In Colour exhibition, Auckland-based artist Josh Davison uses the Renaissance technique of sfumato to enhance the atmospheric, sculptural quality of his floral paintings. *How did it or does it happen?* Davison achieves this by blending tones and edges softly (an essential feature of sfumato) so that colours shift gradually, and forms appear to dissolve gently into one another, creating a hazy, smoke-like transition within his layered oil surfaces *Why did it or does it happen?* He uses these soft transitions to highlight the symmetry, richness, and natural beauty of his subjects, allowing the viewer to focus on subtle colour harmonies and sculptural depth—central ideas in In Colour, where he aims to "bridge the gap between sculpture and oil painting" and draw attention to colours that often go unnoticed

	Conclude with a summarising sentence (e.g. what is the relationship between these things). Together, Davison's use of sfumato and his sculptural painting approach work in harmony to create immersive, meditative works that communicate both the fragility and vibrancy of nature. AERO (2025f)

Discussion Paragraphs

Discussion requires students to examine an issue and provide arguments for and against it and using evidence to inform their answers and conclusions. This will often involve presenting information, making comparisons, and outlining strengths, weaknesses or implications. Often information that is not directly included in the question prompt will be required in the answer.

A suggested structure:	**An example:**
Introduce the issue What is the argument 'for'? What is the argument 'against'? Which argument, based on the evidence provided, is stronger? Note – each point can be more than one sentence.	"Discuss the strengths and limitations of sheep drenching as a management process, making connections to impact on yield" Introduce the issue Sheep drenching is a key management process used to control internal parasites in flocks, and the way it is carried out has a strong influence on growth, wool production, and overall yield on New Zealand farms. *What is the argument for?* On one hand, drenching is highly beneficial because it removes parasites such as barber's pole worm and black scour worm, which steal nutrients from sheep. When these worms are controlled, sheep can convert feed into growth more effectively. For example, drenched lambs often reach market weight faster and produce heavier carcasses, and wool production improves because parasite-free sheep grow denser, higher-quality fleece. *What is the argument against?* In contrast, there are clear limitations to drenching. A major concern is drench resistance, where worm populations survive treatment. Many New Zealand farms are now reporting resistance to common drenches, which can slow weight gain and reduce wool quality even when sheep are regularly treated. Drenching can also be costly and time-consuming, and overdosing can cause toxicity or reduced feed intake—both of which negatively affect growth rates and fleece production. *Which argument, based on the evidence provided, is stronger?* Overall, the benefits of drenching are stronger when the process is used strategically, such as through faecal egg count testing or rotating drench families, because effective parasite control ensures more of the feed sheep eat becomes actual growth and wool. This leads to consistently higher yield, showing a clear link between good drenching practices and improved farm productivity. AERO (2025f)

Extended Responses

Extended responses are a common feature of secondary level writing. These responses allow for more abstract and complex writing.

Extended responses require consideration of the requirements of the writing task, the sentences and paragraph types used, and how these components are brought together.

The connectives used need to be taught explicitly. These may be causal (for example, "as a result", "consequently") or concluding (for example, "finally", "therefore", in "conclusion").

Extended responses will often include the following paragraph types:

- Introductions and conclusions
- Analysis paragraphs
- Evaluative paragraphs

Introductions and conclusions

Introductions signal both the overall argument or point of the writing, signal how this argument or point will be addressed, and may also introduce key terms or ideas.
Conclusions reinforce the key ideas made in the writing and link these back to the initial prompt. The difference between the introduction and the conclusion is that the conclusion summarises the key points into one simple clear message. They may also include a recommendation.

A suggested structure:	**Examples:**
Introduction What is the overall argument or perspective? What key ideas will be outlined? How does the argument or perspective connect to the question? *Conclusion* State your answer to the question. How do your main points support your answer? Why does your argument or position matter? Make a recommendation (if applicable)	Introduction: "Discuss how road safety can be improved within communities" *What is the overall argument or perspective?* Improving road safety in our community requires both individual responsibility and collective action. *What key ideas will be outlined?* We must implement driver education programs, enforce stricter speed limits and launch campaigns against distracted driving to help encourage safer choices on the road. *How does the argument or perspective connect to the question?* These strategies will ensure individuals, and the community can make informed decisions and reduce risks while driving. Conclusion: "Analyse how allegory is used in Animal farm to convey ideas about a wider social event". *State your answer to the question.* Orwell uses allegory in Animal Farm to represent important events and figures from the Russian Revolution. *How do your main points support your answer?* Characters like Napoleon, Snowball and Squealer reveal how revolutionary ideals can be lost when power goes unchecked. *Justify your argument or position.* Ultimately, Orwell's allegory warns readers about the dangers of authoritarianism and the risks of power and corruption in society. AERO (2025f)

Analyse paragraphs

Analysis requires students break down information to identify key components and relationships, such as patterns, similarities and differences. This should involve the integration of evidence to support interpretations. Students will need support to present ideas that are connected to evidence, as well as how to effectively use that evidence to support their conclusions and identify implications.

A suggested structure:	**Example:**
Introduce the topic What is your claim? Why does your claim matter? What evidence supports it? State the impact of the evidence. Conclude by summarising how your claim relates back to the question.	"Analyse how grief and trauma influence the choices made by characters in Catching Teller Crow" *Introduce the topic* Grief and trauma significantly impact the choices made by Michael Teller in Catching Teller Crow. *What is your claim?* Michael's overwhelming grief after his daughter Beth's death traps him in a cycle of guilt and sorrow and prevents Beth's ghost from moving on to the afterlife. *Why does your claim matter?* This affects his ability to heal and make clear decisions, highlighting how unresolved grief can prevent emotional healing and growth. *What evidence supports it?* Beth's description of her father at the start of the novel as 'stuck in grief like a man caught in a muddy swamp' reflects how deeply Michael is consumed by his sorrow. In contrast, by

Note – each point can be more than one sentence.	the end of the novel, Beth observes, 'he looked like the man he would become, in a world where he lived even though I didn't', signalling a shift in his emotional state. *State the impact of the evidence.* While Michael's initial failure to reconnect with his in-laws or accept his daughter's death prevents him from moving forward, his grief eventually drives him to seek justice for the victims of abuse. This choice provides him with a renewed sense of purpose, allowing him to heal and, in doing so, release Beth into the afterlife. *Conclude by summarising how your claim relates back to the question.* Ultimately, this choice enables him to begin his recovery and release Beth into the afterlife, showing how grief and trauma, when confronted, can lead to healing and personal growth. AERO (2025f)

Evaluation paragraphs

Evaluation requires judgement of the value or significance of something.
Students need to provide an objective opinion, based in reasoning and evidence.
Evaluation will often call upon describing and explaining to fill out the answer.

A suggested structure:	**Example:**
Introduce the topic and specify the aspect to be evaluated. Why is this significant? What strong evidence supports your evaluation? How does the evidence justify your evaluation? What additional evidence supports this? How does this additional evidence further strengthen your evaluation? Conclude by summarising how your evaluation answers the question. Note – each point can be more than one sentence.	"Evaluate the social impact of Stalinism on Soviet society to 1941" *Introduce the topic and specify the aspect to be evaluated.* Stalinism had a profound impact on Soviet society up to 1941, particularly through the forced collectivisation of agriculture *Why is this significant?* This policy is significant because it changed the lives of millions of peasants and reshaped the agricultural system in the USSR. Collectivisation disrupted traditional farming practices and caused severe consequences. *What strong evidence supports your evaluation?* The forced collectivisation of agriculture led to widespread famine, particularly in Ukraine, where millions of lives were lost. *How does the evidence justify your evaluation?* This illustrates the harsh consequences of Stalin's policies on society, as the push for collective farming resulted in suffering and loss of life. *What additional evidence supports this?* In addition to the famine, many peasants resisted the forced collectivisation of their land and livestock. *How does this additional evidence further strengthen your evaluation?* This resistance led to violent clashes with the state, showing the social unrest caused by Stalin's policies. *Conclude by summarising how your evaluation answers the question.* In summary, collectivisation caused suffering and mistrust in the rural population, affecting agricultural productivity and social stability in Soviet society. AERO (2025f)

How to teach these paragraph structures

I do:	*We do:*	*You do:*
Explicitly teach the different types of paragraphs used in your subject. Provide and discuss exemplars, highlighting the different components, terminology and language features. Explicitly teach and discuss the use of connectors – therefore, however, while, in contrast, however, as a result, because etc (refer to the connector bank). Be specific about the type(s) of paragraphs you wish students to use for tasks.	Have students complete partial examples of various forms of paragraphs. Start with cloze, before moving to incomplete sentences, then moving to fewer and fewer provided aspects (e.g. only the start, only the middle, only the end, etc). Have students add appropriate connectives to incomplete paragraphs (see bank of connectives). Have students explain why they have selected each connective. This may work well as a paired activity or a think-pair-share. Have students complete paragraphs together in pairs or threes using a prompt and a rubric. You may also incorporate different coloured pens for each aspect of a paragraph, or for different students' work. Provide opportunities for paragraph review, whether this is reviewing a paragraph you have provided (potentially with deliberate errors), one they have written, or those of their peers.	Provide ample opportunities for students to practice their writing in low stakes conditions. Have these practice opportunities move from simple to complex, from sentences, to varying levels of paragraphs to extended texts. Give precise instructions regarding what is required from each writing opportunity. Earlier on, include word banks as a scaffold where appropriate. Give feedback on these writing efforts.

AERO (2025f), Heneghan & Wing *Maximising Learning Time* (2024)

AKO – AUTHENTIC TEACHING

Teaching is subject to high levels of information, with a constant flow of feedback, new approaches, government directives, research, technological advancements colliding with the general information flows that come from being a teacher in a classroom at the coalface. Assessment data, student voice, parent and whanau voice, strategic and faculty direction to name a few. With this information onslaught it is easy for misconceptions to become encoded into what we believe about teaching and learning. What we must do as teachers is to focus on authentic teaching, and further than that, authentic learning. To do this we must be aware of the illusions we hold about teaching and proactively counter these in our planning and practice. The points below are taken from the work of Kirschner, Hendrick, and Heal in their 2025 book, *Instructional Illusions.*

The Engagement Illusion	
The engagement illusion is the misconception that 'doing' and 'enthusiasm' equates to learning. *True learning requires deep cognitive processing, and while a student may appear busy, or to be enjoying their learning, the required deep cognitive processing may not be occurring.* The engagement illusion is a barrier to authentic teaching and learning. Classes of happy and engaged students boost our egos, and outwardly appear successful, especially to any visitors to the classroom. We are able to provide feedback to parents about the engagement of their children. This validation encourages practices that can be superficial without securing deeper thinking and learning.	
Examples Activity without progress - Students are completing a lot of work, for example worksheets, or participating with animation in discussion but learning is not moving beyond surface level. - A specific example of this may be industrious (but regurgitated) note-taking, where the student looks busy and engaged, but is not encoding anything they are recording.	**Solutions** Distinguish between different types of engagement - Know there is a difference between behavioural, emotional and cognitive engagement and know what these look like in your classroom. Design for deep processing - Actively plan for deeper thinking, instead of planning for interest, engagement or entertainment.

Emotional engagement only - Students are enjoying themselves but not processing the learning. - A specific example of this is in the use of technology, where student enthusiasm may suggest learning, Familiarity - Students gravitating towards what is familiar – either knowledge or tasks, without engaging with the more challenging unfamiliar. Unproductive Group work - Group work is a highly effective pedagogical approach – done well. Done poorly, students may be physically present, but their minds and thus their learning will be elsewhere. Attentiveness - Some students appear attentive, however if they are not getting attention from the teacher the learning is not being maximised.	Encourage reflection and delay judgement of success - Move beyond participation by having students reflect on what they have learnt. - Encourage students to consider if they have been successful in their learning before adding your own input. Create challenge - Ensure lessons require a degree of challenge, hard enough to foster thinking, not so hard as to be overwhelming. - Consider desirable difficulties (Mahara section) to create an appropriate level of challenge. Use formative assessment - Bring all students into the lesson through regular formative assessment. Use this to gauge understanding and shape next steps.

The Expertise Illusion

The Expertise Illusion describes the challenges experts face when teaching novices. It has three parts. The curse of knowledge is the difficulty of recognising what others do not know or recalling what it felt like to be a beginner. The assumption of fluency is when we present skills or understanding as simple, forgetting the years of effort behind them. The misconception of expertise is the belief that expertise develops in a straight line, when in reality our schema shift and change as we grow. The Expertise Illusion can hinder authentic teaching and learning because it leads us to introduce new ideas in ways that are unhelpful for novices.

Examples	**Solutions**
Explaining a process - Even someone who follows a process each day may not be able to detail its steps, despite feeling like an expert. The automaticity of the process means that they no longer pay attention to the steps, and may consider them 'intuitive', even when they are not. Teaching about a historical event - What is 'common knowledge' to an expert may not be common knowledge at all to a novice. - This is particularly important for students from different social or cultural backgrounds to our own, where knowledge you learnt perhaps initially in childhood simply was not a feature.	Scaffold content - Break down complex topics into smaller, manageable chunks. Provide explicit instruction - Use clear examples and offer practice for each step before moving on to the next. Check your assumptions - Ask experts to think carefully about the steps needed to achieve a goal and consider speaking with other experts to check your assumptions.

Lesson internalisation

This is an approach in which experts put themselves in the shoes (brains) of the novice, and consider the lesson they are preparing from that lens. It can mitigate the effects of the expertise illusion.

1. *Consider what the student already knows, including background knowledge not taught by you, or even in school itself.*
2. *Consider what it is you are asking students to do, including running through the lesson activities as a student. This is known as cognitive task analysis.*
3. *Consider what students will need to do, and know, in order to engage in the task. Consider precursory knowledge and the order in which aspects must be completed – E.g., "to do C, they must know B and know how to do A"*

4. *Consider what the learning is working towards, know what the eventual goal is and how this will support that goal.*
5. *Predict struggles and misconceptions, and how you might counter those during your own instruction.*
6. *Predict the opportunities for student success and consider how you may ensure the task is directly working towards securing that success.*

The (Autonomous) Student-Centred Illusion

The student-centred instructional illusion is the misleading belief that student-centred approaches which emphasise student autonomy are always the most effective method without acknowledging their pitfalls. Without structure and explicit guidance, the approach can lead to confusion, shallow learning and encoded misconceptions.
Teachers should aim to blend student-centred approaches with teacher-led ones, with clear structure and guidance given during periods of independence as well as the teaching of a strong knowledge base from which students can draw from.

Key features	**Solutions**
The belief that learning must be either fully student-led, or exclusively teacher-centred. Engagement interpreted as learning. Student overconfidence in their understanding, where time and effort in a topic convinces a student (and their teachers) that understanding has been secured. Automaticity over expertise – knowing how to do something without thinking does not mean a process is understood.	Balance autonomy with guidance Ensure students have received explicit instruction in the foundational knowledge they will need to use, before applying learning independently. Provide timely feedback Correct misconceptions in a timely and clear way to prevent their being encoded into schema.

The Transfer Illusion

The transfer instructional illusion is the belief that students will be able to seamlessly apply learning from one context into another without explicit instruction.
Teachers need to design learning that gives students the opportunity to practice applying their learning in varied scenarios, and to make connection between examples and similar but different problems. Teachers must bridge the gap between learning and application.

Why it happens	**Solutions**
Lack of practice in varied contexts - Students need to practice applying the same core principle in different scenarios to truly understand its broader application. Skill and content go together - Skills cannot be transferred without a strong, deep foundation of content knowledge to apply them to.	Design for transfer - Present opportunities for students to apply the principle of what you have taught to varied, ideally real-world scenarios. Reflection - Give students opportunities to practice applying their knowledge in varied contexts and reflect on how the skill is used differently in each one

The Easy-Wins Illusion

"All things are difficult before they are easy"
The easy wins instructional illusion is the belief that learning should be quick, easy, and stress-free for the student. This runs counter to the findings of cognitive science that "thinking hard" is needed for learning to be secured. If teachers aim for all learning to be a smooth, comfortable experience without ever increasing the challenge or removing scaffolds, it is likely that deep learning will never be secured, let alone be retrievable or able to be applied in varied contexts.
As teachers we need to be mindful of the level of support we are providing at various stages of learning. While a high level of support may be appropriate during initial stages of learning, the removal of scaffolds over time is critical for building our novices into experts.
A caveat. Not all *thinking* hard is productive. If a task is beyond the scope of the student to complete, either due to a lack of prerequisite knowledge or skills they are likely to fail and be disheartened.

Solutions

Mindfully fade scaffolding

- Ensure that scaffolds are removed when they are *nearly* no longer needed so that students are able to stretch *slightly* towards independence (see Mahara).

Embrace desirable difficulties

- Ensure that learning is challenging in the short term, but supportive of retention in the longer term (see Mahara).

Spaced practice

- Return to learning over time, with increasing intervals between. Allow students to forget a little, ask them to remember and thus *think hard* (see Mahara).

Retrieval practice

- Have students recall information from memory (e.g., low-stakes quizzes, "think-pair-share" exercises) rather than just re-reading, or re-presentation (see Mahara).

Design for transfer

Create opportunities to apply learning in varied contexts.

Motivation Illusion

The motivation illusion is the belief that students must be motivated before they succeed. Instead, more powerful motivation comes from success, or students feeling a sense of competence in what they are doing.

Teachers should aim to design lessons that scaffold initial success through clear objectives, manageable tasks, and supportive feedback.

Solutions

Design for success: create lessons that build early wins to build student confidence.

Build competence: have clear objectives, manageable tasks and provide supportive feedback so that students are able to feel in control of their learning.

Focus on mastery: give students opportunities to achieve and demonstrate successful learning.

The Uniqueness Illusion

This illusion is the misconception that the learning of individual students varies so greatly that an individualised approach is needed for all. This is incorrect. While differences do exist between students, the overwhelming majority of students learn in a way that aligns with the core principles of cognitive science.

Our students have more in common with each other than they have differences, our planning and lessons should reflect this, whilst still seeking to know and celebrate the individual.

Solutions

Acknowledge differences, but plan and deliver lessons that align with universalities of human cognitive function and learning. Utilise pedagogies based in cognitive science.

Offer optional pathways or resources to cater to specific learning needs, building on a strong, shared foundation.

The Innovation Illusion

This illusion is the belief that new, often technologically driven, teaching methods are automatically superior to established, evidence-based ones. This illusion can lead educators to adopt exciting but ineffective strategies, prioritising newness over proven practices.

As teachers and leaders we must evaluate new approaches rather than assuming they are better simply because they are "innovative", and not discount established approaches simply because they are established, old, or well-known.

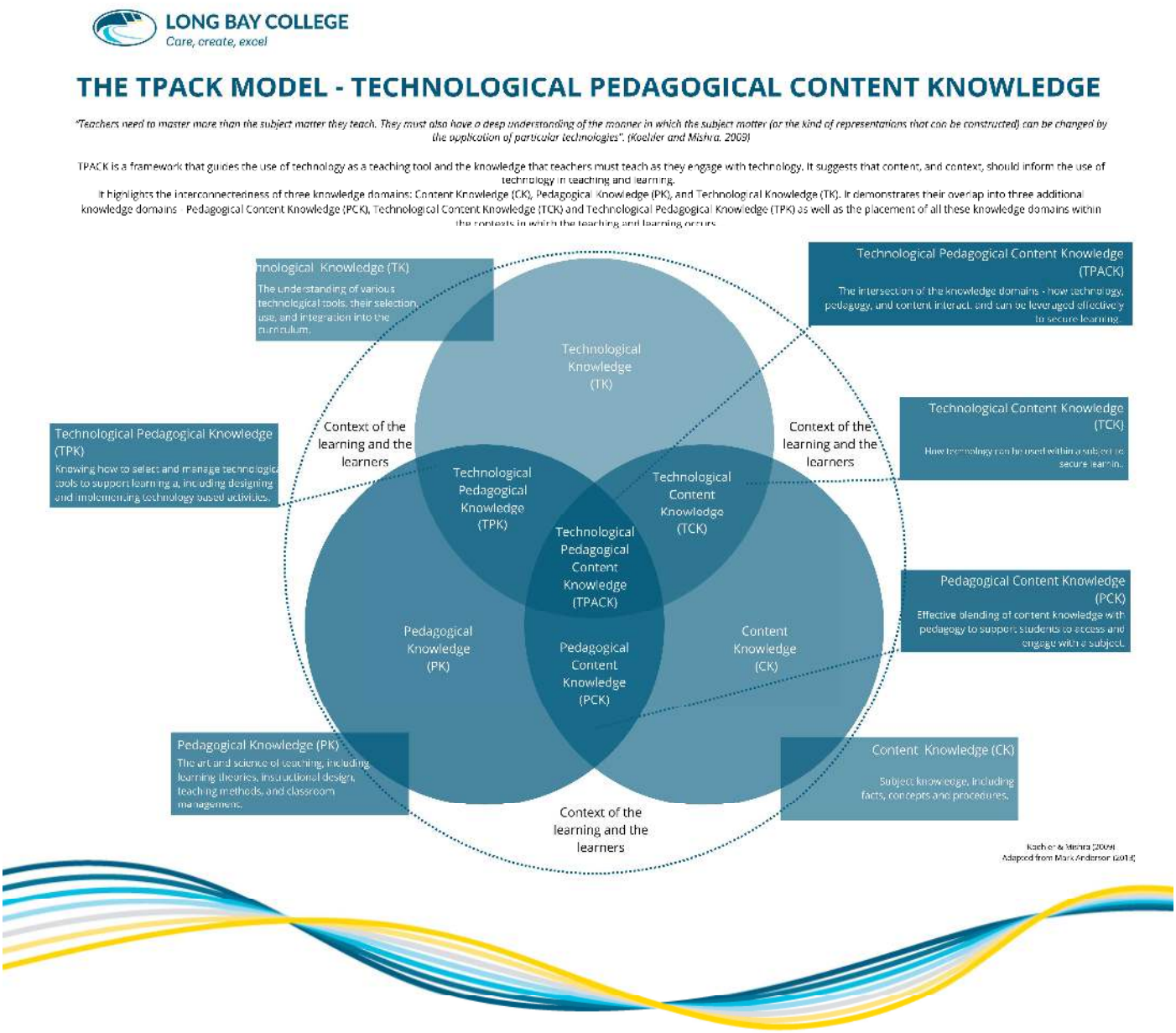
Solutions

Apply disciplined innovation - embrace new possibilities while subjecting them to rigorous scrutiny. Disciplined innovation requires both openness to new ideas and scepticism about extravagant claims. It values creativity and precision, vision and evidence.

Kirschner, Hendrick & Heal (2025)

AKO – THE USE OF TECHNOLOGY

In the modern classroom, technology offers incredible opportunities to enhance learning. That said, its impact depends on how thoughtfully it is integrated. Simply adding digital tools does not guarantee better outcomes and done poorly can lead to maladaptive practice. Effective teaching requires a clear connection between technology, pedagogy, and content knowledge. When educators align technological choices with sound instructional strategies and subject expertise, they create meaningful learning experiences that deepen understanding rather than distract from it. The TPACK model highlights this balance, reminding us that technology should serve the learning goals, not the other way around.



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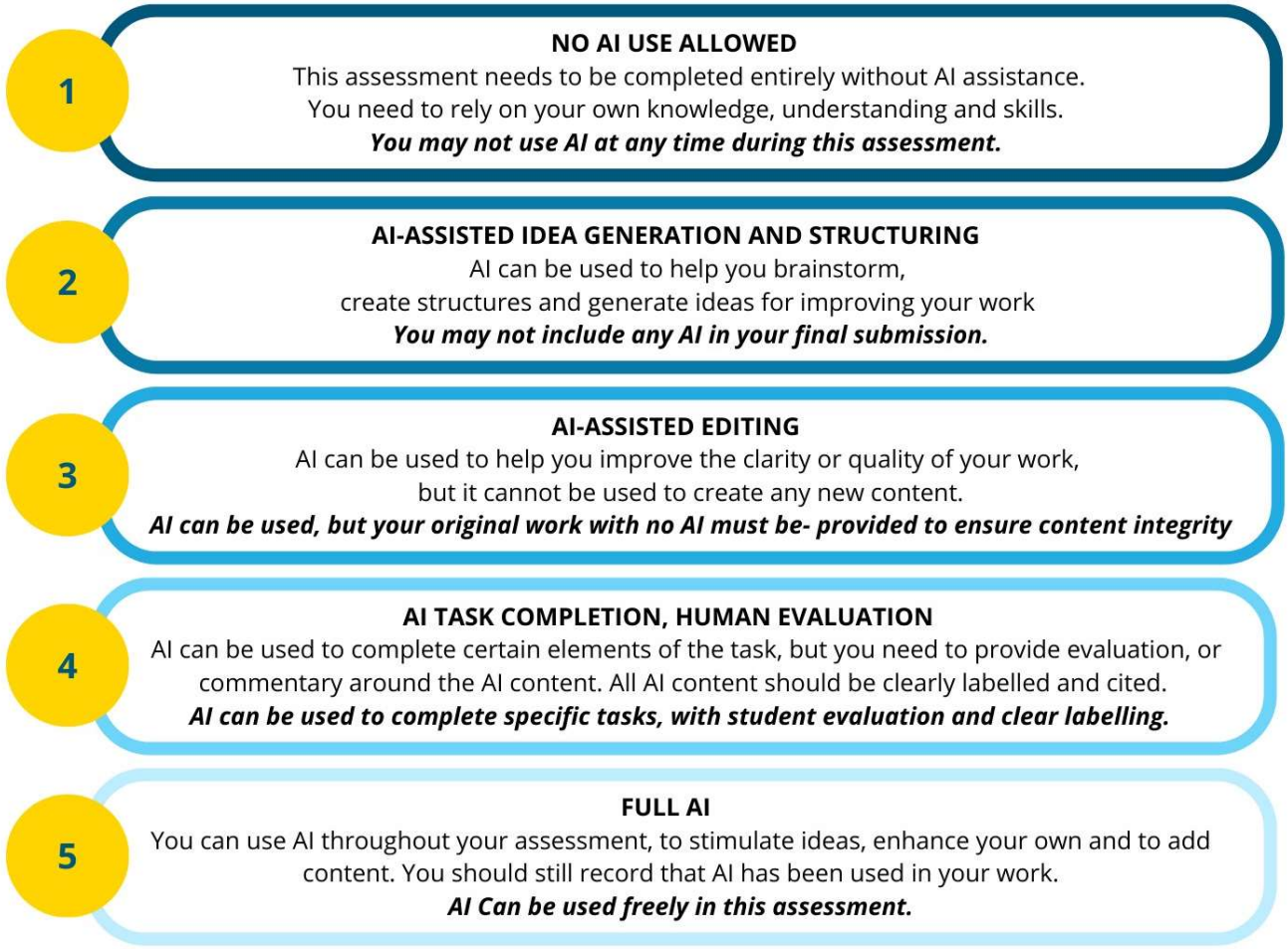
AKO – COMMUNICATING EXPECTATIONS FOR THE USE OF AI

AI can be a useful tool - but it is important for it to be used in ways that secure learning and are fair for students. The graphic below is designed to support teachers, students and caregivers to communicate about what amount of AI can be used for during specific learning tasks. It is best used as an element of classroom Tikanga, with its rationale and specifics outlined and returned to and reinforced over time.



UNSURE?

Ask your teacher to clarify which level of the AI scale the assessment should be.
Talk to your subject teacher, or show them your work.
Keep copies of your work before and after the use of AI, just in case. Use a different font, colour or text style for AI content during drafting
(and even submission) to help you keep track of it.

Wing & Heneghan (2024-2025)

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AKO – EFFECTIVE USE OF ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence (AI) is the simulation of human intelligence in machines. It is designed to think and act like humans. AI is capable of performing tasks that would generally require human intelligence such as visual perception, speech recognition, decision making, and language translation.
Generative AI is a subfield of AI, in which machine learning is applied to large data sets in order to learn new ways to generate data. The data might be text, code, images, audio, or many other forms that can be turned into content that a machine can read. Generative AI is multimodal – it can both read and create data.
AI can be beneficial in Educational settings, whilst also providing some challenges. These all requiring some consideration to ensure that it is used effectively and ethically.

Benefits of AI in Education	Challenges and Considerations for AI in Education
Improved student engagement and outcomes	Student authenticity, data privacy and security concerns
Increased efficiency for educators	Potential bias in AI algorithms
Enhanced ability to address diverse learning needs	Need for teacher training and support

Assessment Design Considerations

To support with student assessment authenticity, consider the following aspects when designing assessments:

- What is the mode of assessment? Modes may include paper, verbal, typed, physical portfolio submissions. Tools such as Exam.Net can be useful here for typed assessments.
- How are you timing the assessment, and how are checkpoints used? Consider what needs to be submitted and when, what access do students have to their assessments outside of class, what access do students have to stimulus materials.
- What is asked of students? Consider adding elements of self-reflection, performance, or presentation aspects, planning or brainstorming submissions.
- How will you ensure clarity of expectations around AI usage? Aim to be clear to students about what is expected, and how AI may be used by them (if at all).

The AI Usage Guidelines in the Tikanga section of this guide are of great use for ensuring assessment clarity.

Can I use AI for marking and feedback?

Please do not use AI for marking or feedback.
NZQA discourages the use of AI for assessment feedback.
While AI is a useful tool, it does not know the finer details of your student, their learning, their next steps and their progress. Using it to give feedback or mark leads to judgements being made that are not reflective of the whole picture and are ultimately unfair on students.
Data privacy is also a significant concern as AI software may own anything it creates or may retain records of it. Inputted information will potentially be used for other generations outside of your own.

Prompts

A prompt is a question, code, or information that instructs an AI on how to respond. The prompt plays an important role in shaping the form and quality of response received.
The best prompts are clearly expressed, use neutral language and are carefully worked overtime to get the desired results.
Prompts should:

1. Be precise
2. Check the facts
3. Iterate and improve
4. Role play
5. Remind, remind, remind
6. Provide context

Aspect of prompt	Explanation
Be precise	Gen AI models can't think, and they can't second guess what you want them to produce. If you provide a generic prompt, you will get a generic response. If you are detailed to your prompt, you will end up with much more specific results. Add as much detail to your prompts as possible. This might include word length, topic, notes on tone and style, and specific requests on how to incorporate evidence.
Check the facts	Gen AI models are notorious for fabricating information. This occurs because of how they generate their outputs. The model doesn't think rationally, nor is it capable of fact checking its own output. It is generating predictions based on the rules in its data set. When writing prompts, be specific in your requests for evidence, and require the AI to provide a reference list so you can manually check sources.
Iterate and improve	Responses from a Gen AI are unlikely to be perfect at the first attempt, no matter how much context you provide. It is helpful to keep track of your most successful prompts and using these as a base to improve upon.
Role play	Asking chat GPT to role play, or act, or pretend, or conduct a thought experiment, can be a useful tool for crafting your prompts. If you are looking for a specific style of outcome, or trying to target a particular audience, then asking it to role play adds an extra layer of interest to the output. When using role play prompts, you can ask for personality traits, i.e, be critical, cheerful, respectful or cynical. You can ask for roles i.e. teacher, school leader, student and assign tasks to the model.
Remind, remind, remind	Most chat bots have a memory. This function means you can teach the model to correct errors, fix issues, and hold something like a realistic conversation. The memory is limited, and chat bots tend to forget aspects of prompts and drift back to default styles. Applying reminders to prompts supports the AI in remaining focused
Provide context	Contextualising prompts reduces the chances of default, unimpressive or fabricated responses.

Furze (2024)

Using Prompts

Lesson development can be greatly assisted by the use of AI prompts. This can include:
Considered prompt use to generate lesson ideas

- For example: “Using the content in the paragraph below, please develop a lesson outline for Y12 students in New Zealand, that would support a novice student in becoming confident with the key ideas of the (event/concept). Please ensure that the lesson outline works within a 55-minute period and includes considerations from pages (number range) from the attached document (in this case, Tino Akoranga). Please integrate at least two formative assessment approaches into the lesson, referring to the content on page xx of the attached document.”

Development of lesson resources

- For example: “Using the information contained in the paragraph below, please generate a series of multiple-choice review questions. Please ensure that the questions consider….(whatever it is you wish to assess). Please also ensure that the multiple-choice answers all have some aspect that is correct to ensure adequate challenge…”
- For example: “Using the content in the paragraph below, please develop a series of worked examples to help Y12 students understand xyz. When building these examples, please integrate ideas from (insert information from Tino Akoranga here)”
- Prompts can be created to deploy interactive activities for students. These include evaluative tools, creative writing prompts, and role-playing story generation.

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AKO – SCHEMES OF WORK: DEFINING BEST PRACTICE

Schemes are critical for ensuring equitable educational experiences for all students.
"A major challenge in NZ schools is a lack of consistency in approach" Bishop (2023)
"While we have high between school variability, we have even higher within school variability, which speaks to the different educational opportunities different students within the same school are receiving. Hood (2022)

Schemes ensure there is no mystery to teaching a course. They need to be lived, used, and drivers of shared practice. Schemes need to be portable to practice and to planning. They should make our lives easier.

"Implementation fidelity is the degree to which an intervention is implemented as intended so that expected outcomes are realised…there is a right way to implement approaches and a wrong way." Bishop (2023)

Key components of schemes and rationales, with commentary

Title of lesson or lesson sequence	**Timing**	**Big Idea(s), Significant learning, or Key idea(s)**	**Learning intentions**	**Success criteria**	**Formative Assessment**	**Sequencing commentary**	**Suggested Resourcing** (files or links)
This should be clear enough that a non-expert or newcomer to your faculty could ascertain the focus of the lesson.	This can be the number of lessons and/or date/week indications. Some schemes will take a lesson-by-lesson approach, whereas others will consider sequences of similar lessons. Sequences of lessons should not be so large that specific lesson approaches become unclear or too varied to state within the scheme.	This section should set the scene for the lesson and sequence of lessons, providing a major indication to the reader about the most critical focus for the lesson. Please consider NZC refresh UKD approaches and/ or NCEA Change package supports.	Provide a signal to students about "Where am I going?" Learning Intentions should be: Focused on what students are learning (not the activity) Written clearly in student-friendly language. Written without context/content (when possible) Specific, Measurable, Achievable. Revisited throughout the lesson	Provide a signal to students about "How am I doing?" Success Criteria describe what successful attainment of the learning intention looks like. Success Criteria are the measures used to determine whether and how well a student has met a learning intention. Success Criteria should be visible outputs of formative and in dure course summative assessments. They also allow the teacher and students to make judgements about the quality of learning.	Informs the teacher and the student as to how learning can move forward as it happens and typically has lower stakes. A high-quality scheme of work should support a range of formative approaches over the sequence of learning. These approaches covering the **"Wiliam grid"**.	Within the lesson, sequencing should be considerate of **"I do"**, **"We do"**, **"You do"**: and "**Checks for understanding"** as specific approaches. It is recommended to include guidance on transitions where relevant. How this lesson or sequence of lessons fits within the wider sequence of learning and supports that a non-expert would require when delivering this learning should also be considered.	This may include fully developed OneNote pages, PowerPoints, activity scaffolds and other items that support a teacher in delivering what is described in the scheme.

Timing should be revisited throughout the planning of a scheme of work and considerate of the wider year plan.

"Big Ideas" directly inform "Learning Intentions" which directly inform "Success Criteria". Success Criteria the performative output that supports formative assessment.

Sequencing commentary is supportive of the development of the student's expertise. The narration of the rationale of practice an invaluable support of collective and collaborative planning.

Example scheme, with commentary

Title of lesson or lesson sequence	**Timing**	**Big Idea(s), Significant learning, or Key idea(s)**	**Learning intentions**	**Success criteria**	**Formative Assessment**	**Sequencing commentary**	**Suggested Resourcing** (files or links)

Introduction to Race	W1, T3 One lesson	Knowledge: Power relationships often drive history	We are learning about the key concepts of power, race, ethnicity and racism	I can define and describe the key concepts of power, race, ethnicity and racism. I can give examples of what they are and are not	Mind mapping activity, connecting concepts and definitions with examples and non-examples.	This lesson introduces and unpacks the concepts of power, race, ethnicity and racism. These concepts are taught directly at the beginning of the lesson, with examples and non-examples directly taught via the Frayer model (I do). Students then are guided through the completion of one branch of the mind-map. Questioning is used to check for understanding, then students complete a mini-whiteboard mind-map plans in pairs with some teacher direction. Finally, students complete their own mind-maps. This lesson builds on some of the learning from the land activism unit. It sets the unit up to explore how these concepts are connected. There will be some challenging elements in this lesson. Engage with sensitivity, know your students and reiterate the importance of respectful dialogue.	OneNote page Slides (link) Mindmap template (link)
What is a perspective?	W1, T3 One lesson	Knowledge: Power relationships often drive history Knowledge: Place shapes the histories of peoples	We are learning about perspectives, what shapes them and how they influence behaviours	I can describe and explain what a perspective is, what shapes a perspective and how they influence behaviours via peer-to-peer	Think-Pair-Share discussion of perspectives. Completion of own perspective writing.	Perspectives are introduced through a direct teacher modelling activity, with teacher commentary alongside. These are then practiced via peer-to-peer discussion in a 'think-pair-share' format, where students review a selection of perspectives then discuss their understanding of them using the TPS scaffold. Students then individually have a go at writing their own perspective. This lesson introduces the idea that people have perspectives and that these perspectives are shaped by certain factors. It builds on learning from Year 10 Social Science but will need further development.	OneNote page Slides (link) Think-Pair-Share scaffold (link)

Connections are made to previous learning. This supports teachers to highlight connections and students to be supported in utilising prior learning. It also supports a teachers awareness of students who may have not been present for the previous learning, This supporting more effective response to gaps in their learning. Finally, it is supportive of teachers who may have picked up the class later in the year, signalling a need for them to be familiar with that unit of learning.

Modelling allows for students to understand the steps that are included in a process. Teacher commentary supports student metacognition by narrating thinking processes that are supportive of effective process completion.

Further detail on effective approaches to ‘think, pair, share’, especially as a tool for formative assessment can be found in Tino Akoranga.

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Dos and Don’ts for scheme development	
Do	Do Not
Share the load - pedagogical content knowledge matters, specialists need to be empowered as authors of schemes. Apply ideas from a range of high-quality resources. Enable the professional growth of novice scheme builders by including them in the development of schemes alongside more experienced staff. Start with clear and sequenced learning intentions that a non-expert can follow, then map these to specific success criteria. Construct with your faculty, clear timelines around who, what, and how these schemes will be completed. Consider how accessibility to schemes can be maximised within faculty One Notes and Teams. Follow scheme templates that align with school-wide evidence-based approaches. Provide specific supports relating to transitions, learning intentions, success criteria, do now's, "I do", "We do", "You do" and plenaries. Check the progress of schemes as they are developed. Consider schemes as living documents and encourage their active use in faculties.	Assume expertise. A clear understanding of the fundamentals of curriculum design is essential to writing a scheme, as is grounded experience of timings and sequences. Assume AI can do it for you. AI is a tool. It is a linguistic predictor not a reasoning algorithm. Delegate scheme development to novices with the expectation that the scheme is built in isolation. Start with activities, work sheets or applications. Conflate summative with formative assessment. Allow schemes to be attached to one person's account - they need to be accessible to the wider faculty. Assume that older templates are fit for purpose. If in doubt, check with DP Curriculum. Disregard any aspect of "maximising learning time". Shifts in emphasis are appropriate and necessary. Those shifts directly considering our model. Do not assume schemes will be completed by the deadline without checks and balances.

Learning intentions

Learning intentions are <u>inputs</u> in curriculum design and lesson delivery. They directly inform success criteria.
They serve an essential purpose in helping the students in our class understand what they will be learning and how they can make progress.

Signal to students: “Where am I going?”
Statement that explicitly describes what students should **know, understand, or be able to do** as a result of teaching and learning.

- to understand
- to know
- be able to do
- Learning intentions identify new learning and focus on transferable skills

Archer, 2018

Effective learning intentions are:

- **Clear:** In terms of content and language, learning intentions must be crystal clear for every member of the class.
- **Specific:** The teacher and students know exactly what needs to be learned and how.
- **Desirably difficult:** The level of challenge provided by the learning intentions should be desirable for all students.

Success criteria

Success criteria are a performative <u>output</u> in a lesson and sequence of lessons. They are visible in a lesson and over a sequence of lessons. They are directly informed by learning intentions.

Should be a feature of a scheme of work to support consistent high-quality practice.
Can provide a way of assessing student understanding or mastery of learning.
Can provide guidance for teachers around differentiated practice.

Should be carefully unpacked with students to support high expectations and can be co-created with students for some tasks.

Wiliam & Leahy, 2015

Signal to students: "How am I doing?"
Describes what successful attainment of the learning intention looks like.
Are performative by design.
Success Criteria are the measures used to determine whether, and how well a student has met the learning intention.
Allows the teacher and students to make judgements about the quality of the learning.

Archer, 2018

Shirley Clarke (2008) states that once students have success criteria, they have a framework for affirmative dialogue, with other peers or teachers, this enables them to:
Ensure understanding.
Identify success.
Determine difficulties.
Discuss strategies for improvement.
Reflect on progress.

Clarke, 2008.

How do Learning Intentions differ from Success Criteria?
Learning intentions - descriptions of the intended change in long term capability.
Success criteria - descriptions of desired performance in learning tasks.
Learning intentions and success criteria differ not in their specificity, but in what they refer to. The distinction is important because learning is a change in long term capability, so learning cannot be judged in the moment.

Sequencing

Sequencing – the logical ordering of learning activities is foundational to high quality scheme of work development.

- Global before local: focusing on conceptualising the whole task before executing the parts.
- Increasing complexity: Meaningful tasks gradually increasing in complexity.
- Increasing diversity: practice in a variety of situations to emphasise broad application.

Collins et al, 1991

Resourcing

Scaffolds, resources, and teaching approaches should be selected to support Learning Intentions, Success Criteria and scaffold toward assessment. They are not in and of themselves a scheme of work. Supportive commentary is ideal for developing classroom practices that enable Tikanga, Ako and Mahara in action.

Formative and Summative Assessment

Formative and summative assessments are critical elements of schemes of work.

Formative Assessment	**Summative Assessment**
Should be geared toward "identifying supports for teaching."	Should be aimed at "creating shared meaning" – has meaning beyond an individual classroom allowing comparison.
Needs to have the following features:	**Needs to have the following features:**
Specific: focused on narrow concept domains – to allow precise gaps to be identified. **Frequent**: building on the idea of regular retrieval to develop long term memory. **Repetitive**: To ensure skills and retrieval are practised in a focused manner.	**Standard Conditions:** Time, resources, assessed task. **Scaled Scores:** Allowing comparison between classes. **Sampling a large curriculum domain:** Supporting broad curriculum delivery. **Infrequent:** Supporting teachers in having more time to teach.

Sherrington, 2017

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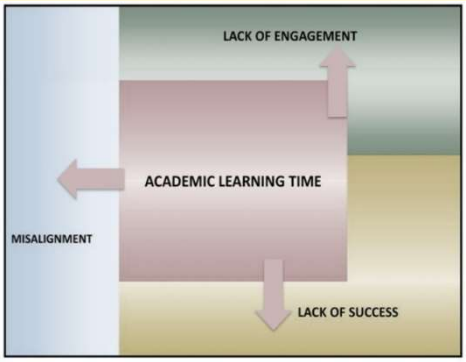
AKO - CURRICULUM DESIGN: SUPPORTING LESSON PLAN PREPARATION

Considered instructional design is critical in ensuring high quality pedagogy. It is scaffolded by clear lesson, unit planning and schemes of work.
The Aitken model of practice is helpful when considering highly effective pedagogy.
Great teaching seeks to maximises "academic learning time" through highly aligned and engaging teaching and learning activities that support students in feeling successful as students and being able to demonstrate their learning.
The template below is intended as a suggested support to instructional design considerations.



Source: Associate Professor Graeme Aitken, Faculty of Education, University of Auckland

In a lesson plan, the following should be considered:

- The classroom environment and routines that are supportive of student learning.
- Prior learning, subject specific knowledge, and associated pedagogical scaffolds and approaches.
- Appropriate assessment for learning activities

Lesson title:
Lesson focus:
Class:
Year/Level:
Relevant Assessment:
Additional considerations:

Learning intentions:

Success Criteria:

When considering the specifics of your lesson please plan for how learning is scaffolded and secured and how from a teacher and a student's perspective resources and activities are effectively used.

Timing	Lesson component	Resources	Rationale and Commentary.

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MAHARA – A PRINCIPLE FOR EXCEPTIONAL LEARNING

"There is clear value in teachers being trained in cognitive science principles—undertaking professional development and learning in the area—and their application in the classroom." Perry. et al.

Our third exceptional learning principle is Mahara. In Te Reo Māori, the term *mahara* refers to recalling the past, or looking back. In an educational context, Mahara refers to supporting learning to become part of memory. Effective teaching is about ensuring our students are equipped to use their learning beyond the assessment and into the future.

Teaching for memory - learning is a change in memory. Teaching supports that change.

Exceptional learning means students being able to remember, retrieve and use learning. It also ensures students develop strong process recall. Understanding how the brain learns allows us to ensure that we teach in such a way that supports transition to long term memory and strengthens the ability of our students to retrieve and utilise what they have learnt and how to use it. Reducing cognitive overload by reducing distractions, presenting new learning in chunks and, developing retrieval strength all assist us in this principle.

In Te Reo Māori, mahara means 'to think, thinking, thought'.
Learning requires students to be able to both recall, and, critically **use** knowledge they have been taught.
For teachers to be able to support their students to do this effectively, they must have an understanding of the mutual reinforcement of learning in memory, and memory in learning.

Our principle of Mahara is based in cognitive science, most especially in 'cognitive load theory' as described by John Sweller. As such, we aim to ensure that our teaching practices work with the brain, not against it, being mindful of issues such as cognitive overload whilst also seeking to apply practices that support the integration of learning into the long-term memories of our students. We consider ideas such as 'novice to expert', 'generative learning', 'thinking hard', and the integration of 'desirable difficulties' critical to such practices.

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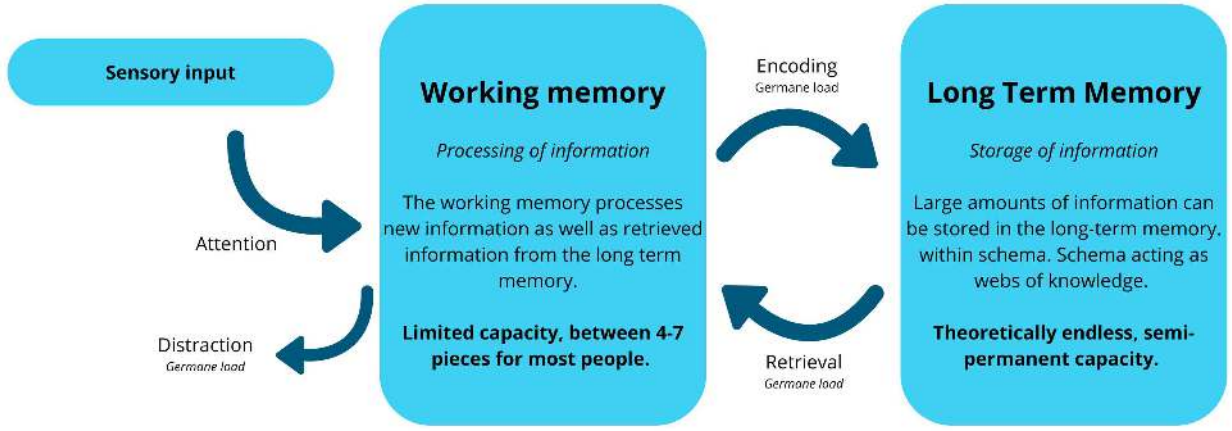
MAHARA – COGNITIVE LOAD THEORY AND MEMORY

Cognitive Load Theory, introduced by John Sweller in 1988, explains how memory and cognitive architecture influence learning. New information is processed in the Working Memory alongside prior knowledge, but this system can only handle about 4–7 elements at a time. This limitation means teachers must consider the complexity of the material (intrinsic load) and minimise distractions or irrelevant demands (extraneous load).
Long-Term Memory acts as a storehouse of learnt knowledge. When information in Working Memory is successfully encoded, it becomes part of existing knowledge structures (schemas). Retrieving this learning strengthens it, making future access easier and deepening understanding. Germane load refers to the mental effort dedicated to building and refining these schemas as new learning is integrated with what students already know.

Sweller (1988, 2011), Miller (1956)

Cognitive Load Theory



Adapted from Hood (2025). Developed by Wing & Heneghan (2026)

When we think, we draw on…		
The environment This is everything outside of our minds. It is the Internet, books, magazines, knowledge readily shared by others, and more. The environment is an unlimited external store of information.	**Working memory** This is the site of the consciousness, the parts of memory where all thinking takes place. The capacity of working memory is limited to between four and seven elements of information.	**Long term memory** This is where all our memories are kept. This includes memories of life events, factual knowledge, and memories of process. As far as researchers are aware, there is no limit in long term memory.

Five Principles of Cognitive Science

We only learn when we pay attention and think hard.
Our working memory is limited when we learn something new.
What we know determines what we learn and how quickly we learn.
Fluency arises through practice over time.
There is a relationship between learning and forgetting. To learn, there should be some forgetting.

Implications of Cognitive Load Theory on Mahara

- Working memory is limited compared to long term memory.
- Working memory decays rapidly.
- Present new learning in small chunks.
- Be mindful of overload.
- Novices and experts think differently.
- Cognitive load is higher for novices.
- Multiple encounters with learning are needed to move it to long-term memory.

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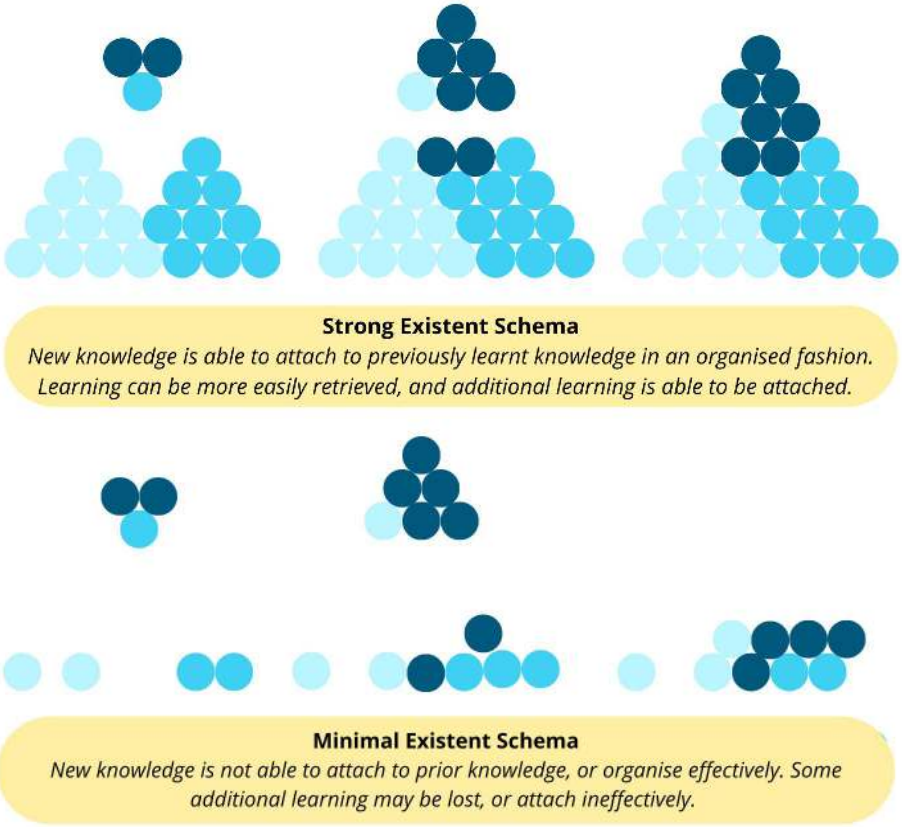
MAHARA –THE ROLE OF SCHEMA

Schema Theory conceptualises how new learning comes to be attached to webs of previously gained knowledge held in the Long-Term Memory. As this occurs, the brain develops protocols for how additional new knowledge may fit within these webs.

Where strong prior knowledge exists, schemas ensure that students can readily make sense of new learning and organise it in such a way that it can be utilised later with ease. Where little prior knowledge exists, the schema must be built in such a way to ensure that new learning is understood - including aspects such as concept boundaries, and interpretive clues. This highlights the importance of a considered and sequenced curriculum. Schema constantly adjust as new learning and sense making occurs. This, along with the benefits of retrieval makes it important to return to learning multiple times.

Implications of Schema on Learning



Adapted from Hood (2025)
Wing & Heneghan (2026)

Episodic Versus Sematic Memory

Some information, when presented in a high-stakes way, may stick around – this is often what might be considered a 'memory' – for example, your recollections of the attacks on the World Trade Centre on Sept 11, 2001, or your 10th birthday party. This is known as episodic memory. It is unreliable and heavily bound to context. When context is removed, the knowledge is significantly less useful and transferable.
Much of the learning that we do in schools is not episodic. It is more likely to be semantic - knowledge of, and knowledge how. It is knowledge taught and learnt in an orderly fashion, organised into schema (see below). Within this, students are able to develop conceptual understandings, knowing what something is, and is not, and make connections to examples and non-examples.

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MAHARA - NOVICE AND EXPERT STUDENTS

Novices and experts experience learning very differently. Novices require greater guidance and more directive instruction. What is intuitive for an expert is often confusing for a novice. Novices are more prone to cognitive overload. They benefit most from explicit, direct instruction with guided practice and relevant feedback.

Becker & Gersten (2001) Stockard et al. (2018)

Novice students	**Expert students**
Has little relevant background knowledge.	Has lots of relevant background knowledge.
Relies on working memory.	Relies on long-term memory.
Lacks effective mental representations of successful performance.	Has a clear mental representation of successful performance within a domain.
Has not automatised necessary procedural knowledge.	Necessary procedural knowledge has been automatised.
Problem solving requires following clear steps.	Problem solving is intuitive.
Sees superficial details.	Sees underlying structures.
Learns little when exposed to new information.	Learns a lot when exposed to information about which they are already knowledgeable.
Learns best through explicit instruction and worked examples.	Learns best through discovery approaches.
Is more likely to experience cognitive overload as attention is swamped by new information.	Is unlikely to experience cognitive overload as attention is buttressed by memorised 'chunks' of knowledge.
Struggles to transfer principles to new contexts.	Is able to transfer principles between related domains.

Adapted from Didau (2019)

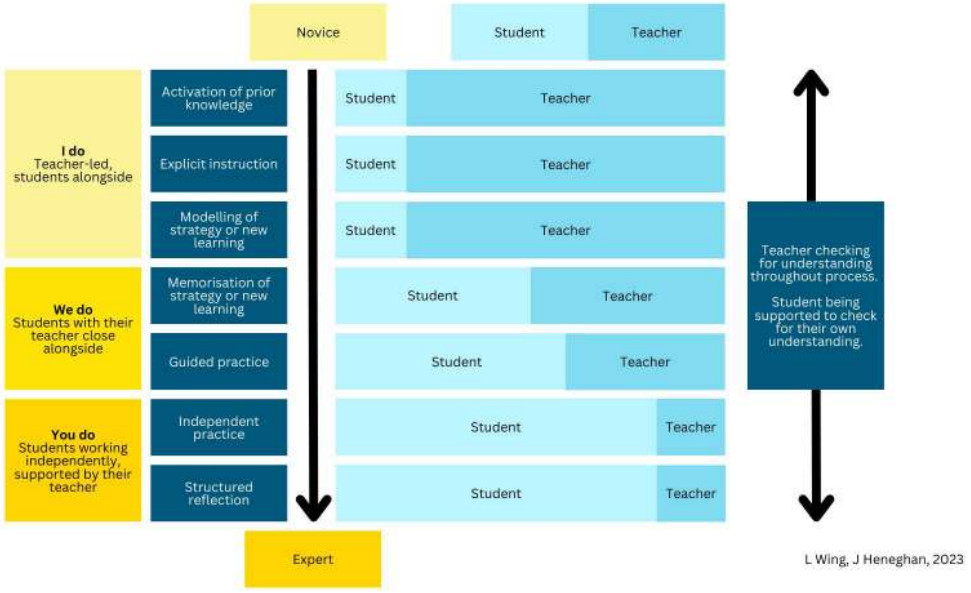
If as teachers we fail to adapt our approach to our changing student (and their changing cognitive load) we run the risk of leaving learning unsecured, becoming never-ending spoon-feeders, and fundamentally disempowering a student and their academic potential.

To move from our students from novice to expert and develop expertise, scaffolding is added and removed as appropriate. An approach informing this transfer from novice to expert is "I do, we do, you do" and is supported by regular checking for understanding**.**

Didau (2019), Fisher & Frey (2008).

MOVING FROM NOVICE TO EXPERT: I DO, WE DO, YOU DO

Adapted from Bollinger et al. (2012) and Quigley, A., Muijs, D., and Stringer, E. (2021)



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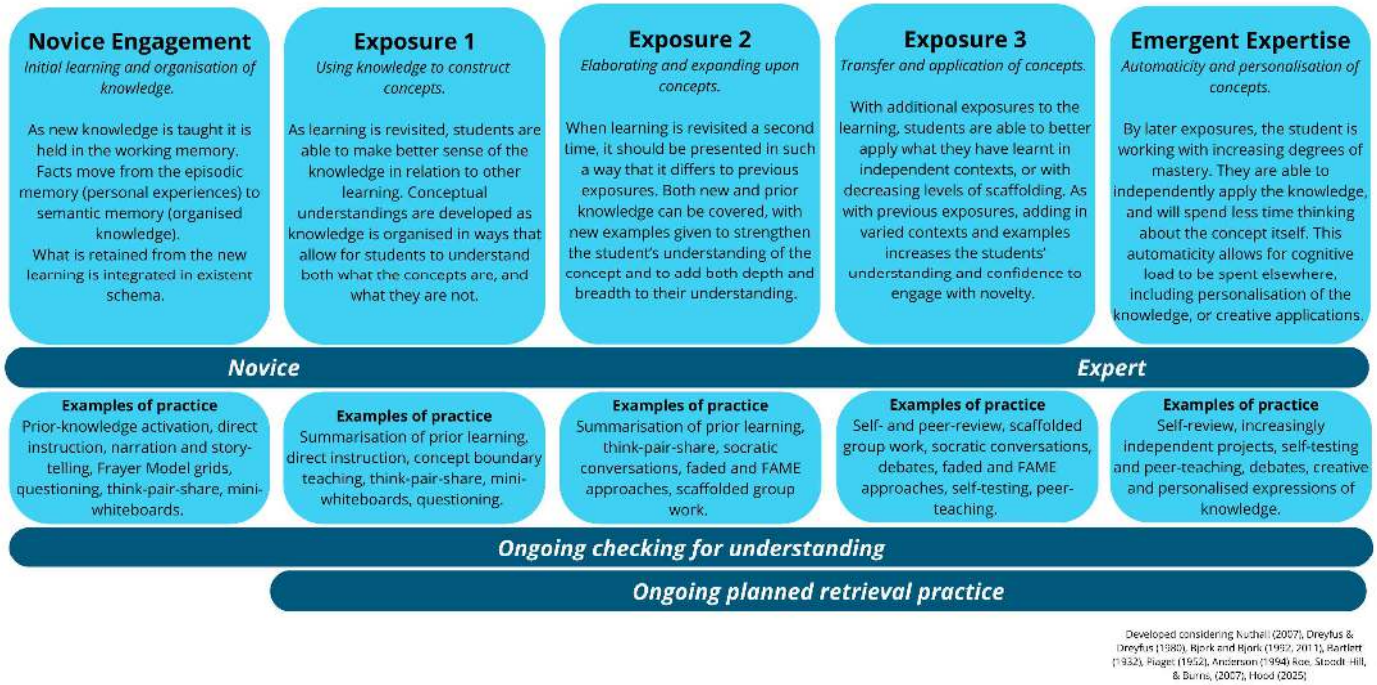
MAHARA – MULTIPLE LEARNING EXPOSURES

"We discovered that a student needed to encounter, on at least three different occasions, the complete set of the information she or he needed to understand a concept. If the information was incomplete, or not experienced on three occasions, the student did not learn the concept" Nuthall (2007)

Learning is best secured when students have multiple opportunities to engage with it, in varying contexts and with varying degrees of scaffolding. This repeated exposure allows for students to build conceptual understanding and build connections with existing knowledge. These exposures also support schema in ongoing restructuring to integrate new knowledge and to better organise existent knowledge.

As students spend more time with knowledge they develop expertise, moving from novice to expert and becoming increasingly able to use the knowledge independently. The role of the teacher in this process is to ensure that adequate exposures to learning are provided, that these exposures vary, allowing for testing of the boundaries of the knowledge, as well as reducing scaffolding over time to ensure independence is developed. The use of low-stakes retrieval practices alongside these exposures further supports the knowledge to embed in schema and should be proactively and thoughtfully planned into the sequence of learning.

Multiple Learning Exposures: Supporting the Movement from Novice to Expert



Wing & Heneghan (2026)

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MAHARA - THINKING HARD

Learning as an *active task* that *requires effort* from the student. Learning is supported by ***thinking hard.***

Thinking hard

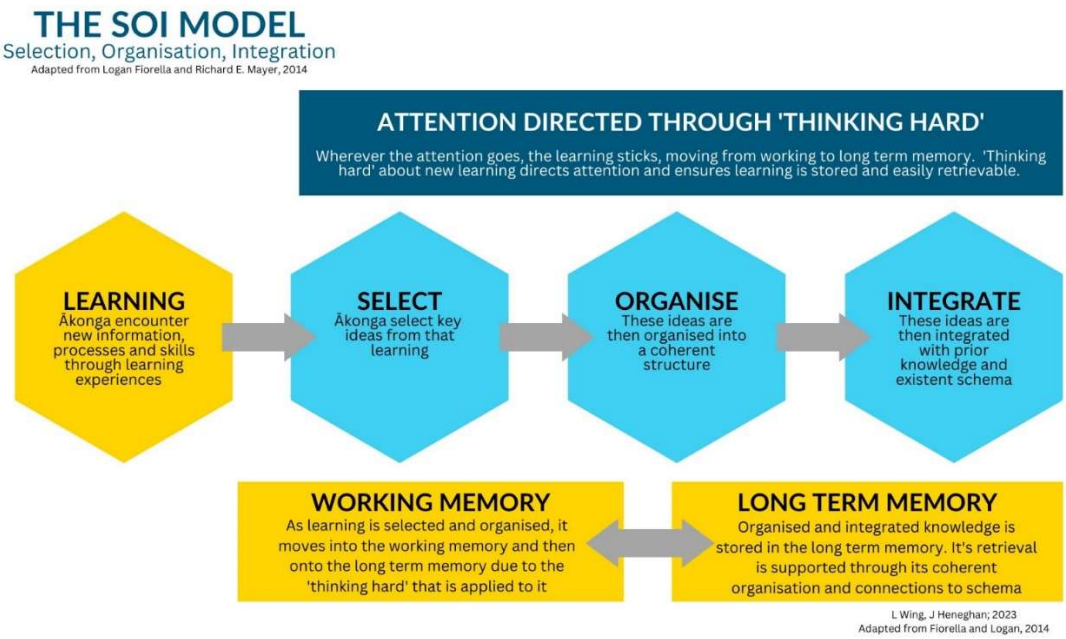
We want to make the student "think hard".

Generative learning describes that this is effective when students are supported in…

Selecting key ideas, **Organising** ideas into a coherent structure, **Integrating** ideas with prior knowledge

The SOI model utilises 'thinking hard' by directing attention to the most relevant parts of the learning and facilitating its interrogation by students. By doing this, learning is more likely to enter the long-term memory and be organised in such a way that it can be easily retrieved for later use.

Fiorella & Logan (2014)



The Hattie Meta-Study and strategies supporting 'thinking hard'.

Professor John Hattie of the University of Melbourne, Australia, has spent over 25 years analysing educational research to identify which variables had the greatest effect on learning. Hattie's research focuses on 'effect-size', which balances the benefit of the variable against aspects such as its cost or challenge to integrate. The study found that the average effect size is 0.4, representative of one year's worth of growth per year for a student. Anything above 0.4 as having a better impact on learning than it not being used.

Strategies supporting 'thinking hard' and 'select, organise, integrate'.

Fiorella and Mayer (2015) identified a range of strategies shown to promote students understanding across many studies. These include: summarising, mapping, self-testing, self-explaining, teaching.

These strategies support students to 'think hard' and 'select, organise and integrate'. The meta-study has identified positive effect sizes for these strategies ranging from 0.5 - 0.77.

These strategies are also relevant to secondary contexts and have a strong research base to support them.

Research base and effect size of the strategies above		
Pedagogical strategy	**Positive research base**	**Effect size**
Summarisation	26/30	0.5
Mapping	23/25	0.62
Self-testing	44/47	0.62
Self-explaining	44/54	0.61
Teaching	17/19	0.77

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MAHARA –THE RELATIONSHIP BETWEEN LEARNING AND PERFORMANCE

An indication of successful learning is that a student can retrieve knowledge and skills at a later date, applying them beyond them not just within class, not just for the next assessment, but also in their lives to come.

Vlach & Sandhofer (2013)

As our students move from novices to experts, their needs as students change, as thus must also our practice to ensure that they continue to develop their independence and ability to use the learning they have acquired. One such way this can be done is by developing student agency, with a focus on supporting the self-awareness, self-efficacy and self-regulation needed for independent success.

Student Agency

Student agency is described by numerous sources, in numerous ways.
"Agency describes the ability to identify valued goals and desired outcomes, and to pursue those goals and outcomes proactively, purposefully and effectively".

Education Hub (2020)

Drivers of Student Agency include:

- **Self-efficacy:** Confidence in one's abilities.
- **Self-awareness:** Thoughtful identification of one's values and priorities
- **Self-regulation:** The ability to direct one's efforts towards specific goals.

Formative and summative assessment are foundational in supporting students in locating themselves in their learning, and developing self-efficacy, self-awareness, and self-regulation.

Assessment and Student Outcomes

- Success in summative assessment is a critical output of a student's educational journey.
- Formative assessment and specific preparation for summative assessment (i.e. revision) are foundational in securing success in summative assessments.
- Students need to develop independent mastery to support their achievement of personal excellence.

Students who are habitually dependent on scaffolding and teacher direction are likely to struggle when required to demonstrate their learning independently and less likely to have developed agency.
External examination performance is a strong indicator of success in post-secondary pathways.

Assessment as a Helpful Tool for Developing Independence

The testing effect describes the finding that, in comparison to restudying, engaging in retrieval of previously learned material makes this information more recallable in the future

Bjork, (1975)

Generating answers from memory feels more difficult than being presented with the information during restudying, but it also leads to more in-depth processing and therefore improved long-term retention

Perry et al. (2021)

Learning and Performance

Learning intention: Planned input	**Success criteria:** Performed output
Learning is a permanent change in memory. If you cannot remember something, you do not know it. Learning may be seen in an assessment completed days, weeks or even months later.	Performance is what we can observe during or soon after instruction. It might be the ability of the students to answer questions or complete a task with direction. However, the ability of students to answer these questions, or complete this task does not mean they have learned, and that they will be able to do it independently.

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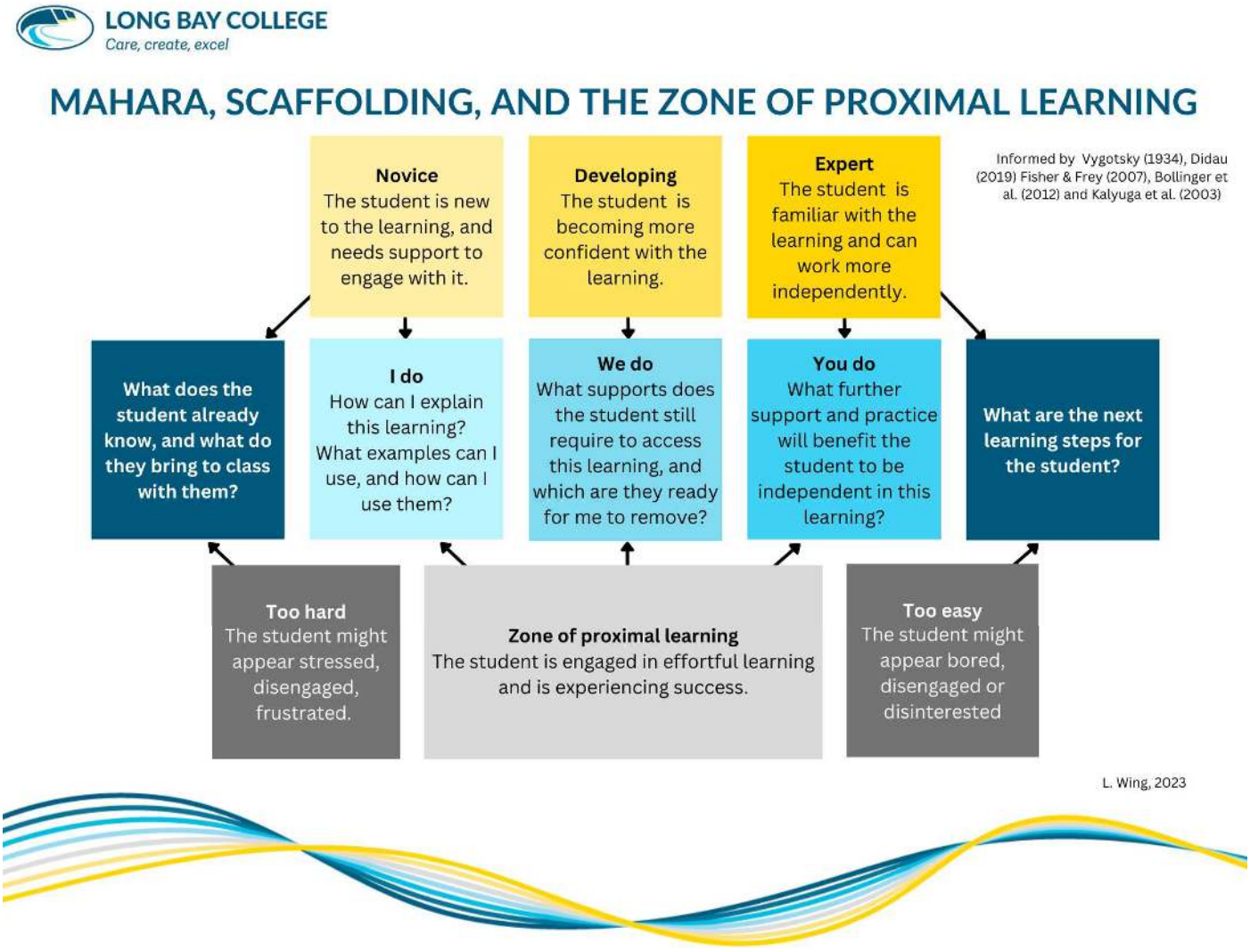
MAHARA – THE ZONE OF PROXIMAL LEARNING

The Zone of Proximal Learning
The Zone of Proximal Learning is defined as the space between what a student cannot yet do without assistance, and what a student can do without assistance. The space in between being where a student is able to experience a combination of challenge and success, either with adult guidance or in collaboration with peers.

Vygotsky (1934)



Keeping learning in the Zone of Proximal Learning
The challenge to our practice is to adapt to the changing needs of the student, keeping the student in Vygotsky's 'zone of proximal development'. This is done through consideration of how student learn as they move from novice to expert, and the adding and removing of supportive scaffolding as student progress.
Specific strategies that support this include:

- Activating prior knowledge.
- Explicit instruction.
- Using examples effectively.
- Guided practice and fading approaches.
- Retrieval practices.
- Summarising.
- Visualisation using mapping.
- Student self-testing.
- Peer teaching.

These approaches secured by regular checking for understanding.

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MAHARA – SCAFFOLDING

"All things are difficult before they are easy" - Thomas Fuller

Scaffolds are the instructional practices designed to support students as they develop from novices to experts. They are the training wheels so to speak that allow students to become confident with their learning, securing early success and increasing independence. We must constantly review the learning of our students and make judgements about the requisite scaffolds needed at any one time. As described in the 'Zone of Proximal Learning' section above, students need to experience the right degree of challenge to be able to effectively learn. This goes both ways – too easy, and students disengage or decline, too hard and students disengage, fail to learn or become disheartened.

Hammond (2025), Kirschner, Hendrick & Heal (2025)

Benefits and Pitfalls of Scaffolding	
Benefits	**Pitfalls**
Scaffolding is critical to ensuring that learning is accessible, and early success is achieved. Scaffolding can support when students are moving into new or more complicated learning, acting as a bridge. Scaffolding can support where gaps in learning may exist, although this is best used with caution to avoid it becoming overused and gaps in learning remaining unaddressed. Without scaffolding, students may not be able to engage with what we have taught them or will experience persistent and compounding failure.	As per the "Easy Wins" instructional illusion, if all learning is easy, comfortable and our students are never asked to 'think hard' they are unlikely to experience (and perhaps any) learning. Scaffolding cannot remain in-situ forever. We have a responsibility to build mastery in our students, and if the supports are never removed mastery cannot follow. Scaffolding must also be appropriately levelled for students, what is appropriate for some will prevent growth and development in others. It may even contribute to the expertise reversal effect described later in this book.

Kirschner, Hendrick & Heal (2025), Hammond (2025)

Examples of scaffolding			
Sentence starters	Exemplars, full and partial	Questioning	Teacher feedback
Word banks	Worked examples	Think-Pair-Share	Class discussions
Resource banks	Demonstrations	Mini-Whiteboards	How-to-guides

Scaffolding, applied across stages of learning: Ignite, Chunk, Chew, Review

	Ignite	Chunk	Chew	Review
What it means	Get the brain's attention.	Make information digestible to the student.	Actively process new information.	Provide opportunities to apply new learning.
Rationale	We cannot remember or understand what we do not give our attention to. This increases cognitive capability in the short term. This reduces cognitive load.	The brain can only hold a certain amount of information for processing at a time. This reduces cognitive load.	The brain needs processing time. It cannot be continually receiving new input. This reduces cognitive load.	To consolidate the transfer to long term memory, new learning needs to be applied. This reduces cognitive load.
Goal	Cue the brain to pay attention.	Provide information to be learnt in "chunks" appropriate to the student.	Help the brain to process new information and support the transfer to long-term memory.	Reinforce the transfer to long-term memory.
Examples	Storytelling, call and response, a powerful quote/statement/image/	Completing tasks part by part, breaking up teacher talk or reading something aloud into sections.	Thinking, mind-mapping, or writing about new information, answering questions, verbal and	Revisiting concepts and learning within a short time frame.

	video, connecting to prior learning.	written responses, scaffolded discussion.	Applying the learning to a new task. Creating, writing, solving a different kind of problem.

Adapted from Hammond (2014)

When to remove scaffolding

The purpose of scaffolding is to help students become more capable of learning independently and thinking metacognitively. As students move been the stages of 'novice to expert' the degree of scaffolding should shift as well. Greater independence should be actively planned for, with the expectation being that the scaffolds will be needed increasingly less as independence grows. The process should be gradual, with ongoing formative assessment used as a tool to gauge readiness and increasing mastery.

Teachers should be using formative assessment to ascertain points such as:

- Are my students 'getting' around 80% of this? *Scaffolding should removed slightly before it is redundant to allow for some challenge.*
- Are my students emotionally ready for the removal of these scaffolds? Do they understand why, and where to go should they need support? *Scaffolding is for many students a safety net that they can come to rely upon.*
- Are my students able to articulate their metacognitive processes, such as being able to explain their problem-solving processes, or reflect on their learning or next steps? *Being able to articulate thinking clearly suggests a stronger degree of mastery.*
- Is the learning still desirably difficult for my students, or are they finding it increasingly comfortable? *Refer to the Desirable Difficulties section in this chapter for more.*

Quigley, Muijs & Springer (2025), Hammond (2025), Kirschner, Hendrick & Heal (2025)

What about over-scaffolding?

Scaffolding that is never removed, examined, or removes the need for a student to think at all about their learning is 'over-scaffolding'.

Over scaffolding typically happens in three places during a lesson:

At the start of an instructional period

Teachers may provide students with too much initial information before or at the start of a lesson.

This might include:

- Pre-summarising learning for students before they have the opportunity to engage with it.
- Front-loading expected outcomes of a task ahead of completion.

During Instruction

Teachers may provide too much "just in case" information while students complete activities.

This might involve:

- Overly intensive "how-to" guides
- Word-by-word writing frames

Teachers may not expect their students to engage in all aspects of the learning.

This might involve:

- Repeatedly allowing students to opt-out of answering questions, or particular activities due to discomfort.
- "Saving" students who are struggling by doing it with (or for) them.

At the end of Instruction

Teachers may allow students to spend more time than needed completing or revising work, and giving feedback to that work. While feedback is important, endless feedback and revisions does not support the students to become independent over time.

Hammond (2025)

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MAHARA – DESIRABLE DIFFICULTIES

The idea of desirable difficulty describes strategies that slow down performance but enhance long-term learning.

'Making things hard on yourself but in a good way: creating desirable difficulties to enhance learning'

Bjork and Bjork (2011).

Desirable Difficulties	Undesirable Difficulties
Desirable difficulties are strategies that secure learning, by making performance more challenging. These strategies require students to think hard about their learning. This enhances long term retention and knowledge transfer. These include: Spacing, varying the conditions of practice, interleaving and testing. Bjork and Bjork (2011).	Undesirable difficulties make the initial processing of new learning more challenging without leading to gains in long term learning. These include: Asking students to engage with new learning without the necessary background knowledge to do so. Assuming that students have progressed beyond a novice stage in their learning and are ready for final assessment. Any instruction that causes cognitive overload or makes initial presentation of the new learning more difficult

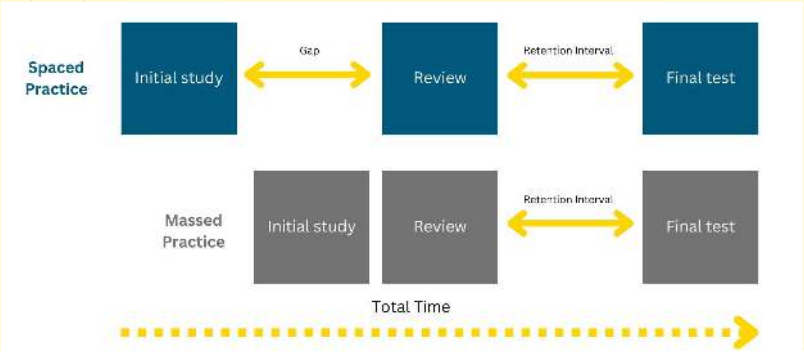
Desirable Difficulty 1: Spacing

The practice of spacing out re-study opportunities rather than completing these in immediate succession is known as spacing. Spacing is desirable because the delay between study and revisiting induces forgetting, which improves long term memory retention, comprehension and knowledge transfer. Vlach & Sandhofer (2013)

The effectiveness of spacing depends on the quality of teaching when students first encounter learning materials. It is important that the first revisit is not too soon after the initial learning in order to ensure the first recall is challenging. If there is a large gap between the teaching, and the test, the best time to review the learning is later rather than sooner. Forgetting is helpful to the learning process, so long as the revisiting happens. Moore & Pierce (2024)

Spaced Versus Massed Practice

Verkoeijen, Rikers and Schmidt (2005)



Ebbinghaus's Forgetting Curve

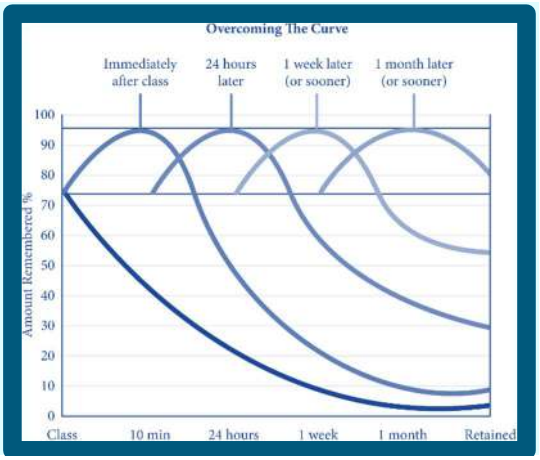
The original Forgetting Curve was derived in the 1880s by the German psychologist Hermann Ebbinghaus.

The Forgetting curve tells us that:

- Forgetting begins straight after learning.
- This attrition happens quickly to the point where even after a few hours most of the learning can be fuzzy.
- Practicing recall ensures that the pace and scale of forgetting is reduced.
- The how and when of this retrieval practice is important.

Ebbinghaus (1880, 1964)

Image adapted from NAPPI UK



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Desirable Difficulty 2: Varying the conditions of practice

Changing the context of instruction helps students to broaden their knowledge and skills and to use them more flexibly. Changing the location of study, time of study, how study episodes are organised, spacing delays, the type of questions we ask, and the order that topics are taught are all examples of how to change the conditions of practice.

Moore & Pierce (2024)

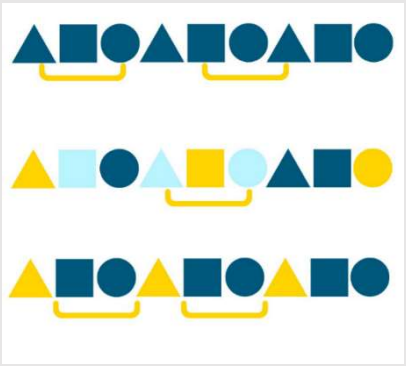
Desirable Difficulty 3: Interleaving

'Interleaving' is a practice that contrasts with the more commonly used 'blocking'.

Blocking involves focusing on one topic, or type of question, or activity at a time.

Interleaving involves mixing different topics, or type of question, or activity within a period of learning.

The Benefits of Interleaving



Discrimination learning: Students can see the differences between similar concepts, ideas, or approaches. When students to think about differences, they are prompted to 'think hard'. Contrasting information is more likely to stick in the brain.

Remembering similarities:

Students are prompted to see the similarities between concepts, ideas, or approaches. By highlighting similarities, we provide more anchor points for students to connect to their existent schema.

The benefits of spacing apply:

Students are given the chance to forget, which supports them to remember. Each time information is revisited, with some thinking needed to remember, it is supported to become ingrained in the long-term memory.

Battig (1979), Bjork & Bjork (2011), Firth (2023)

Effective interleaving	Ineffective interleaving
Interleaving material that requires students to discriminate between problems and concept emphasising differences between them.	Interleaving material that requires students to only notice similarities between problems/concepts.
Interleaving material within a topic that students tend to confuse.	Interleaving large topics or subjects, or material that is not related.
Presenting the concepts alongside one another with no delay.	Interleaving leaving large delays in between the concepts.
Interleaving a small number of concepts.	Trying to interleave too many concepts, overwhelming students working memory.
Interleaving complex material after blocked practice.	Interleaving complex tasks or concepts before students' knowledge of these concepts is secure.
Active interleaving involving student practice.	Passive interleaving with no student practice.

Carvalho & Goldstone (2014), Rohrer, Dedrick & Sterhic (2015), Hughes & Lee, (2019), Perry et al (2021)

Interleaving – Implications for practice

Know what your students already know, and apply your interleaving carefully based around this knowledge.
Verbally and visually show how new learning is the same and different to previously taught learning. This is helpful for black and white thinkers.
Similarity matters – don't go too far away from the initial focus as this will create confusions.
Time scale matters – don't let the gaps get so big that the examples no longer have coherence.
Follow the interpolation, extrapolation, stipulation process:
Interpolation: using examples that fall within a continuum-like range to support student to make inferences.
Extrapolation: using examples that go beyond the range of the concept or skill being taught to challenge student to apply learning to new material or in a new way.
Stipulation: presenting a wide range of similar examples and non-examples to support student to generalise.

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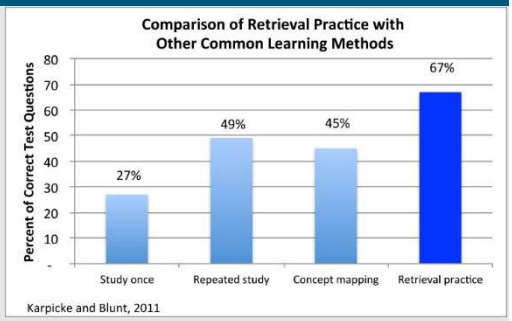
Desirable Difficulty 4: Testing

Testing, also known as retrieval practice, involves retrieving previously learned information from the long-term memory (Bjork, 1988).
The testing effect describes the finding that, in comparison to re studying, engaging in retrieval of previously learned material makes this information more recallable in the future (Bjork, 1975) and so it is more effective for long term learning and retention (Bjork and Bjork, 2011)



Successful Testing (retrieval practice).
In order to be effective, retrieval practice must be, at least in part, successful; Students must be able to retrieve at least some of the content accurately.
This supports students in receiving the benefits of the retrieval process and gaining an improvement in future recall. It also prevents a negative impact on motivation from failure.
This can be achieved by ensuring that the delay between the initial learning and retrieval practice is long enough to allow for some forgetting, but not so long that the material has been completely forgotten.
To use retrieval practice for formative purposes there must an engagement with low stakes environments, feedback, and explicit consideration of how the student will be able to locate themselves in their learning.

Bjork & Bjork (2020), Carpenter, Pan & Butler (2022)

The need to "go Meta"

Independent study
There is a vast amount of research that shows that students do not use desirable difficulties, and they often use strategies that have been shown to be less effective instead, typically re-reading and highlighting.
This is because students tend to mistake performance for learning and are unwilling to sacrifice performance for learning.
We can increase the use of desirable difficulties by:
Explicitly teaching about learning, memory and effective study techniques.
Ensuring they have experience of the strategies for example, by setting them for use in homework or using them in lessons.
Making their judgements of learning more accurate for example, by requiring students to make these judgments after a delay.
Motivating students to use these strategies.

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MAHARA – RETRIEVAL PRACTICE

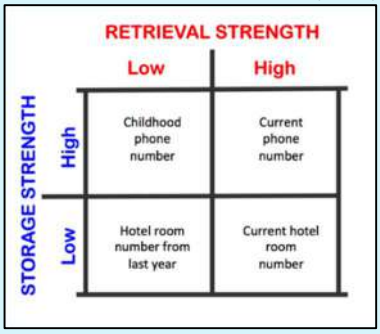
Retrieval Practice asks students to recall previous learning. The brain is not wired to be able to easily recall all knowledge that is presented to it. As a result, retrieval practice is most effective when it is effortful. This is when student has to "think hard", and the brain is taxed somewhat to access memories. As time passes between learning, and its use the neural pathways to access that learning within the Long-Term memory somewhat erodes. It becomes more challenging to "find" learning. It is this challenge that retrieval practice seeks to secure.
The more we retrieve knowledge (especially through effort), the better the brain becomes at finding that knowledge again. Retrieval highlights to the brain that the knowledge is important, and worth returning to. As teachers, our role is to ensure that we are providing ample opportunities for students to retrieve the knowledge we teach them, and that these retrieval opportunities are supportive of effortful remembering. Agarwal (2019), Agarwal et al (2019)

Retrieval Strength and Storage strength
A consideration for retrieval practice is understanding the differences between storage strength and retrieval strength. "Storage strength, a measure of learning and retrieval strength, a measure of current ease of access. A distinction that is consistent with the time-honoured distinction between learning and performance".
Retrieval strength: the brain knows where to find the information.
Storage strength: the brain knows that this information is important, and it sticks around.

Bjork & Bjork, 2006, talking about their 1992 'New Theory of Disuse'

Retrieval Strength Vs Storage Strength

Yan (2016)



Contextualised Retrieval and Storage Strength

	Low Retrieval Strength	High Retrieval Strength
High Storage Strength	Was highly important in the past, but has been less important recently. Still accessible with knowledge activation.	Information that is used regularly now, and was used regularly in the past. Has been integrated coherently into schemata.
Low Storage Strength	Something of minor relevance. Recalled only once or twice in the past and not used recently.	Highly pertinent currently, may be new learning or not well integrated into schemata.

Retrieval practice in action

Ask students to recall from memory: If students are not tasked with *remembering* they are missing opportunities to think hard. The act of remembering strengthens retrieval strength, making it easier for them to find that same information again later.
Vary the retrieval diet: Variety can include different styles of retrieval from verbal to written. There are also different forms of retrieval including **recognition**, **selecting, and identifying** the correct answers, **queued recall** (using supports and prompts) and **Free recall** (this is challenging and effortful but also effective as no support is provided). Agarwal (2019), Agarwal et al (2019)
Involve everyone: This is critical if we are to know that all students in our class are making progress and can recall information from long term memory. Make sure that all students, not just the vocal ones are participating in retrieval activities. Adesope et al.(2017)
Counter misconceptions: Ensure that misconceptions are corrected quickly, so that they are not reinforced. Roediger & Butler (2011)
Ensure that it is appropriately spaced: Allow students the opportunity to *forget* a little bit of the learning, as this encourages them to *think hard* about what they have begun to forget. Spacing also allows for further examples and non-examples to have entered into the schema of the student, better allowing them to understand the concept that you are seeking to retrieve. Bjork and Bjork (2011), Carpenter, Pan & Butler (2022)
Ensure time for feedback and reflection: providing time supports reflection in identification of gaps in knowledge and addressing those gaps.

Make the level of challenge desirable: allowing opportunities for retrieval success can also boost confidence and motivation but this must be balanced with retrieval challenge and effort.
Make it time efficient: retrieval practice should not completely dominate a lesson when new content needs to be delivered.
Specify the knowledge: it is better if students know the set of knowledge any retrieval will be based on, so they can study, prepare and self-check.
Be intentional: make sure that you are covering all content and not just what is easy to prepare. Suggestion: Use a tracker of objectives assessed in your retrieval.

Agarwal et al (2019), Roedinger & Butler (2011), Bjork and Bjork (2011)

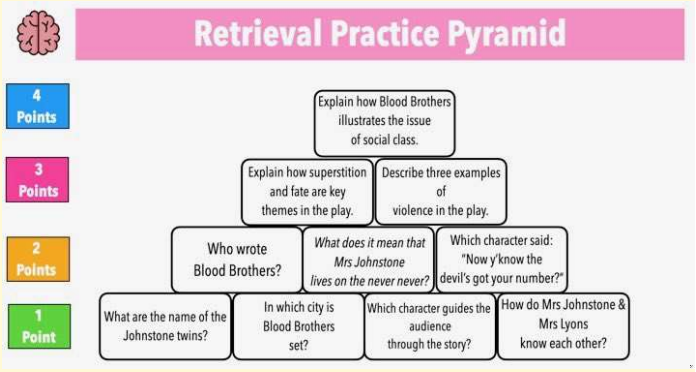
Low Stakes Retrieval Strategies

Simple to do, quick to do, easy to self-correct, without any significant impact on final grades, and less 'scary' than a regular test.

- Hei Mahi/Do-now/Starter questions
- Exit tickets.
- Review questions (Max of ten questions in a series)
- Discussion contributions – in person or online
- Scaffolded brain-dumps
- Mini whiteboards
- Self-marking quizzes

Retrieval Pyramids

A way to scaffold a range of retrieval questions, going beyond basic factual recall.



Points can be used to create a sense of competition, illustrate the depth required from some questions or to scaffold for different students.

Image from Jones (2021)

Hinge Questions

Hinge questions are carefully crafted multiple choice questions which aim to assess understanding of a key concept.

A computer costing $1500 is to have its price increased by 20%. What is the new price?	
A) $1600	**B)** $1520
C) $1200	**D)** $1800

All of the options provided are plausible and feasible and can highlight potential misconceptions and misunderstandings.
Good hinge questions are durable. They will be questions to ask again in the future and are portable, working well in different classrooms.
When used as a hinge question, there is no marking at all, simply scanning the responses through self and peer assessment do the marking and provide instant feedback for students and teacher.

Examples
If the teacher had just concluded a topic on word classes and wishes to assess whether students can identify a verb, they might ask the following:
The cat purred loudly at me.
Where is the verb in this sentence? Is it word A, B, C or D?
If the teacher had just taught rhetorical devices, he/she might ask the following: which of these is alliteration?

- The golden disc of the sun burned.
- The sizzling summer sun smiled sweetly.
- I felt the red-hot sun on my back.
- The trees swayed gently in the wind.

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MAHARA - EXPERTISE REVERSAL EFFECT

Instructional techniques that support novice learners can become ineffective for experienced students. This is known as the Expertise Reversal Effect. As students gain proficiency, the scaffolds once needed become unnecessary and even extraneous. Instead, learners draw on established schema to solve problems (Sweller et al, 2019).

If scaffolds remain in place, they can hinder further mastery by keeping students focused on the process we have set rather than allowing them to develop their own metacognitive approaches. Working memory becomes occupied with trying to align the taught method and their emerging personal method (Kalyuga et al, 2003). Learning to swim illustrates this well. Early swimmers need significant support, but over time tools like flutter boards and water wings must be removed so they can swim independently and develop speed.

Identifying Expertise Reversal Effect

- What is formative assessment telling me about the mastery levels of my student?
- Can students articulate the process or learning independently?
- Are students bored, frustrated, disengaged or disinterested?
- Are students attempting to do away with provided scaffolding, or becoming frustrated with it?

Combatting Expertise Reversal Effect

- Consider what scaffolds are really necessary, even for novice students. Do away with superfluous scaffolds, as they will simply add to working memory 'noise'.
- Plot out what scaffolds are needed, and not needed and when, based on your own knowledge of student progress from novice to expert.
- Remove redundant guidance from resources as mastery increases. Use formative assessment to gauge readiness.
- Fade scaffolding over time, paying close attention to the success rate of students following each fade.
- Allow for 'productive struggle' – some challenge for students is essential as they learn to cope without the scaffold over time.

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MAHARA – THE USE OF EXAMPLES FOR EXPLICIT INSTRUCTION

Explicit instruction is a specific type of direct instruction that emphasises clear and direct explanations and modelling of the material being taught. Both direct and explicit instruction involve a teacher-centred approach in which the teacher is the primary source of information for the student. Boxer ed. (2019).

Explicit strategy instruction is the part of teaching in which teachers identify a specific strategy for students, then **model** exactly **where, how, and why** to apply the strategy to support understanding. This supports students in having a clear idea of a specific knowledge or skill and knowing **what it is, what it is not, where it is relevant and how it relates** to other ideas and contexts.

Examples and non-examples

An example is a case or situation that is used to illustrate or demonstrate a particular concept, rule, or principle.

A non-example is a case or situation that does not illustrate or demonstrate a particular concept, rule, or principle.

Where examples provide an instance of similarity, non-examples provide an instance of contrast.

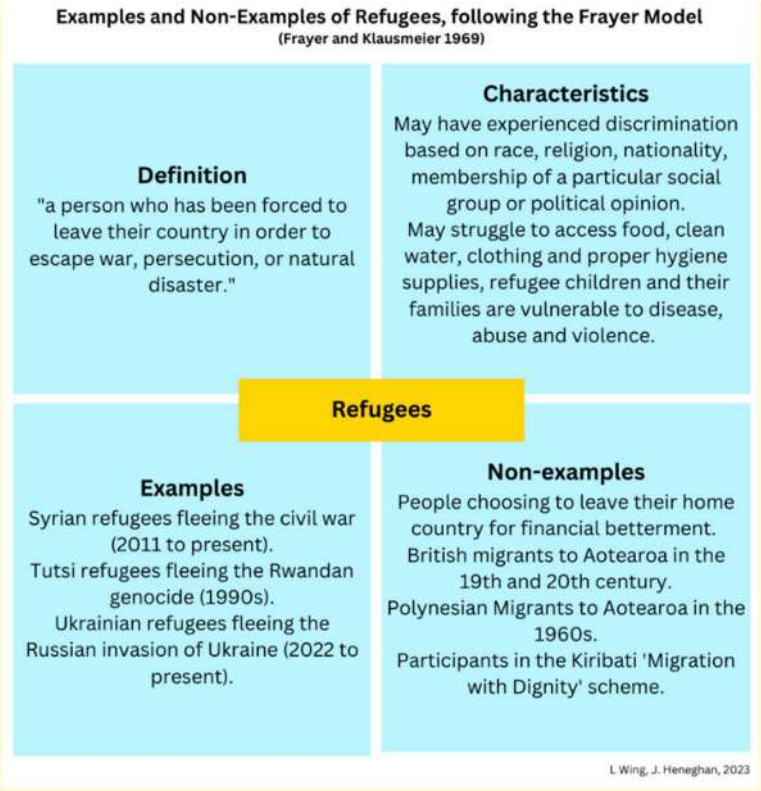
Students have the capacity to learn any quality through examples and to generalise to new examples.

Teaching through examples can prevent ambiguity and subsequent confusion. Examples need to show the breadth and limit of an idea, skill, technique, or concept being taught. The brain likes to generalise. It forms generalisations out of individual examples, similar to fitting together the pieces of a puzzle. This is more or less how we form concepts—by grouping together things, ideas, and events with shared characteristics so to classify them.

If students are presented with a sequence of well-chosen examples about a concept, the assumption is that they will begin to mentally note down what is the same about the examples, leading to the development of mental rules.

Good examples support students in understanding what something is, and what something is not.

Poorly selected examples can lead to confusion and limit understanding.



Teaching Using Examples and Non-Examples

Lessons should include:

- Varied examples that will draw the attention of students to the deep structure of the concept.
- Contrasting non-examples that will draw the attention of students to the boundaries of the concept.

Lessons should prompt students to elaborate about the connections and differences among the examples and non-examples.

Interpolation, extrapolation, and stipulation

Interpolation, extrapolation, and stipulation are three methods that can be used to create and use examples in the classroom. These methods can help to make the examples more meaningful and relevant to students and can also help to support their understanding and retention of the material.

Interpolation: using examples that fall within a continuum-like range to support students to make inferences.

Extrapolation: using examples that go beyond the range of the concept or skill being taught to challenge students to apply learning to new material or in a new way.

Stipulation: presenting a wide range of similar examples and non-examples to support students to generalise.

Using examples well

Wording: examples should be presented in language that is clear and accessible for students -appropriate for their level of understanding. This includes using language that is appropriate for the level of understanding that the student possesses and avoiding technical jargon or complex vocabulary.
Set Up: Set up examples and non-examples with only one variable to control student interpretations and inferences. By doing this you create a situation where interpretations and inferences are controlled and ensure that only one interpretation is possible.
Difference: The teacher and students should treat positive and negative examples differently by using different language or labels. The teacher should encourage students to analyse the differences between examples and non-examples, and to explain how they are different. This helps students to develop critical thinking skills and to understand the concept or topic at a deeper level.
Sameness: In order to demonstrate the range and scope of a concept, we should juxtapose maximally different examples within the boundaries of that concept.
The teacher should encourage students to analyse the similarities between examples and non-examples, and to explain how they are related.
This helps students to develop critical thinking skills and to understand the concept or topic at a deeper level.
Testing: After demonstrating examples and non-examples, students should be tested to ascertain if they have acquired what is being taught. The test should not have a predictable order or pattern. If students can game the test, then this test cannot draw valid inferences about student understanding.

MAHARA – ACTIVATING PRIOR KNOWLEDGE

Activating prior knowledge involves supporting students to think about what they already know, or have learnt about a topic before learning more.

Why activate prior knowledge?

To spark interest – engages students with the learning. It reduces cognitive load – preloads schematic connection. Strengthens retrieval strength (how easily it can be used), and storage strength (how long it stays in the brain).

Activating Prior Knowledge through Questioning

Use a series of questions with increasing complexity designed to draw out thinking.
Prior knowledge is drawn out gently. Shut down is prevented as students are scaffolded towards and through recall.
Use at the start of a lesson, ahead of explicit instruction, or completing a reading task.
Methods could include structured discussion, paired conversations, He Mahi/Do-now/starters, think-pair-share.

Examples of knowledge activation questions

Have you ever…?
What do you know about…?
What can you remember about…?
What do you do when…?
Why might you…?
What are the most important parts of…?

Carr & Thompson. (1996)

Activating Prior Knowledge through Type A and Type B multiple choice questions

Learning that has not been accessed recently, but was learnt well previously is 'high storage, low retrieval' or 'marginal'. Multiple choice questions provide cues as well as productive struggle to access this learning.
These questions can be **Type A** or **Type B**
Type A questions have a strong relationship to previous learning – taught in the course.
Type B questions have tangential relationship to prior learning, but clues are given in the answer choices.
Writing a multiple-choice question

1. Multiple choice questions should contain a stem, the question, and the correct answer and distractors as well as other plausible options.
2. Ensure the question is clear, specific, and desirable in terms of difficulty.
3. Ensure the incorrect options ('distractors') are plausible options.
4. Keep it clear.
5. Keep it specific.
6. Take care using "none of the above".
7. Consider including the option "I don't know yet".

How to write Type A and Type B Multiple Choice Questions

1. Consider something that is sequentially taught over two or more years.
2. Consider what is generally 'forgotten' between years, and what is retained.
3. Write one or more multiple choice questions, using content that the students will be familiar enough with based on their prior learning.
4. Write one or more multiple choice questions using information that are related to previous learning, but more relevant to the new teaching.
5. Use results to guide further teaching and learning.

Schimmelfing, Persky, Adam (2006)

Activating prior knowledge through 'Hot Potato'

This is a strategy that uses prompts to facilitate thinking and prior knowledge activation. The prompts can be questions, or visuals, or something else such as a practical demonstration.
To prepare:
Have a series of questions or prompts paired with A3 paper and different colours of pens.
Set groups, three or four being optimal. Each group will need a different colour of pen.
Each group begins with a piece of paper, they answer onto that paper, before it is moved onto the next group. The new group reads the previous answers and adds in new ideas.
The final round should involve sharing back to the wider class.
NOTE – there is a need for checking for misconceptions, clear expectations, and proactive monitoring. Group roles can be highly supportive here.
This strategy works well at the start of a sequence of learning.
This strategy provides a chance for students to share with others what they know – cooperative and affirming.

MAHARA – GUIDED PRACTICE AND WORKED EXAMPLES

Guided practice

Essentially 'guided practice' is showing the student "how to do it" through a series of guided steps that outline the process and support the student moving from novice to expert.
This approach is informed by the 'Zone of Proximal Development' theory, as developed by Lev Vygotsky.
The 'zone' itself referring to what student can do, if given guidance and support. On one side of that zone being what the student simply cannot do yet, regardless of supports, and on the other, there being what the student can do easily, with minimal to no support.
Our aim? To provide that guidance and support needed to work in the 'zone', but also to remove the guidance and report to encourage independent practice over time, as the student becomes more of an expert.

Worked Examples

One way of approaching guided practice is through worked examples.
A worked example is a completed, or semi-complete example.
It shows student what to do, or what is expected, or indeed what success could look like, in a step-by-step manner.
Thinking or processes can be narrated, either by text or aloud.
Worked examples decrease cognitive load, as the brain isn't focused on working out all of the steps, and schema can be built to support mastery over time.

Why do worked examples work?

- Un-scaffolded attempts to solve problems or work through processes can result in incorrect processes being learnt, or the process not being learnt at all.
- Reduced opportunity for mis-learning, or incorrect schema organising as it is learnt in the order best arranged by an expert.
- Supportive of cognitive load, as described previously. This also supports students in viewing the type of problem or process more positively.

Why use worked examples?

- They provide a step-by-step guide on how to approach a problem or engage with a process.

- Novices tend to focus on the solution, as opposed to learning the steps to reach the solution. This approach takes them through the steps.
- Supports effective problem solving later on, as the steps have been learned in a rational order.

When would I use worked examples?

- At the start of a learning sequence
- When developing procedural knowledge or methods
- Problem solving activities – note, this should only happen when students are cognitively ready to be solving such problems.

Sweller et al. (2001)

An approach to Worked Examples: FAME

FAME is an approach to guided practice and worked examples that takes students through a step-by-step guide to a task. It demonstrates to the students what a possible solution could look like, provides support to work out a solution, scaffolds the students to be able to identify mistakes, and finally develops the metacognitive approaches that students need to be able to explain their thinking. FAME increases the likelihood that students will be able to remember the strategy and tackle future problems.

Education Endowment Foundation, UK (2022)

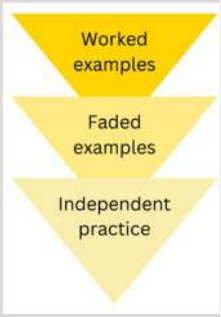
Fading
Alternation
Mistakes
Explanation

FAME – Fading, Alternation, Mistakes, Explanation

Fading

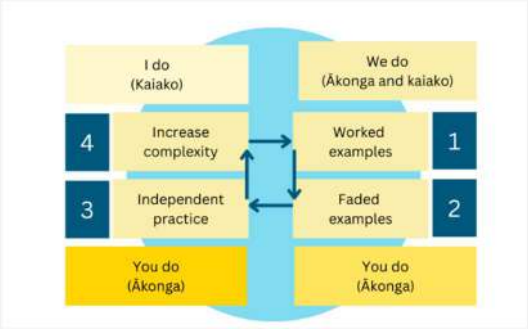
Give a full worked example, then gradually pull elements away. Taking away the last steps first is better for novice students.

Make sure you know your student and what they know. Find the Goldilocks zone of scaffolding – not too little, not too much.



Alternation

Present a worked example and then immediately follow this example by asking the student to solve a similar problem. By alternating between short, sharp worked examples, and similar problems for students to solve, the alternation strategy keeps instruction within the bounds of students working memory.



Mistakes

Having worked examples which are **purposefully incorrect** provides further challenge.

It is very important that incorrect worked examples are **labelled** as such.

Being able to explain why something is incorrect supports and demonstrates a deeper understanding of the process and movement towards mastery.

Heemsoth et al. (2014).

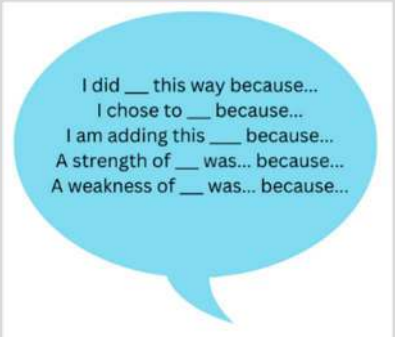
Explanation

Student think about and verbally explain why each step has been used.

When doing this, both you, and the student should consider the information a novice would need to approach each step.

This is a metacognitive strategy, and supportive of students having agency over their own learning.

Dunlovsky et al. (2013)



Adapted from Bob Pritchard, Education Endowment Foundation (2022) Images by L. Wing, J. Heneghan (2023) adapted from originals sourced from the Education Endowment Fund.

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MAHARA STRATEGIES – SUMMARISING

Summarising in generative learning means having students collect and reorganise the main points from their learning at different stages. This might involve producing a fuller summary at the end of a sequence or creating shorter summaries along the way to support comprehension. Merlin Wittrock (1974) described effective generative learning as requiring students to select, organise, and integrate information.
When students summarise, they engage these cognitive processes, which supports "thinking hard". They must extract key ideas, form links within new material, and connect it to what already exists in their schemata. This leads to deeper learning.

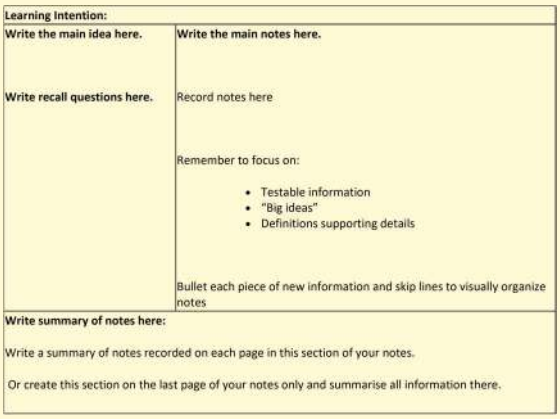
Summarising: restating the main ideas of a lesson or activity in one's own words.
Summarising learning is employing processes that require students to collect and reorganise the main points from their learning at different points in the learning process. This can mean producing longer summaries at the end of a learning sequence, or interspersing summaries in order to support their comprehension.

How to summarise in the classroom
Summarisation is at its most effective when time is devoted to its direct teaching, including how to select key points, remove irrelevant material, select, and generate topic sentences.
Asking students to summarise key points from a text, limiting them to no more than 30 words (sometimes reducing this to no more than 10) to ensure a focus on retaining salient points.
Summaries then being shared and discussed in order to explore the elements chosen, which may have been omitted and if the summary is a clear representation of the source material.
Supporting summary work in being a closed book activity supports students in paying greater attention to the original learning material and gives them opportunities to make connections between different information in their summaries.

Why do note-taking?
Prevents forgetting: For most students, forgetting occurs very rapidly after listening to a lecture, or reading over informational material even if the material is engaging and interesting. After lectures, for example, research shows that we forget 50% of what we hear within an hour and more than 70% within two days.
Encourages concentration: Taking effective notes requires students to be mentally active. One must pay attention, interact with information, make decisions about what to record, and write. Given that the mind is occupied with a demanding task, there is less opportunity for the mind to wander.
Records testable material: Teachers generally expect students to remember and apply facts and ideas presented. Assessments are based on key ideas teachers emphasise in courses of study.

The Cornell Notetaking Method developed by Walter Pauk - 1962

Record: prepare notepaper and record notes by paraphrasing. Encourage students to use strategies like using headings, indenting, brief sentences, abbreviations, and symbols to support efficient notetaking.
Question: Formulate questions based on the notes taken and record in the left-hand column. Should focus on big ideas and key definitions.
Recite: Likely to occur outside class. Using questions, students should explain the information in the notes out loud, in own words.
Reflect: look for connections in the notes, or between the notes and other learning, or student experience. OR a range of reflection questions could be used as prompts.
Summarise: write a brief summary of the main ideas in own words and record in the bottom section of the notepaper. This could be a homework task, or summary task in a lesson.



Review- notes can be used as a study aid with various review approaches or can be reviewed in class with both open and closed book review activities.

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MAHARA STRATEGIES – MAPPING

"Organisation is at the heart of learning." Oliver Caviglioli
Mapping refers to a group of different techniques in which the students represents texts, whether written or spoken, as a **spatial organisation** of words with lines connecting them to **show relationships**. Techniques can include concept mapping, knowledge mapping and graphic organisation.

Concept Mapping	Knowledge Mapping	Graphic Organisers
Concept maps are a network in which words represent key concepts and lines connect them to show how the words are linked.	Knowledge maps are a specialist form of a concept map in which the links are confined to predetermined types.	Graphic organisers are a more specialist map, still including a structure which is used to categorise information tightly.

How to use mapping
Student can be asked to read a text about a topic they are studying and transform it into a concept map.
As students complete concept maps they draw lines between different categories information to show linkage. These lines are annotated to explain what the link is. In a knowledge map the lines already correspond to a particular function, such as causality. Leaving a gap between encountering new information and completing a map can be helpful to learning.

Effective Mapping
To be effective, students need to be trained in how to map effectively. This takes time. Consider teaching explicitly where titles go, or what titles should be, the size of bubbles, arrows, or other shapes, the amount or type of content, the amount of time that should be taken, showing desired outcomes (for example, by showing exemplars). Consider mapping skills as something that requires support to move from novice to expert. In the same way that maps can support learning, they must also be learnt and taught.

MAHARA STRATEGIES - SELF-TESTING

Self-testing involves students recalling information from a learning episode through questions or activities that prompt retrieval, from specific details to broader recollections like brain dumps. It taps into a wider range of material and helps students synthesise ideas across topics. Retrieval practice strengthens memorisation far more than simply restudying. The "testing effect" refers to the finding that long-term memory improves when part of learning time is spent actively retrieving information. Students who self-test consistently outperform those who only re-read material. Since we want students to think hard and encode learning into long-term memory, helping them understand the value of retrieval ensures they engage with content in an active and meaningful way.

Effective self-testing	Reducing the limitations of self-testing
Select and access knowledge: Student review what they know in relation to the learning as a whole. *Organise knowledge:* Student complete further review and test based on identified areas of need. *Integrate into schema:* Student refine answers and practice them further.	Have high quality and readily available review material. Explain the why – students can be tempted to use the notes while testing. This reduces the efficacy of the strategy. Corrective feedback needs to be readily available for after retrieval either returning to the learning materials or having access to answers. Ensure that testing is student-led, not teacher-led. Testing should be by them, for them, based on their identified gaps.

Benefits of Flash Card Methods
Active recall makes stronger neural connections in the brain, as opposed to passive learning.
Corrective Feedback is immediate and does not require the teacher.
Supports metacognition.
Supports the transition of learning into long term memory through spaced retrieval practice.

Traffic Light Review

Traffic Light Review self-testing is an approach that asks students to identify their level of confidence for various success criteria within a topic. Red, amber, and green are used to signal confidence before, during and after self-testing. This process encourages self-reflection and refinement of retrieval and revision needs.

Teacher setup

- Build a Traffic Light review sheet that has all of the success criteria that you wish your students to test themselves against.
- Along with the success criteria, there should be a red, amber, and green column included in the table.
- Use the success criteria to make a series of flash cards.
- You will also need a 'red', 'amber' and 'green' sorting card.
- If you are feeling generous, you may cut up the cards. Otherwise, the student can do this.
- Now make a third sheet, which is a second review sheet.
- This is for after the first round of flashcard practice.

Student involvement

1. Give the self-review sheet to your students.
2. Get them to consider *where they think* they are at with each criterion by coding for green, amber and red. The purpose of this is to get them thinking about where they are likely to be.
3. Based on levels of student confidence, you may direct the class to review their notes at this stage, paying close attention to the red and amber.
4. Now give students sheet B (the flashcards)
5. Student then need to test themselves, closed book, against each of the flash cards.
6. To allow for multiple uses, students should record their responses onto a medium *other* than the back of the flashcard.
7. Once cards have been completed (note – this may take some time) mark collectively, peer mark or self-review based on notes. Ensure that misconceptions are quickly rectified.
8. Based on the marking, get students to sort their cards into green, amber and red.
9. Green – no significant issues, minimal improvements needed. Amber – some adaptation needed. Red – answer incorrect or needing significant development.
10. Starting with the cards in the red pile get students to improve their work where needed.
11. Finally, use the second review sheet to record which cards needed what – this allows students to identify where to start next time.
12. When the time comes to review again, start with the cards identified as red in the previous review.

The Waterfall Method

An approach to using flash cards that works in a similar way to the traffic light review system. Students have a set of around 50 flash cards, that they sort into piles as they self-test. Over time, the piles should get smaller. Pile 1 is the master pile. All flash cards that students know, go into that pile. Then, students work through the second pile, testing themselves on those cards. Cards that are unknown after that review go into a third pile, with known cards being added to a fourth. Then the unknown cards are reviewed again, with the same process being applied over and over until there are no cards left.

Sarikas (2019)

Blind Mind Mapping

Students are given a prompt from which they, without using their notes, mind-map their knowledge about that prompt. They are then prompted to discuss their mind-map with a peer, then getting the opportunity to add further points. They then explain their map to others and finally review and edit their maps as a class. Another element is to add in cross-topic links. This approach requires students to sort through their knowledge, organise it into a map, check their own understanding with a peer and finally consider how they might articulate their ideas coherently to a wider group.

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MAHARA STRATEGIES - SELF-EXPLAINING

What is self-explaining?
Self-explaining is a meta-cognitive approach in which the student explains why they have chosen a particular process or strategy (methodology) or think in a certain way (opinion/thinking).

Limitations of self-explaining
Time is needed to train the students in how to do this well.
It can be time consuming in the classroom to use, compared to other strategies.
There is a fine line to walk between those students who do not have enough prior knowledge to make use of the strategy, and those whose knowledge is so high that it is unnecessary.

Much of what we do in the classroom is already promoting self-explaining. When students are given an input of new information, they may be asked some questions about their basic comprehension, but they will also be expected to go further in generating a greater understanding of the material based on their prior knowledge. Self-explaining should go further and begin to ask the students how they arrived at the answer they reached. To achieve this end students must be able to interrogate their own explanation.

Defining self-interrogation

Self-interrogation means students asking themselves ongoing 'why', 'what', and 'how' questions about their own answers.
Self-interrogation is about digging into the next layer of each idea, scratching through to consider the next layer of thinking.

We can support self-interrogation by:

Modelling it aloud, ourselves when explaining ideas, processes, or opinions.
Explaining it as a meta-cognitive strategy – what it is, why it is done, how it will help.
Using (gently) interrogative questioning approaches.

A Socratic conversation is…

1. Led by a person who does nothing but ask questions.
2. Systematic and disciplined (it is not a free-for-all).
3. Safe – keep it in the 'productive discomfort' zone!
4. Directed by the leader, by and through the questions they ask.
5. Supportive of all participants being helped to go beyond the surface of what is being discussed.

Our goal as a teacher in a Socratic conversation is to…

Classify the thinking: "what do you already know about this topic?"
Probe assumptions: "what actual evidence would lead you to reach a different answer to this question?"
Demand evidence: "what evidence have you got for the conclusion that you have reached?"
Explore implications: "what are the implications for your conclusion? What would need to happen or change?"
Question the question: "why do you think this was an important question to ask?"

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Preparing for a Socratic conversation

Ahead of time, get your class familiar with the type of conversation you plan to have with them:

1. Pass out a transcript of a Socratic discussion (some in your handout) to your class.
2. Explain what it is and ask them to pay attention to the types of questions being asked, and the types of responses.
3. Dramatize the transcript by reading it aloud together. To do this, assign students to read parts of the transcript. You read the part of the teacher/questioner.

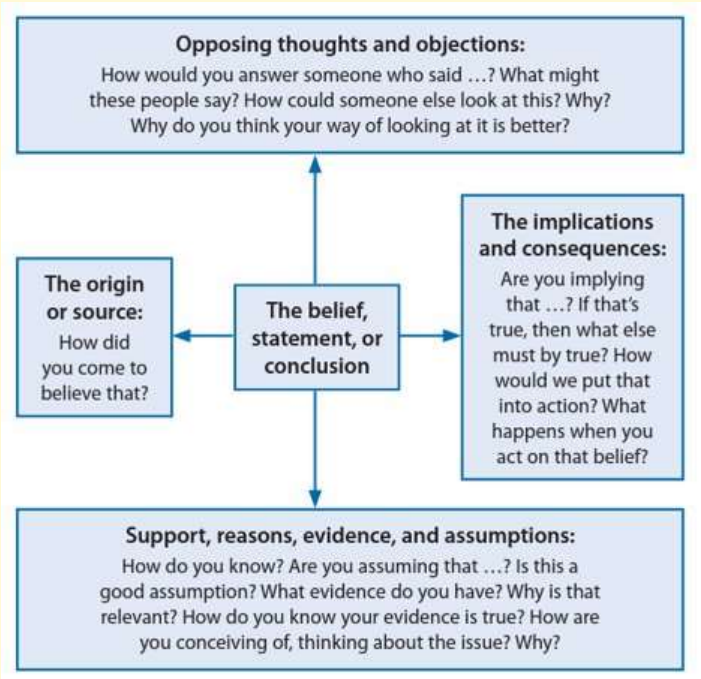
In your teacher preparation:

4. Consider the purpose of this conversation. What are the learning intentions? What are the success criteria?
5. Make a list of questions that focus on a central idea you would like students to master. Consider using the question prompts map below from Paul & Elder (2006).
6. Consider how long you want to carry out this conversation for, and consider who might need extra support, consideration, or scaffolded questions.
7. Consider how you will track student engagement, participation, and energy levels. A clip board is rather effective.

With your class
Communicate what it is that you are going to be doing, how it will work and why you are doing it. Communicate the learning intentions and success criteria. Explain and communicate the idea of 'productive discomfort'.

8. Communicate and reiterate expectations before and during the conversation. This includes expectations for participation in the discussion as well as class Tikanga.

Possible Questioning Prompts



Paul & Elder (2006)

Leading a Socratic conversation

1. Explain that by the rules of Socratic questioning you are allowed only to ask questions. You are not allowed to answer any questions, except by asking another question.
2. Tell the class that their job is to attempt to answer the questions you ask.
3. Think aloud as you lead the discussion. Don't rush. Base each of your questions on the answer given by the last students.
4. Take seriously every answer that is given. Make sure it is clarified so that everyone in class understands it.
5. Monitor the vibe in the room and how your students are going. Productive struggle – yes! Discomfort- no!

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MAHARA STRATEGIES – TEACHING OTHERS

This strategy asks students to explain important concepts from their own learning to others. It is effectively peer to peer and peer to group teaching.
Teaching requires students in the first instance to "think hard" about the concepts which they are studying. Studies indicating that students who knew they were studying to teach were more motivated in their study of materials and outperformed their peers who studied using different methods.

How to use learning by teaching in the classroom
Teaching as a learning strategy can be incorporated into time limited activities by telling students that they will be explaining concepts from text, lecture, or video to their partner once they have studied it. Give time to reflect before teaching so students can engage in the selecting and organising process, before continuing to organise and integrate the information.

Limitations of learning by teaching
A significant issue to be aware of with this approach is the potential to embed false learning in both those adopting the role of the teacher and those being taught. Good quality study materials, monitoring and timely correction by the teacher are required to help avoid this.

A 'teaching' Think Pair Share
A teaching Think-Pair-Share is a form of structured 'think-pair-share' supporting individual reflection and peer supported learning in response to a directed prompt from the teacher.
It is supportive of the relational practices described by Hattie and Bishop as highly effective whilst also supporting students in "thinking hard".

Think	Pair	Share
Each student thinks about the question individually and is encouraged to take notes. This stage helps to activate prior knowledge.	Students pair up to exchange and discuss their ideas. Students should listen attentively and ask each other specific and nuanced questions	Students share their validated and maybe extended ideas with the whole class. They should explain their partner's main points as this helps to reduce the fear of failure for more reluctant students.

Benefits of Think-Pair-Share as described by Busch and Watson, and Sherrington

Developed Perspectives	Increased Participation	Added Accountability
Promotes Problem Solving	Makes Students Feel Heard	Gets Full Participation
If students are working with others, they are more likely to experiment with different techniques when solving a problem. This suggests that the phrase 'two heads are better than one' has some merit. Students learn by discussing each other's opinions and reasoning and by examining different perspectives.	Think, Pair, Share can improve students participation. The combined effect of individual preparation and receiving validation of their ideas from their partner increases students self-confidence, making them more likely to speak up. This is especially applicable to shy students.	When students verbalise their ideas to their peers during the PAIR and SHARE stages, they learn to take responsibility for what they say as they become involved in the learning process of their partner and the class. By sharing their partner's answers, it helps students avoid repeating the same points.

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Fundamentals of Think-Pair-Share	
Build Routines	**Responsive Practice**
Embed over time	Adapt to the student, demonstrate high expectations
To encourage students to engage in the process fully, strong routines are essential. Scaffolds such as the one opposite and verbal prompts train students how to conduct structured discussions. Before they begin TPS, write the focus question or statement on the board. Aim to be as specific as possible - nothing too broad or vague. Provide a time frame for each stage of the TPS process or you might run the risk of it fizzling out. During the THINK phase, it is useful to get students used to recalling knowledge and writing down notes.	When student are in the PAIR stage, it is essential that you monitor discussions and listen to their ideas. In your interactions, support certain students with careful questions or probe them to extend their ideas further. Make students aware that random pairs will be selected to share their points later. A useful strategy is to pre-select and ask one or two pairs to share their points in the final stage. During the SHARE stage, it is useful to capture a summary of points by writing the ideas of your students on the board. This helps make it concrete.

Scaffolding a Teaching Think-Pair-Share to support sharing, participation, and accountability.
Providing students with clear prompts supports the embedding of effective Think-Pair-Share and enables it to effectively foster engagement and accountability.

Think - Engage Independently	**Pair - Conduct Discussion**	**Share - Give Rehearsed Answers**
Student prompt: What do I know that might help? What ideas do I need to consider? What approach would work?	**Student prompt:** What ideas will I put forward to my partner? How might my partner help? How will I actively listen to my partner?	**Student prompt:** What are my main points? What are my partner's main points? How will I summarise our points?
To help with thinking: Important topics or concepts. Relevant key vocabulary. Diagrams or drawings. Summary of main ideas. A specific teacher explanation or lesson.	To help with discussion with a peer: Make direct eye contact (if possible). Wait for your partner to finish. Ask questions to clarify. Give supporting examples. Prepare to share a response.	To help when sharing with the class: Summarise your main points. Acknowledge/affirm partner's points. Explain any counter points. Use key vocabulary. Refer to what you already know.

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MAHARA – MULTIMEDIA PRINCIPLES

Mayer's Multimedia Principles
In 2001, Richard Mayer developed a series of principles that can be used to guide the delivery of learning, particularly when using direct instruction, explaining new ideas or presenting new material.
These principles are based on the premise that learning is not effective through transmission only means. Instead, Mayer argues that students must be able to engage effectively with new learning in ways that support working memory.

Mayer's Principles are based off three assumptions:

The Dual-Channel Assumption:
"We possess separate channels for processing visual and auditory information". The first is the visual–pictorial channel, which processes images seen through the eyes (including words displayed on a screen). The other channel is the auditory–verbal channel, which processes spoken words.

The Active-Processing Assumption:
We don't learn by just passively absorbing information. We need to engage in active cognitive processes, namely identifying and selecting relevant material, organising it into visual and/or verbal models, and integrating those new models with prior knowledge.

The Limited-Capacity Assumption:
We have a hard limit on the amount of information they can process at any given moment.
Mayer suggests that most people can maintain maybe five to seven "chunks" of information in working memory at a given time.

Principles That Minimise Extraneous Load

Coherence
Reduce unnecessary material, details and images. Avoid "seductive details", information included to elicit emotional responses or engage.

Signalling
Highlight what information is important, and where you want the students' eyes to go.

Redundancy
Less is more: on-screen text, narration and moving pictures can be overwhelming.
Limited the amount of text you use when narrating ideas.

Spatial Contiguity
Keep images and their associated captions close to each other.

Temporal Contiguity
Sound and images should be presented at the same time.

Principles That Manage Intrinsic Load

Segmenting
"People learn better when a multimedia message is presented in user-paced segments rather than as a continuous unit."

Pre-Training
We learn processes better when we have an understanding of components ahead of time.
Pre-teach key-words and ideas, develop familiarity with a tool, process or function before using it.

The Modality Principle
"People learn more deeply from pictures and spoken words than from pictures and printed words."

Principles That Optimise Germane Load

Multimedia
"People learn better from words and pictures than from words alone"
Include images to illustrate key points.
Ensure that all images enhance or clarify meaning.
Favor static images over animations.

Voice
Narration is better from a human than a computer. Be careful when using AI voice overlays.

Personalisation
We are more likely to learn when the language of the learning feels warm and relaxed, and language is familiar. If students are spending their time converting what you are saying into something they can make sense of, they aren't focused on you.

Image
"Talking Head" narration in videos, or during online lessons is not particularly useful.

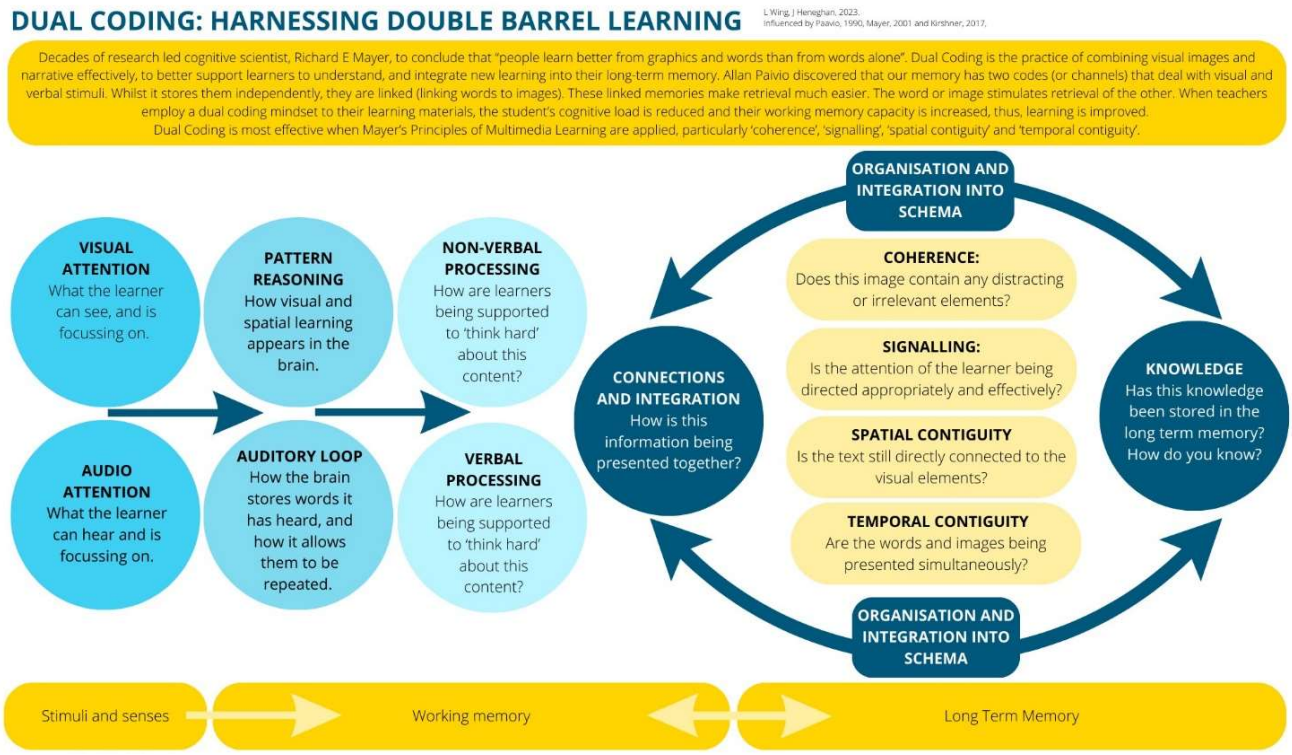
Inclusive Planning: Mayers Multimedia Principles	
These principles work for our neurodiverse students, as well as our neurotypical students. As such, their integration into our schemes and planning is beneficial to all. While we will always need to make some specific adaptations to our teaching, inclusive planning seeks to make changes that work for all and are inherently supportive of all students being able to participate in the learning.	These approaches can support our students to engage more effectively with the learning we are providing. With neurodiversity having significant impacts on working memory, shifts that allow for more effective working memory usage are desirable. For students with challenges to focus, attention and processing (ADHD, APD, Anxiety), these approaches can signal where attention is best focused. For students with challenges in their interpretation of new learning (such as ASD, cognitive delays) these approaches can support with understanding examples, and reduce frustration from unclear explanations.

MAHARA - DUAL CODING

Decades of research led cognitive scientist, Richard E Mayer, to conclude that "people learn better from graphics and words than from words alone". Dual Coding is the practice of combining visual images and narrative effectively, to better support students to understand, and integrate new learning into their long-term memory.

Humans have separate channels in which they receive and process visual and verbal stimuli. Separate and independent as they may be, they nonetheless also managed to relate to another in a way that Paivio described as "associative links". – Paivio (1990).
These connections provide the doubling of encoding power, described by Kirschner (2017) as "double barrel learning", with these connections maximised when Mayer's Principles of Multimedia Learning are applied, particularly 'coherence', 'signalling', 'spatial contiguity' and 'temporal contiguity'.

Fully exploiting the impact of dual coding in the classroom (Mayer, 2001)	
The coherence principle: students learn more effectively when the visual used doesn't contain any distracting, irrelevant elements. This is the most straight forward of the principles, the easiest to implement and the one with the biggest impact.	The signalling principle: this entails the explicit pointing to specific parts of a visual being explained either in writing or speech. Failure to do this results in students wasting their valuable and limited cognitive resources in searching.
The spatial contiguity principle: similar to cognitive load split attention effect, this requires that text is not separated from the visual it is referring to.	The temporal contiguity principles: narratives related to visuals should be coordinated to avoid a student having to keep in mind either the visual whilst listening to the narrative, or vice versa.



MAHARA – ADDRESSING REDUNDANCY AND THE SPLIT ATTENTION EFFECT

Providing too much information adds to extraneous load, reducing load that can be used to process new learning and information (Ashman and Sweller, 2023). It is similar to Chandler and Sweller's 'Split Attention Effect', described in 1992, where extraneous load is increased through task design and ineffective resource creation. This could include the need for students to interpret information from multiple locations to understand an idea or process.
For both, the brain becomes occupied by a focus on interpreting additional, superfluous information.

With students where working memory is reduced, the overflow of information, or requirement to move back and forth can be overwhelming. "Redundant information presented through audio and visual channels can inhibit learning for individuals diagnosed with ADHD, who may experience challenges in the processing of information through visuospatial and phonological loop channels in the memory system." Brown, et al (2016).

Redundant information can include:
Written text alongside a diagram, decorative images that do not provide useful information, the same information being presented as verbal and written text simultaneously, using animated images when still images are available.

Split-Attention Effect could include:
Having students review a range of pages, physical or digital to understand or complete a task or process, an exemplar with a separate, non-integrated commentary about what it shows, students then needing to flick between the exemplar and the commentary, a diagram with separate captions.

Redundancy can be addressed by:
Removing unnecessary text from diagrams
Avoiding irrelevant decorative items
Being mindful of presenting information visually and audibly at the same time (particularly relevant for students with ADHD, and APD).
Giving reading time ahead of explanations
Using still images. Keeping explanations short and simple. Training students to direct attention using pointing (online and offline) – Zhang et al, 2022-3.

Split attention can be addressed by
Diagrams and explanations being integrated together. When producing worked examples, include both the example and the step itself. When producing exemplars, provide parallel, integrated explanations of why elements of the exemplar are included – don't leave this information on a separate page to flick between. Use one integrated reference text at a time, as opposed to multiple sources.

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MAHARA – INCLUSIVE CURRICULUM DESIGN

Working memory and cognitive overload

According to Miller (1956) the brain can hold seven pieces of information in the working memory at once.
This is more likely to be between three to five pieces of information, depending on inhibits around the person.
This can be lower when there are other peripheral factors affecting working memory.
With neurodiversity accepted as having an impact on working memory, we need to be considering how we are supporting whatever working memory capacity our students do have, to be harnessed effectively.
At a very simple level, we should only be presenting 3-4 pieces of new information at once, max, when designing an inclusive curriculum. We may see the following behaviours in our neurodiverse, and neurotypical students when cognitive overload has been reached: incomplete recall, failing to follow instructions, place-keeping errors, task abandonment, off-task or disruptive behaviours. Cowan (2001), Gathercole and Alloway (2004, 2008)

Reducing Intrinsic load at the curriculum design stage

Sequencing for working memory.

Simple to complex sequencing can reduce intrinsic cognitive load by laying down the foundations of each step.
As students engage with the new learning, a considered sequence allows them to draw on what they already have mastered. Van Merriënboer & Paas (2003)

Backwards Mapping

This approach is used in curriculum design. It is about backwards mapping knowledge and skills to identify the order in which they are learnt. This begins by identifying success criteria, and overall eventual outcomes, then considering the building blocks that would need to be placed to reach those eventual outcomes. By doing this, working memory (intrinsic) is reduced. Wiggins and McTigue (1998, 2011)

Predicting Misconceptions

Experience will often teach us where our students are likely to get confused, or mis-learn new learning.
When we consider the movement of students from novice to experts, we need to think like novices and see the learning from their eyes. Experts will focus on the processes, components and stages of new learning. Novices will focus on outcomes, at times missing critical details along the way or misinterpreting them.
Wolff (2016), Pritchard (2022)

The misconceptions we expect, we can proactively plan for. Some misconceptions we will not be able to identify ahead of time. As such, assessing this prior and during the learning sequence becomes critical. This can be supported by pre-testing and prior knowledge activation, a range of formative assessment strategies such as questioning, blind mind mapping and self-explaining, low stakes testing and simple retrieval. The key is responding to the misconceptions once you have identified them.

Resource depletion

"Depletion of limited working memory resources may occur following extensive mental effort resulting in decreased performance compared to conditions requiring less extensive mental effort". Chen et al. (2018).
In a nutshell? Some students, particularly the neurodiverse students will not perform as well on tests when they have drained their cognitive resources. Time and spacing is helpful.

Reducing Intrinsic load

Activating Prior Knowledge

"Prior knowledge is defined as the whole of a person's actual knowledge, available before a certain learning task, structured in schemata, declarative and procedural, partly explicit and partly tacit, and dynamic in nature". Tarchi (2015)

Prior knowledge can be accessed through tasks such as simple questioning, Type A and Type B multiple choice questions, and activities such as 'hot potato' and silent brainstorms.

Guided Practice (FAME)

Showing the student "how to do it" through a series of guided steps that outline the process and support them moving from novice to expert.
FAME is an approach that takes the student through a step-by-step guide to a task. It demonstrates what a possible solution could look like, provides support to work out a solution and identify mistakes, and finally develops the metacognitive approaches to explain thinking.

Reducing Extraneous load

Managing Redundancy

Providing too much information adds to extraneous load, reducing load that can be used to process information.

Ashman & Sweller, 2023.

Redundancy is similar to Chandler and Sweller's 'Split Attention Effect' (1992), where extraneous load is increased through task design. With students where working memory is reduced, the overflow of information can be immense.

With students where working memory is reduced, the overflow of information, or requirement to move back and forth can be overwhelming.

"Redundant information presented through audio and visual channels can inhibit learning for individuals diagnosed with ADHD, who may experience challenges in the processing of information through visuospatial and phonological loop channels in the memory system"

Brown, et al (2016).

Redundancy and Split attention can be addressed by:

- Removing unnecessary text from diagrams
- Avoiding irrelevant decorative items
- Being mindful of presenting information visually and audibly at the same time (particularly relevant for students with ADHD, and APD).
- Giving reading time ahead of explanations
- Using still images where possible, instead of animations.
- Keeping explanations short and simple where possible.
- Training students to direct attention using pointing (online and offline)

Zhang et al (2022, 2023).

Preventing Expertise Reversal

Instructional techniques that work well for novice students can become ineffective for experienced or expert students.

This is called the Expertise Reversal Effect and has been a focus of the work of Slava Kalyuga for decades.

As students become more adept, they no longer require the instructional scaffolding we would have applied earlier, and as such, these scaffolds become extraneous.

Expertise reversal also prevents further mastery, as focus is limited to the learning or set process as defined by us, as opposed to allowing the student to master and develop their own metacognition of whatever learning or process it is. Instead, extraneous load is spent trying to get the two ways of doing – theirs and yours – to work in alignment.

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MAHARA – NEURODIVERSITY

Neurodiversity is the idea that people experience and interact with the world around them in many ways, with some of these ways being based on differences in brain function and organisation.

Neurodiversity: An Umbrella

Some groups choose to describe neurodiversity as a metaphorical umbrella, with subcategories such as developmental, acquired, physical health and mental health acting as ways of making connections between some of the diversities.

In our Kura, we have students who have neurodiversities that include (insert here)

Some students will have multiple Neurodiversities.

The array of labels that exist can be daunting.

Being an expert in all is challenging.

An additional challenge is the premise that sometimes, a label, is just a label – each student is different.

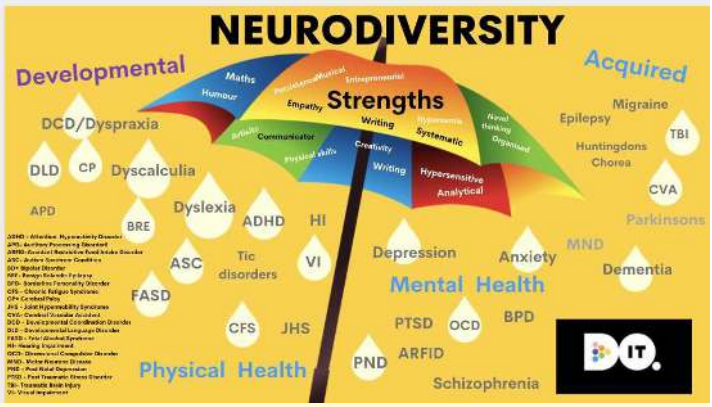

Diagram: Kirby, A (2021)

Summaries of neurodiversities

Communication and interaction

Speech language and communication needs (SLCN) - Where students have difficulty communicating with others.

Autistic spectrum disorder (ASD) - where students are likely to have difficulty with social interaction.

Social, emotional and mental health (SEMH).

A broad category where students may experience a wide range of social and emotional difficulties, including disorders such as attention deficit disorder or attachment disorder.

Cognition and Learning

Moderate learning difficulty (MLD)- where children learn at a slower rate than their peers.

Severe learning difficulty (SLD)- where cognition difficulties are compounded by associated difficulties with mobility and communication.

Profound and multiple learning difficulty (PMLD)- where students are likely to have severe and complex learning difficulties, often in addition to physical disability or sensory impairment.

Specific learning difficulty (SPLD) where students are affected by one or more specific aspects of learning such as dyslexia (reading and writing difficulties) common discount clear (numerical difficulties closed parentheses and dyspraxia (movement difficulties).

Sensory and/ or physical needs

Hearing impairment

Visual impairments

Multi-sensory impairments- where students have a combination of vision and hearing difficulties.

Physical disability- where students require additional ongoing support and equipment to access education.

Labels: Navigational tools, Not the Destination

"For those on the margins of mass education system a quest for characterization and labelling still exists- as does the vagueness of labels, especially in establishing what they mean in educational contexts. At a conceptual level, labels about learning need highlight the perceived typicality of a group but they do not illuminate the individual difference and disposition within a group. In terms of understanding individuality, labels are more about navigation than destination".

O'Brien (2016)

There is a need to balance the need to understand specific neurodiversity without living in the label.

There is a need to respond to the complexity while at the same time teaching in a way that supports all students.

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Deficit Theorising

Deficit theorising is about attributing a lack of success to a particular aspect of a student, without considering the role of our own actions, or making efforts to intervene in the lack of success. Deficit theorising is about making excuses.

It can be applied to our neurodiverse students as well as other groups. It is worth noting the intersectionality between neurodiversity, and other marginalised groups.

Deficit theorising can limit our students from achieving their full potential, and indeed from having their rights met under the UNCROC.

Countering Deficit Theorising

What we can do:

- Ensure that you know the student and how they learn, using a range of sources to inform that knowing.
- Create an inclusive learning environment supported by a classroom Tikanga that is understood by all.
- Use scaffolding effectively to support students to engage and learn.
- Know my subject, how it is learnt and how best to teach it.
- Combine effective 'teaching all' approaches, with effective 'teaching some' approaches.
- Work effectively with Teacher Aide supports.

This should be underpinned by:

- Talking to the student and home about their learning
- The use of relational formative Assessment strategies to know the impact of approaches
- A consideration of cognition and cognitive load theory
- An ongoing challenging of deficit-theorising

Inclusive Teaching

'Inclusive teaching' is the concept of combining high-quality teaching and learning, provisioned to the whole class, with carefully and considered episodes of one-on-one or small group interventions to access all or some of the learning.

This approach ensures:

- All students benefit from quality teaching and learning
- Appropriate support is given where needed
- Students are supported to engage in the wider learning of the class, instead of completing something entirely different.

Here are some questions to ask yourself around teaching inclusively:

- Am I interspersing high-quality teaching with small group and/or one on one interventions?
- Are my students getting the opportunity to practice?
- Am I considering the student beyond the label?
- Am I challenging and rejecting deficit-theorising?
- Am I familiar with the IEPs of my students that have them, and using the IEPs to inform my teaching approaches?

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MAHARA – NEURODIVERSITY, KNOWING THE STUDENT, AND WORKING WITH THE BRAIN

Inclusive Teaching and Learning can be supported by ensuring that you challenge your biases and assumptions, know the student and how they learn, and using a range of sources to inform that knowing. It can also be supported by using cognitive load theory to teach inclusively.

Cognitive Bias and Unconscious Bias

During the early 1970s, Amos Tversky and Daniel Kahneman coined the phrase 'cognitive bias' to explain the consistent yet potentially flawed tendencies people exhibit in their judgments and decision-making processes. 'Unconscious biases' refer to societal stereotypes individuals develop about particular groups without being consciously aware of them. As humans, we tend to categorize people and subsequently form assumptions about specific groups, leading to the formation of unconscious beliefs.

Neurodiversity related biases

Eye Contact Bias – the role and value attached to eye contact
Small Talk Bias – the role and value attached to small talk
Non-verbal Communication Bias – the role and value attached to body language
Time Pressure Bias – perceptions around appropriate times needed for tasks, and value placed on the use of time
Social Norm Bias - perceptions around appropriate behaviours
First Impression Bias – the value placed on first impressions
Flexibility Bias – perceptions around appropriate flexibility for tasks, and value placed on particular types of tasks vs others.

Kirby (2023)

Assumptions

We may assume that…
- Students know what they need and can explain it to you
- They will ask if they need help
- They will know how to ask for help
- Students understand the language being used
- Students are processing everything you are saying

Kirby (2023)

Knowing the student – a starting place for overcoming biases and assumptions

Have you spoken to the student themselves?
- What topics are you particularly interested in?
- What has worked well for you in the past?
- How would you like me to help you?
- What do you hope to get out of being in this class?
- Who do you prefer to work with, and why?

Note – many students cannot articulate precisely what they need – it is our job as teachers to make sense of the information they can give us.

Bishop (2019); Walsh (2021) in Wespieser, ed.

Have you spoken to the student's other and previous teachers?
- What have you found works well for _____?
- What didn't work so well?
- What learning did they grasp well? What did they struggle with?
- How did they communicate with you?

Walsh (2021) in Wespieser, ed.

Have you spoken to family and whānau?
- What are the student's strengths?
- When are they at their best?
- When do they find things a challenge?
- What would you like them to do, in the short term?
- What are your long-term hopes and aspirations for your child?

Bishop (2019); Walsh (2021) in Wespieser, ed

Have you spoken to learning support?
- What have Teacher Aides observed with ____?
- How do you (Teacher Aide) prefer to communicate about learning, support and students?
- What strategies are known to work with ____?
- Do you have any ideas for _____?
- Do you have any suggestions for further reading?

Parker and Webster (2021); Young, (2021), both in Wespieser ed.

Working with the brain: What are some of the common threads of neurodiversity in research?

Lower self-confidence and poorer sense of self, in turn having implications on engagement in learning

Reaves et al. (2018)(2), Plass & Kalyuga (2019),

Higher rates of distractibility

Mackie & Fan (2015), Sorquivst et al. (2016), Seymour et al (2016)

A reduction in working memory compared to neurotypical peers

Mackie and Fan (2015), Rabiee et al, 2020; Mukherjee et al (2021)

Increased rates of cognitive overload or overstimulation

Lewis & Brown (2012). Hilton & James (2017)

The need for timing to be a consideration (before, during and between) testing and assessment

Chen et al (2018), Brosnan & Ashwin (2023)

Reduced retrieval strength from long term memory

Cooper & Simons (2016), Kofler et al. (2018).

Dual Coding

A practical approach to support neurodiverse and neurotypical students

Decades of research led cognitive scientist, Richard E Mayer, to conclude that "people learn better from graphics and words than from words alone".

Mayer (2004)

Dual Coding is the practice of combining visual images and narrative effectively, to better support students to understand, and integrate new learning into their long-term memory.

Allan Paivio discovered that our memory has two codes (or channels) that deal with visual and verbal stimuli. Whilst it stores them independently, they are linked (linking words to images).

This linkage supports cognitive load by reducing working memory – which is important for all students, but particularly our neurodiverse students.

Paivio (1990).

Dual coding involves effective harnessing of verbal and visual attention, reasoning, and processing. To do this effectively, teachers should be considering Mayer's Principles of Multimedia Learning in Dual Coding approaches – please see the section on Mayers Multimedia Principles earlier in this chapter.

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NEURODIVERSITY – COMMON NEURODIVERSITIES FACT SHEETS

We advocate for learning beyond the label, however it is also important to use a label as a navigational tool. As such, we have included fact sheets on our most common neurodiversities to support teacher understanding and responses.

These include: Attention Deficit Hyperactivity Disorder, Anxiety, Auditory Processing Disorder, Autism Spectrum Disorder, Dyslexia, Dysgraphia, Dyspraxia, Dyscalculia, Global Development Delay, Irlen's Syndrome

ATTENTION DEFICIT HYPERACTIVITY DISORDER

ADHD is neurodevelopmental disorder that impacts the part of our brain that helps us to plan, control impulses and execute tasks. It is the same thing as ADD, with hyperactivity manifesting for some, and not others.

Behaviours may include:	Learning considerations:
Lack of focus.	Create a supportive and caring learning environment.
Creativity, empathy, tenacity.	Create an orderly, consistent, predictable learning environment.
Big picture thinking.	Minimise distractions in the environment, and in teaching materials.
Disorganisation.	Keep communication clear and precise, especially when giving instructions.
Procrastination.	Provide clear examples during direct instruction.
Self-focused behaviour, and challenges with waiting and turn-taking.	Moderate screen time with offline learning.
	Use visual organisers to support understanding.
	Provide clear learning intentions and success criteria.
Fidgeting and restlessness.	Break down big tasks and assignments into smaller chunks.
Strong emotions.	Provide clear task outlines and expectations, including timings.
Daydreaming.	Proactively teach expected behaviours.
Impulsivity.	Scaffold social behaviours such as turn taking, discussion, group work.
Challenges with following and contributing to conversations.	Speak to the student about their learning and remain positive and encouraging.
Careless mistakes or rushed work.	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

ANXIETY

Anxiety is a mental health disorder characterised by feelings of worry, anxiety or fear that are strong enough to interfere with one's daily activities.

Behaviours may include:	Learning considerations:
Being agitated, tense, or restless.	Create a supportive and caring learning environment.
	Create an orderly, consistent, predictable learning environment.
Being sensitive to criticism or extremely self-conscious.	Consider the placement of the student in your space – where will they feel most at ease?
Worrying about things that are not likely to happen.	Minimise distractions in the environment, and in teaching materials.
Avoiding difficult or new situations that make them anxious.	Encourage the student to use self-calming or anxiety-reducing techniques that were taught by a counsellor or therapist.
	Give advance notice of changes.
Being socially withdrawn.	Use regular low stakes testing to rehearse future assessment and reduce testing anxiety.
Having trouble concentrating and starting or finishing schoolwork	Keep communication clear and precise, especially when giving instructions.
	Provide clear examples during direct instruction.
	Ensure that instructions are written as well as verbal.
Having trouble sleeping.	Provide clear learning intentions and success criteria.
Changed eating habits.	Speak to the student about their learning and remain positive and encouraging.
Sweating, shakiness, headaches, physical aches.	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

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AUDITORY PROCESSING DISORDER

Auditory processing disorder (APD) is defined as difficulty in listening despite possessing hearing thresholds within the normal limit. Understanding rapid speech, following complex instructions, and listening in the existence of background noise are some of the difficulties in APD.

Behaviours may include:	Learning considerations:
Language impairment and reading disorders.	Create a supportive and caring learning environment.
Difficulty following directions and distractibility	Create an orderly, consistent, predictable learning environment.
Challenges in following complex, or multi-step instructions.	Consider the placement of the student in your space – where will they most likely be able to hear?
Spelling and vocabulary limitations	Minimise distractions in the environment, and in teaching materials.
Tiring easily, or quickly during activities requiring significant amounts of listening and/or reading.	Keep communication clear and precise, especially when giving instructions.
Embarrassment, frustration or unease relating to classroom efforts.	Provide clear examples during direct instruction.
Limited recall, or memory	Use visuals to support explanations.
Sensitivity to loud noises and stimuli	Ensure that instructions are written as well as verbal.
Insensitivity to tone of voice or other nuances of speech.	Proactively teach vocabulary.
	Provide clear learning intentions and success criteria.
	Speak to the student about their learning and remain positive and encouraging.
	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

AUTISM SPECTRUM DISORDER

Autism spectrum disorder (ASD) is a neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave. Autism is known as a "spectrum" disorder because there is wide variation in the type and severity of symptoms people experience.

Behaviours may include:	Learning considerations:
Making little or inconsistent eye contact.	Create a supportive and caring learning environment.
Appearing not to look at or listen to people who are talking.	Create an orderly, consistent, predictable learning environment.
Not responding or being slow to respond to one's name or to other verbal bids for attention.	Minimise distractions in the environment, and in teaching materials.
Having difficulties with the back and forth of conversation.	Keep communication clear and precise, especially when giving instructions.
Talking at length about a favourite subject without noticing others disinterest or giving them a chance to respond.	Provide clear examples during instruction.
Displaying facial expressions, movements, and gestures that do not match what is being said.	Use visual organisers to support understanding.
Having trouble understanding another person's point of view or understanding other people's actions.	Provide clear learning intentions and success criteria.
Difficulties adjusting behaviours to social situations.	Provide task outlines, expectations and timings.
Repeating certain behaviours or having unusual behaviours	Proactively teach expected behaviours.
Having a lasting intense interest in specific topics, such as numbers, details, or facts	Scaffold social behaviours such as turn taking.
Showing overly focused interests, such as with moving objects or parts of objects	Signal upcoming changes in advance.
Becoming upset by slight changes in a routine and having difficulty with transitions.	Speak to the student about their learning and remain positive and encouraging.
Being more sensitive or less sensitive than other people to sensory input, such as light, sound, clothing, or temperature	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.
People with ASD may also experience sleep problems and irritability.	

DYSLEXIA

Dyslexia is a specific learning difference which is constitutional in origin and which, for a given level of ability, may cause unexpected difficulties in the acquisition of certain literacy and numeracy skills.

Behaviours may include:	Learning considerations:
Being a top-down rather than bottom-up thinkers, meaning they learn from getting the big picture or the overall idea or meaning first, and then fill in the specific details.	Create a supportive and caring learning environment.
Difficulties with literacy and numeracy.	Create an orderly, consistent, predictable learning environment.
Reading slowly or making errors when reading aloud.	Minimise distractions in the environment, and in teaching materials.
Answering questions well orally but having difficulty writing the answer down.	Keep communication clear and precise, especially when giving instructions.
Difficulty carrying out a sequence of directions.	Provide clear examples during direct instruction.
Struggling to learn sequences, such as days of the week or the alphabet.	Use concept checking questions that test student understanding of concepts as associated examples.
Difficulties with auditory and information processing, planning, and organising, motor skills, short-term memory, and concentration.	Use visual organisers to support understanding.
Struggles with following instructions, turning thoughts into words, and finishing certain tasks on time.	Provide clear learning intentions and success criteria.
Challenges with identifying direction and telling the time.	Provide clear task outlines and expectations, including timings.
	Provide L shaped cards to help focus attention on written texts.
	Explicitly teach exam strategies.
	Provide multiple opportunities to recap and review learning.
	Teach vocabulary.
	Speak to the student about their learning and remain positive and encouraging.
	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

DYSGRAPHIA

Dysgraphia is a neurological condition in which someone has difficulty turning their thoughts into written language for their age and ability to think. Difficulties can range from issues with physically writing words to issues with organising and expressing thoughts in written form.

Behaviours may include:	Learning considerations:
Consistent difficulty with forming letters, making them the same size, and spacing them correctly.	Create a supportive and caring learning environment.
Letters may be clustered together without spaces or not in a straight line.	Allowing extra time to complete written tasks.
Trouble holding a pencil, such as holding it awkwardly or needing to grip it extra tight.	Use of a scribe or voice to text technologies.
Writing fatigue — Writing can be tiring and cause hand cramps or pain.	Providing templates and more scaffolding for written tasks
Difficulties with writing mechanics, like spelling, grammar, punctuation, and sentence structure.	Explicit instruction in phonics and spelling
Trouble organising their writing — they might have great ideas but have a hard time getting them down onto paper in a coherent, structured way.	Reducing the amount of written work that needs to be completed (quality over quantity)
	Allowing alternative assessment practices, such as oral assessments and presentations
	Minimise distractions in the environment, and in teaching materials.
	Provide clear examples during direct instruction.
	Provide clear learning intentions and success criteria.
	Speak to the student about their learning and remain positive and encouraging.
	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

DYSPRAXIA

Developmental co-ordination disorder (DCD), also known as dyspraxia, is a condition affecting physical co-ordination, communication, and organisation.

Behaviours may include:	Learning considerations:
Muscular coordination difficulties, both at a gross and fine level. Limits on gross motor skills result in poor overall coordination, causing clumsiness and difficulty mastering skills such as riding a bicycle or catching a ball. Fine motor skills are usually affected as well, so tasks involving manipulation and finger control such as writing, dressing, or using equipment can be extremely difficult. Organisational, memory and planning problems. Social and communication difficulties, such as missing inferred and implied meanings of speech or understand how to interpret body language, jokes, metaphors, or sarcasm.	Create a supportive and caring learning environment. Create an orderly, consistent, predictable learning environment. Consider seating placement and ensure desk and chair stability. Consider and support the use of a writing slope and pen/pencil grips. Minimise distractions in the environment, and in teaching materials. Provide support with organisation and deadlines. Colour coding can be helpful. Keep communication clear and precise, especially when giving instructions. Provide clear examples during direct instruction. Use visuals to support explanations. Provide clear learning intentions and success criteria. Speak to the student about their learning and remain positive and encouraging. Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

DYSCALCULIA

Dyscalculia is a learning disorder that affects a person's ability to understand number-based information and mathematics.

Behaviours may include:	Learning considerations:
Trouble keeping track of time. Difficulty managing money. Avoidance of math tasks. Difficulty remembering important information. Uneven academic achievement. Be unable to grasp the concepts behind word problems and other non-numerical math calculations. Have significant difficulty learning basic math functions like addition and subtraction, times tables and more. Struggle to process visual-spatial ideas like graphs and charts. Difficulty judging the length of distances and how long it will take to get from one location to another.	Create a supportive and caring learning environment. Create an orderly, consistent, predictable learning environment. Break maths tasks into smaller skills and build on them. Focus on verbal reasoning – talk through the maths problems. Minimise distractions in the environment, and in teaching materials. Overlearning of new skills and concepts Provide instructions in written form. Give the student a list of maths formulas for reference. Explicitly teach maths language and highlight the important words in questions Check with them verbally to ensure understanding of concepts being taught Provide extra time to complete maths tasks Provide clear learning intentions and success criteria. Speak to the student about their learning and remain positive and encouraging. Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

GLOBAL DEVELOPMENT DELAY

The term 'global development delay' is used when a child takes longer to reach certain development milestones than other children their age. This might include learning to walk or talk, movement skills, learning new things and interacting with others socially and emotionally.

Behaviours may include:	Learning considerations:
Difficulty socialising and connecting with others	Create a supportive and caring learning environment.
Difficulty in accessing the curriculum	Create an orderly, consistent, predictable learning environment.
Forgetfulness, memory limitations	Use visual cues to orient student in the classroom.
Difficulty with logical reasoning	Follow the Premack Principle: mix preferred and less preferred learning activities.
Motor difficulties	Provide scaffolded choice where appropriate.
Talking and speech challenges or delays.	Proactively teach expected behaviours and reinforce using positive verbal cueing.
Struggling to connect actions with consequences.	Minimise distractions in the environment, and in teaching materials.
	Keep communication clear and precise, especially when giving instructions.
	Provide clear examples during direct instruction.
	Use visuals to support explanations.
	Provide clear learning intentions and success criteria.
	Speak to the student about their learning and remain positive and encouraging.
	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

IRLENS SYNDROME

Irlen's Syndrome affects the brain's ability to process visual information. It can manifest itself differently for each individual. Irlen Syndrome is present in a variety of populations, including individuals identified with reading and learning difficulties, low motivation, attention deficit disorder (ADHD), discipline problems, headaches and migraines, autism, and traumatic brain injuries. It is commonly misdiagnosed as dyslexia, ADHD, behavioural, psychological, or psychiatric disorders.

Behaviours may include:	Learning considerations:
Light Sensitivity	Create a supportive and caring learning environment.
Reading Problems, including line skipping, line repeating, loss of place, needing to use fingers to stay in place when reading.	Create an orderly, consistent, predictable learning environment.
	Support and encourage coloured lenses, overlays, and screens.
	Avoid coloured whiteboard markers. Stick to black and blue for greater contrast.
	Write in columns instead of across the entire whiteboard.
	Avoid glossy white paper.
Headaches and Migraines	Avoid having students share reading material.
Attention and Concentration Problems	Minimise distractions in the environment, and in teaching materials.
	Keep communication clear and precise, especially when giving instructions.
Strain and Fatigue	Provide clear examples during direct instruction.
Problems with Depth Perception	Use visuals to support explanations.
	Provide clear learning intentions and success criteria.
Print or Environmental Distortions	Speak to the student about their learning and remain positive and encouraging.
	Work alongside Teacher Aides to support learning, and map approaches and scaffolding.

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MAHI TAHI - DEVELOPING OUR APPROACH FOR WORKING TOGETHER AS ONE

A key and early learning on our Tino Akoranga journey was the need for a shared understanding of what great teaching and learning is, not just as described in wider research overseas but grounded in our setting, Aotearoa, New Zealand. This work led to the development of three foundational ideas: “Tikanga”, “Ako” and “Mahara”.

Each of these resonated across our staff and curriculum areas, giving our teachers a common ground that was mindful of the differences in specialist subject teaching but also supported the development of adaptive routines that applied research to practice. This application considered the student, the teacher, the subject, the classroom, and the cognition of all, to support the highest quality teaching and learning. Those routines iterated to include a range of assessment for learning approaches that help ground our teaching and learning. While we face unprecedented levels of curriculum change in New Zealand, our fundamentals of collective practice have a robust research-base.

Developing Mahi Tahi

What can we as a school do to secure a fidelity of exceptional teaching and learning across our College?
With that in mind, we have followed the same approach used to develop Tino Akoranga to develop **Mahi Tahi**. We looked at our practice, considered that of others and reviewed the literature around supporting great collective practice. We considered how best to support our teachers in feeling safe to take risks with their practice and for the observation of our wider classroom practice to be what it must be; grounded in trust and so much more than an exercise in accountability or performance.

Translated from Te Reo Māori “Mahi Tahi” means “we work together as one”. “Mahi Tahi” is a way we will cultivate trust, professional growth, support ongoing curriculum and pedagogy development, apply our prior work in developing specific research informed teaching strategies and normalise teachers visiting and sharing their practice with each other.

On our journey to develop **Mahi Tahi**, the curriculum and pedagogy team at Long Bay College invested significant time reviewing and considering wider literature on mentoring and lesson observation and in particular the work of Professor Matt O'Leary and Craig Randall. We found ourselves with some significant learning about lesson observations as they traditionally occur across the profession, around the world.
Of particular interest were the following findings:

- Professor Matt O'Leary describing the feeling of teachers not feeling safe or supported in lesson observations.
- Craig Randall describing that observations need to be about growing practice and not about compliance.

While annual reviews of Faculty and formal observations of practice serve vital roles in schools and in schooling, they have limitations.
These limitations become vividly clear when considering how to embed a culture of “improving not proving” in a school.
The multiple purposes of the traditional lesson observation can lead to practice that can be problematic – namely compliance checklists or practice that is contrived or highly performative.
These considerations and our commitment to secure trust-based practice have helped to shape our thinking and have ultimately led to the development of our **Mahi Tahi** initiative.

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MAHI TAHI - OUR APPROACH

Mahi Tahi means to work together as one. If we can meaningfully collaborate, know our practice and discuss our next steps as a group, we are more likely to experience success. It is an initiative to support our collective knowing and sharing of practice in Faculty and as a wider teaching staff. Our conversations about practice are about active listening and reflection. This all builds on a foundation of research-based pedagogy and is intended to sustain our professional learning culture that is, at its heart, about improving student outcomes, trusting our staff, and collectively walking our talk about improving not proving.

Mahi Tahi supports:

- The strategic direction of Long Bay College
- Ongoing curriculum and pedagogy development by helping classroom teachers and faculty leadership work together and to grow their practice.
- The cultivation of trust and professional growth.
- The application of our prior work in developing specific research informed teaching strategies.
- Pedagogies that act as direct scaffolds supportive of meaningful and effective formative assessment.
- Normalising teachers visiting and sharing practice with each other as an everyday feature of practice

Mahi Tahi classroom visits are:

- Focused on one class at a time.
- Support one teacher at a time and are no shorter than 15 minutes and no longer than 30 minutes. The time spent visiting needs to be meaningful, and enough for the HOF to have a clear picture of the practices being used. This demonstrates a commitment for the observer to really engage with the classroom visit, as opposed to simply conducting the visit as a box-ticking exercise. Extended observation increases the stakes for the teacher being observed, that tension running counter to trust building.
- Organised in advance and are coupled with a conversation about relevant contextual elements about the class. The conversation about classroom context is important in so much as it may reduce misconceptions about what they end up seeing, as well as supporting teachers to feel more confident and safer to be observed, having had the chance to disclose potential areas they may already be focussing on in their practice with that class.
- Have consistency around post observation feedback through trust-based post observation discussion questions. The classroom visits followed up within 36 hours with a conversation between the teacher and the Head of Faculty.

Mahi Tahi Conversation Questions

Question	Rationale
How were you supporting your students to learn?	This question allows for the teacher to discuss their practice, and the deliberate choices they were making to support student outcomes. It reiterates the focus of the observation on student learning and teacher support of that learning.
What would you do differently next time?	This question opens the door to a discussion around the next steps in their practice. A teacher may already have ideas as to their next steps, this empowers teachers to discuss those ideas. It creates an opportunity for the teacher to ask for advice, instead of having this advice imparted without solicitation.

Trust based questioning create the space for a teacher to elaborate on their practice as well as assess and discuss their next steps. They encourage 'inquiry mindedness" (Timperley et al, 2014) in so much as teachers are encouraged to be continuously considering their next steps.

Our Mahi Tahi approach was published in The Journal of Educational Leadership, Policy and Practice in December 2024. The article, "Mahi Tahi: Placing Trust at the Centre of Lesson Observation and Post-Lesson Observation Conversation" explores how Mahi Tahi was developed, discusses the specifics of our approach and considers our next steps.
The article can be accessed here: https://sciendo.com/article/10.2478/jelpp-2024-0011

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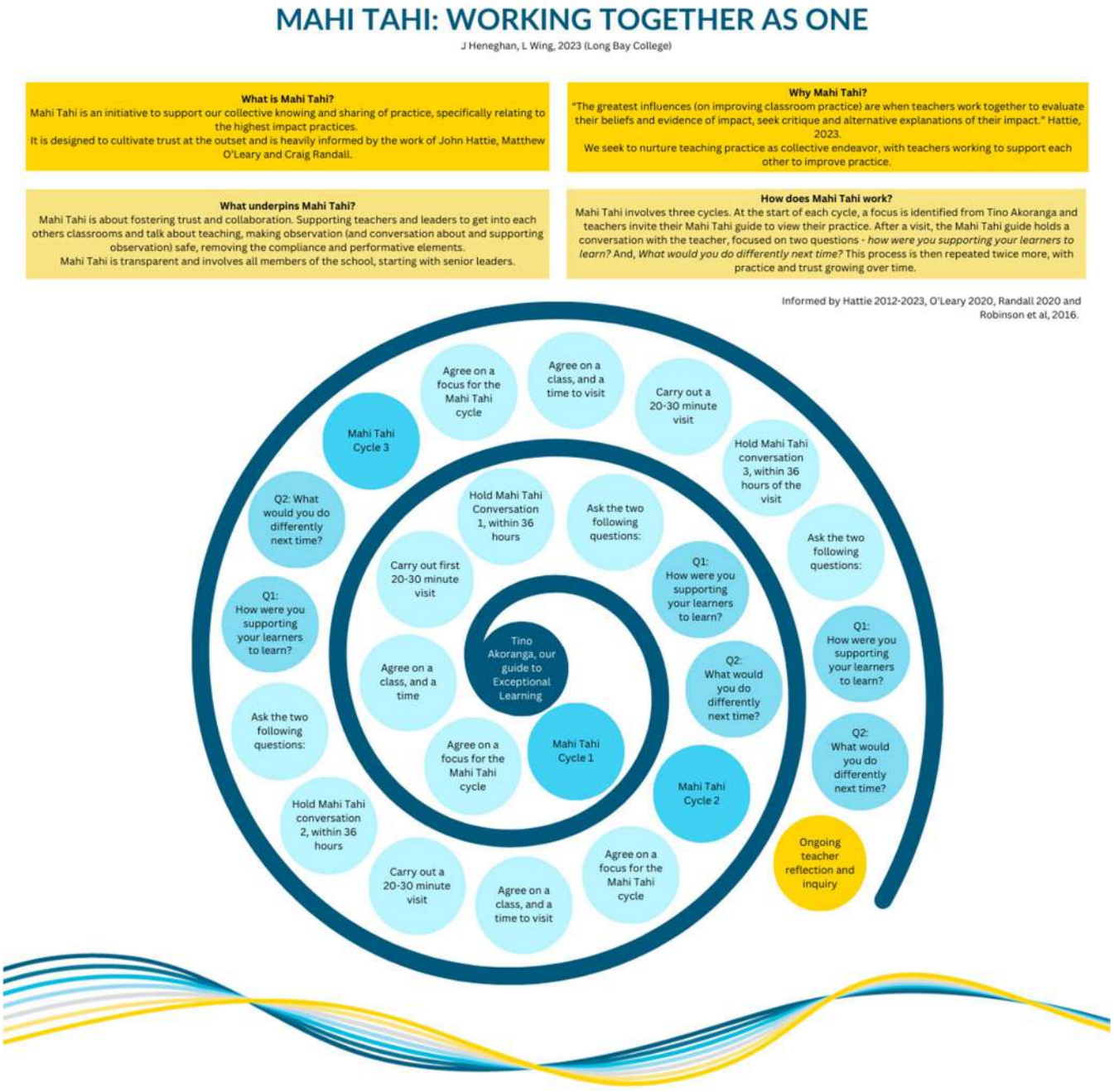
MAHI TAHI - WORKING TOGETHER AS ONE

Mahi Tahi follows a spiral approach, with three rounds of observation and discussion held between a teacher and a guide. This approach supports teachers in talking about what they have tried, and what they plan to try next. It is not expecting the teacher to be perfect, instead encouraging consideration and reflection into what could change for next time. Authenticity and legitimacy are key drivers of trust.

Our graphic below illustrates the spiralling nature of Mahi Tahi. We begin at the centre, with our research-based approach to teaching and learning at Long Bay College, Tino Akoranga. From there, teachers select strategies to trial in their classes and invite their Mahi Tahi guide to see their practice. Thereafter, the teacher and the guide discuss the lesson, with that conversation focused on two questions:
'How were you supporting your students to learn?' And 'What would you do differently next time?'
This approach is then repeated twice more over a series of weeks, with the guide returning to see the teacher develop their practice further, based on their conversations.



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MAHI TAHI - POST OBSERVATION CONVERSATIONS

Teachers value post observation conversations and having the opportunity to discuss and reflect on their teaching.

Observation and conversations about practice have the clear potential to massively drive the professional and personal growth of teachers and to positively transform practice. That said, there are well described concerns in professional literature as to how well these conversations are carried out across schools from all over the world with performative practice and compliance approaches evident in many settings. Mahi Tahi is our approach, designed to move beyond compliance and performance and into a space of growth and mutual trust and respect. Our observations of practice grounded in our school's approach to pedagogy – Tino Akoranga, and Mahi Tahi, our scaffold supporting trust focused observation and post observation conversations.

Given that trust is keystone, and that authenticity and legitimacy have the potential to drive trust, we cannot ad-lib, forget, underplay or rush to the finish line. Trust and safety must come first.
"For teachers to enthusiastically embrace taking chances, ingredients that cultivate the confidence to take risks must be added and obstacles that interfere with risk taking eliminated". Craig Randall, Trust Based Observations, 2020
"The truth is that legitimacy begins with trust: nothing will move until trust is firm".Robert Greenleaf (2002).

Setting up for success – Best and Safe practice before and during Mahi Tahi conversations

- Ensure that all parties know what is going to be happening, and the purpose.
- Ensure that any hesitations and/or concerns are heard ahead of time.
- Let the person being observed lead the way with the what, who and when of the observation (at least in the first iteration).
- Channel your nicest, most appreciative self while in the room
- Keep it light, and the vibes positive. This is especially important when first using this approach.
- Remain present and engaged in the lesson.
- Remember that you might not see what you are looking for, but that does not mean it isn't happening.
- Have the conversation soon after the lesson. Ideally within the next 24 hours, 36 hours is the maximum.
- Make sure that this conversation happens in person – do not email it.
- Ask for permission, this shows respect for the teacher and their time.
- Have the conversation in the teacher's classroom. Teachers feel more comfortable in their own space, and you coming into that space, as opposed to them coming to your office supports creating and maintaining a safe and trusting relationship.
- To build a sense that the process is collaborative, sit beside the teacher instead of across. It removes the table as a barrier and build trust.
- If you are writing up notes, make sure the teacher can see everything that is being typed. Transparency supports trust.

Mahi Tahi review questions

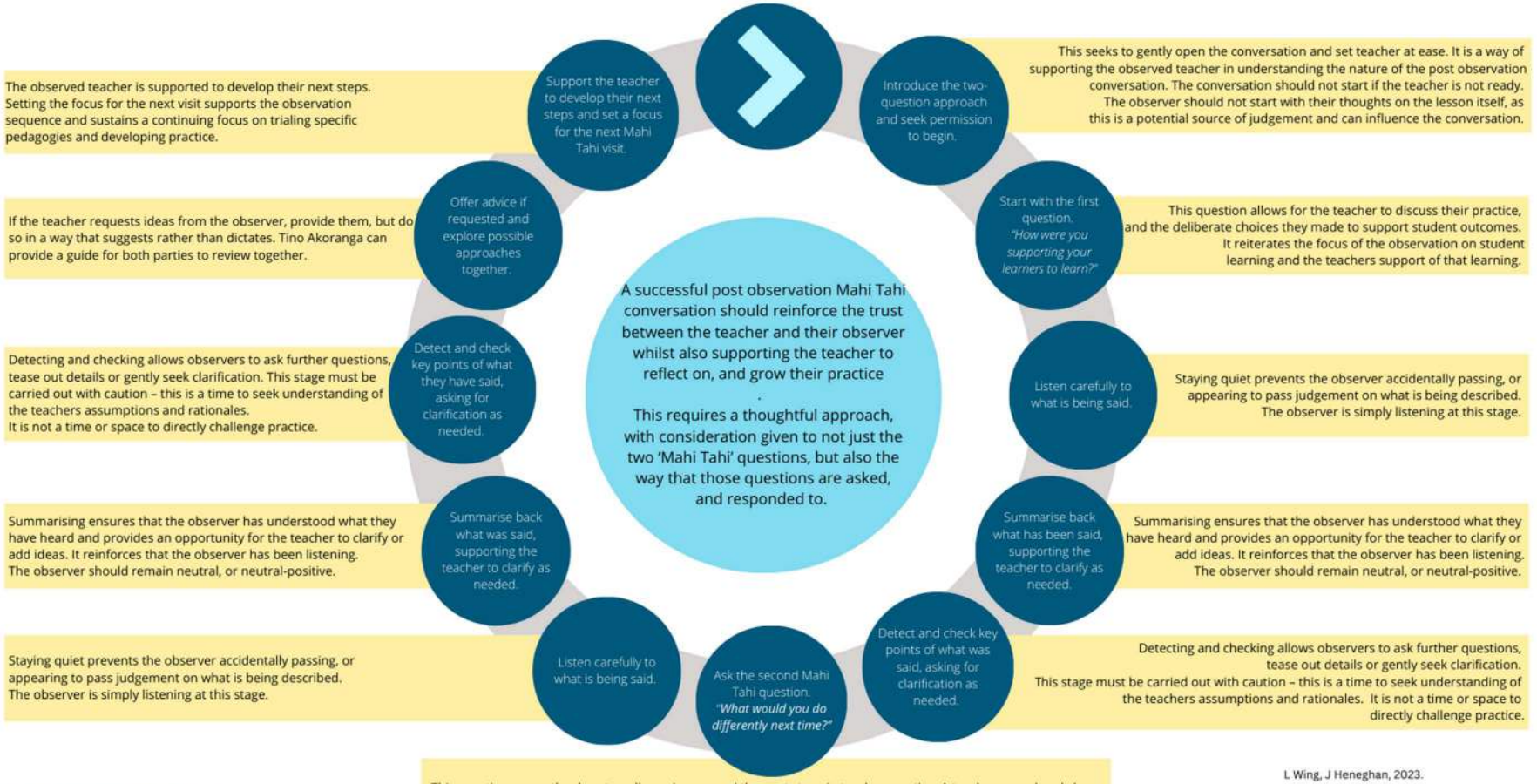
These two questions are used in the post-visit conversation to stimulate a reflective conversation between the observed teacher and their observer. They are informed by Randall (2020).

How were you supporting your students to learn?
This question allows for the teacher to discuss their practice, and the deliberate choices they were making to support student outcomes.
It reiterates the focus of the observation on student learning and teacher support of that learning.

What would you do differently next time?
This question opens the door to a discussion around the next steps in their practice. A teacher may already have ideas as to their next steps, this empowers teachers to discuss those ideas. It creates an opportunity for the teacher to ask for advice, instead of having this advice imparted without solicitation.

MAHI TAHI : SUPPORTING SAFE & GROWTH-FOCUSED POST-OBSERVATION CONVERSATION

Working collaboratively alongside colleagues strengthens trust, reinforces the professional and social connections within a school and supports teachers in being able to communicate their practice to others.
Effective post observation conversations between teachers about practice should be safe and focused on growth.
The graphic below, an outline that seeks to support teachers engaging in a Mahi Tahi conversation with safe and growth focused approaches at the forefront of practice.



L Wing, J Heneghan, 2023.
Informed by Hattie 2012-2023, O'Leary 2020, Randall 2020 and Robinson et al, 2016

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GLOSSARY

Word or phrase	Meaning
Activating Prior Learning	Supporting students to think about what they already know or have learnt about a topic before learning more.
Ako (Long Bay College principle of exceptional learning)	Ako is about being experts in what we teach, and how to teach it. This includes knowing how best to teach your subject. It is knowing what strategies work best, predicting misconceptions, knowing how students engage with the subject and being knowledgeable in the subject itself.
Assessment	Assessment is a fundamental and vital part of curriculum. It can, and should take a range of forms, and be used at a range of stages within a teaching and learning cycle. Assessment plays a crucial role in ensuring that learning progress and overall learning outcomes are known. Formative and summative assessment both play a role in this process.
BICS	BICS (Basic interpersonal communication skills) refers to conversational fluency – the ability to talk about objects or experiences in face-to-face and familiar contexts.
CALP	CALP (Cognitive academic language proficiency) is the oral and written language needed to succeed in school subjects.
Checking For Understanding	Checking for understanding refers to the methods by which we 'verify that students are learning what is being taught, while it is being taught'.
Cognitive Load Theory	Cognitive Load Theory is a conceptual understanding of memory and cognitive architecture presented by John Sweller in 1988. The model describes 'working' and 'long-term' memory, as well as the processes supporting information moving into and between these two spaces.
Cold Calling	Cold Calling is a technique that creates an expectation that all students are ready to answer every question. This promotes attention, engagement, and participation. Rather than asking for a volunteer, the teacher poses a question, pauses (allowing all students to think and answer in their heads) and then calls on a particular student to respond.
Collective Efficacy	Collective efficacy is about teachers working in the same direction to support student outcomes (Donohoo 2017).
Consequences	Consequences are a part of a behavioural feedback system. They encourage students to desist with certain behaviours. Consequences teach students that their actions do matter, that they matter, and the learning of others matters.
Culturally Responsive Pedagogy	Culturally Responsive Pedagogy (or practice) is the use of pedagogical approaches that support the achievement of students, while also responding to their unique identities and backgrounds. It is about knowing the student, their family and whānau, and involving all stakeholders in the learning and progress of the student.
Desirable Difficulties	Desirable difficulties describe strategies that slow down performance but enhance long-term learning.
Do-Now	A task completed by students at the beginning of a lesson to support focus, activate prior knowledge and prime students for their learning that day.
Dual Coding	Dual Coding is the practice of combining visual images and narrative effectively, to better support students to understand, and integrate new learning into their long-term memory.
Effective Learning Time	Seeking to maximise learning time in the classroom by reducing misalignment and a lack of student success and increasing engagement
ELL	English Language Learners
Engagement Norms	Engagement norms support students in remaining engaged in the learning by pulling them into the learning and keeping them there using cued physical and verbal behaviours.
Episodic Memory	Episodic memory refers to the type of long-term memory that stores personal experiences and events, especially those tied to a particular time, place, or emotional context.
Expectations	How students are expected to behave within your classroom and context. These needing to be taught explicitly and actively sustained over time.
Expertise Reversal Effect.	When Instructional techniques that work well for novice students become ineffective for experienced or expert students.
Explicit Instruction	Explicit instruction is a means of securing intentional practice throughout the learning process. As a teacher you are articulating what you are doing, what the students need to do, why you are doing it, and how it should be done, Throughout the lesson.
Explicit Instruction	Explicit instruction is a specific type of direct instruction that emphasises clear and direct explanations and modelling of the material being taught
Extraneous Load	Information that drains working memory and does not contribute to learning.
Feedback	Feedback is information that a student receives about their performance in relation to a learning goal, given with the intent of securing improvement in the students' learning.
Formative Assessment	Takes place during the learning process, as students move from novices to experts. It continually informs the teacher and the student as to how learning can move forward as it happens and typically has lower stakes and is not used for formal reporting.

Germane Load	The cognitive load used for processing, constructing, and strengthening schema.
Guided Practice	Showing the student "how to do it" through a series of guided steps that outline the process and support the student moving from novice to expert.
I Do, We Do, You Do	In explicit-instruction teaching model. It describes a gradual release of responsibility from teacher to student with pedagogical approaches adapting throughout the learning process.
Improving Not Proving	This phrase denotes the importance of continuous improvement, as opposed to seeking to evidence a practice or result for the sake of performance.
Intended And Enacted Curriculum	Intended: What is planned for courses of learning, based on standardised approaches. Enacted: What happens in classrooms to achieve the 'intended curriculum'.
Interleaving	Interleaving involves mixing different topics, or type of question, or activity within a period of learning.
Intrinsic Load	the cognitive load that comes from the complexity of the learning itself.
Knowledge Rich Curriculum	A Knowledge-Rich Curriculum sequences specific knowledge (including skills) as cumulative building blocks, both within and between years.
Learning Intentions	The planned input for a lesson
Long Term Memory	The role of the long-term memory is the storage of information. Large amounts of information can be stored in the long-term memory. within schema. Schema acting as webs of knowledge. Theoretically it is endless, it has a semi-permanent capacity.
Mahara (Long Bay College principle of exceptional learning)	In Te Reo Māori, the term mahara refers to recalling the past, or looking back. In an educational context, Mahara refers to supporting learning to become part of memory. Effective teaching is about ensuring our students are equipped to use their learning beyond the assessment and into the future.
Mahi Tahi	A trust-based classroom observation approach used at Long Bay College. The approach involves three observations of a teacher; each coupled with a follow-up conversation designed to support the teacher to explore their practice in a safe way.
Mana Ōrite	Mana Ōrite is an approach for most effectively supporting Māori students. It considers Relationships, Reciprocal respect, challenging biases and assumptions, responsivity, and connecting with our students and their whānau and what they bring to the classroom.
Mapping	Mapping refers to a group of different techniques in which the students represent texts, whether written or spoken, as a spatial organisation of words with lines connecting them to show relationships. Techniques can include concept mapping, knowledge mapping and graphic organisation.
Maximising Learning Time	Maximising Learning Time is about securing as much learning as possible through the use of considered lesson design and implementation, based in the Science of Learning. Maximising Learning time draws on explicit instruction to support students as they move from novices to experts through the I do, We do, You do approach.
Mayer's Multimedia Principles	A series of principles that can be used to guide the delivery of learning, particularly when using direct instruction, explaining new ideas or presenting new material.
Mini-Whiteboards	Mini-whiteboards are small, wipe-clean surfaces. They are an instant formative assessment tool that allow teachers to engage with the thinking, understanding and progress of all students at once.
Neurodiversity	Neurodiversity is the idea that people experience and interact with the world around them in many ways, with some of these ways being based on differences in brain function and organisation.
North East Teaching, or Teaching To The North East	A pedagogical approached described by Russell Bishop in which teachers aim for teaching approaches and relationships based in high regard, and high-quality pedagogies.
Novices And Experts	Novices and experts experience learning very differently. Novices require greater guidance and more directive instruction. What is intuitive for an expert is often confusing for a novice. Novices are more prone to cognitive overload. They benefit most from explicit, direct instruction with guided practice and relevant feedback.
Plenary	A task completed by students at the end of a lesson designed to conclude the learning, focus and settle students, embed knowledge or prime for subsequent learning.
Proactive Strategies for Classroom Management	Strategies used in advance, before a behaviour needs correction to prevent the behaviour occurring at all.
Questioning	A pedagogical approach where teachers pose questions to students to support students in thinking hard, as well supporting teachers in making judgements about the learning and progress of students.
Redundancy	Providing too much information adds to extraneous load, reducing load that can be used to process new learning
Relational Pedagogies	Relational pedagogies require students to work together with other students, or alongside them. Relational pedagogies are most effective when expectations for interactions are clear, and outcomes are specific.
Responsive Strategies for Classroom Management	Strategies used to correct or realign a behaviour after it has occurred.

Retrieval or Retrieval Practice	Retrieval Practice asks students to recall previous learning. The brain is not wired to be able to easily recall all knowledge that is presented to it.
Rewards	Rewards also act as a behavioural feedback system. They can indicate that a behaviour was correct, and encourage more of the same. That said, much like consequences, a reward system must be used with care and consistency.
Routines	Sequences of specific behaviours that "are the building blocks of classroom culture".
Scaffolds Or Scaffolding	Scaffolds are the instructional practices designed to support students as they develop from novices to experts. They are the training wheels so to speak that allow students to become confident with their learning, securing early success and increasing independence.
Schema	Schema Theory conceptualises how new learning comes to be attached to webs of previously gained knowledge held in the Long-Term Memory. As this occurs, the brain develops protocols for how additional new knowledge may fit within these webs.
Scripting	When a teacher pre-prepares a verbal response to a behaviour,
Self-Explaining	Self-explaining is a metacognitive approach in which the student explains why they have chosen a particular process or strategy (methodology) or think in a certain way (opinion/thinking).
Self-Testing	Self-testing is the process by which students recall information from a learning episode, using questions or activities which require them to retrieve either specific details or broader recollections, such as with brain dump activities.
Semantic Memory	knowledge taught and learnt in an orderly fashion, organised into schema. Within this, students are able to develop conceptual understandings, knowing what something is, and is not, and make connections to examples and non-examples.
Spacing	The practice of spacing out re-study opportunities rather than completing these in immediate succession is known as spacing.
Split Attention	Extraneous load is increased through task design and ineffective resource creation.
Student Agency	Student agency is the ability to identify valued goals and desired outcomes, and to pursue those goals and outcomes proactively, purposefully and effectively.
Student Generated Questions	Questions asked by students from a teacher prompt.
Success Criteria	The performed output of a lesson
Summarising	Summarising is employing processes that require students to collect and reorganise the main points from their learning at different points in the learning process.
Summative Assessment	Focuses on evaluation of student learning at the end of the process. For example, an end of topic test is not used as a low stakes strategy but has increased stakes and is often used for more formal recording and reporting.
Teaching As Inquiry	Teaching as inquiry (TAI) is a process that encourages teachers to change their practice in order to enhance success for students. It involves inquiry into the impact of teaching and the teaching–learning relationship. TAI is "not a 'project', an 'initiative' or an 'innovation' but a professional way of being."
Teaching Others	Teaching others is a strategy that asks students to explain important concepts from their own learning to others. It is effectively peer to peer and peer to group teaching.
The "Three-World" Classroom Model	As described by Nuthall, students inhabit three worlds within the classroom - The Public World, The Social World, The Private World of the Mind
The Science of Learning	The Science of Learning is the study of how the human brain learns. Applying the findings of that study can help teachers to design effective lessons and to employ teaching methods that support students to learn.
The Tiered Vocabulary Model	The Tiered Vocabulary Model presents the different levels of vocabulary used in subject domains and across the curriculum. It is critical to explicitly teach Tier 2 and Tier 3 vocabulary, which will often be unfamiliar to students.
The Zone of Proximal Learning	The Zone of Proximal Learning is defined as the space between what a student cannot yet do without assistance, and what a student can do without assistance. The space in between being where a student is able to experience a combination of challenge and success, either with adult guidance or in collaboration with peers.
Thinking Hard	The idea that students must think about what it is that they are learning, so as to be able to use such learning again via its conduit into the long-term memory.
Think-Pair-Share	Think-Pair-Share is a form of structured discussion supporting individual reflection and peer supported learning in response to a directed prompt from the teacher.
Threshold Conversations	A "Threshold Conversation" is a tool that allows a teacher and a student to discuss a behaviour without the wider involvement and audience of their peers and the wider class.
Tier 1 Vocabulary	Words of everyday speech, familiar to most students.
Tier 2 Vocabulary	High frequency words found in many different subject disciplines, e.g. examine, authority, and establish.
Tier 3 Vocabulary	Subject specific vocabulary, such as 'photosynthesis' in Science.
Tikanga (Long Bay College principle of exceptional learning)	A shared classroom culture for learning, which we describe as 'Tikanga'. In Te Reo Māori, Tikanga can mean the 'ways of doing' for a group, and when applied to educational contexts it refers to the ways in which a class functions together and what is expected of them. In a class with effective Tikanga, all students know what is expected from them, have shared buy-in to the expectations, and are supported to meet expectations.

TPACK	TPACK is a framework developed by Koehler & Mishra (2009) that guides the use of technology as a teaching tool and the knowledge that teachers must teach as they engage with technology. It suggests that content, and context, should inform the use of technology in teaching and learning.
Ways Of Knowing	In the context of teaching and learning, ways of knowing are the sources of evidence and insight we draw upon to understand what is happening in the classroom, why it is happening, and how to improve it.
Whanaungatanga	Whanaungatanga is about relationships, kinship, and a sense of connection. It is created through shared experiences and working together and provides people with a sense of belonging. It comes with rights and obligations, which serve to strengthen each member of that whānau or group.
Wiliam Grid	Dylan Wiliam (2011) describes five essential formative assessment approaches, which, when used in conjunction with each other ensure that teachers have a clear understanding of where their students are at, and what their next steps are. These approaches are described on a graphic often called the "Wiliam Grid".
Worked Examples	A worked example is a completed, or semi-complete example. It shows students what to do, what is expected, or what success could look like, in a step-by-step manner.
Working Memory	The working memory processes new information as well as retrieved information from the long-term memory. It has limited capacity, between 4-7 pieces for most people.

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