If students are to be successful in school, at work, and in their personal lives, they must learn to write.

- Steve Graham, Arizona State University

Literacy and Scaffolding
Materials and Processing Technology

Prepared for:
TESAC Conference
Christchurch - April, 2024

Lauren May
Ōtūmoetai College

'We are pleased to share our school's achievement data to support educational improvement. Please use this data respectfully, ensuring the privacy of our students and the integrity of our school are maintained.'

A BIT ABOUT ME

Lauren May

- HOD Technology - Ōtūmoetai College, Tauranga
- Food Technology | Hospitality | Cafe Operations - 14+ years
- Varied background with a range of life and work experiences
  - Travel and Tourism
  - Chef / Barista
  - Management - Accounting and Marketing
- 2023 Pilot - Level 1 Materials and Processing Technology
- L1 Materials and Processing SEG
- L2 Materials SEG

NCEA CHANGE PACKAGE

- Literacy is a foundational skill that enables access to further learning, develops important life skills, and allows people to fully engage in work and in their communities - **NCEA Website**
- Technology has a large body of specialist | technical language
- Literacy Pedagogy Guide (LPG) in Technology - Big Idea 2
  - “Ākonga use written language conventions appropriately to support communication”
    - Simple sentences
    - Compound sentences that use coordinating conjunctions e.g. “but”, “as”, “yet” which allow the reader to unify two related points often for greater detail.
    - Complex sentences e.g. those that use “because”, “while” to combine two different but connected ideas

https://ncea.education.govt.nz/literacy-pedagogy-guides-lpgs

ŌTŪMOETAI COLLEGE
POWERFUL
THINKING &
LEARNING
VALUED
NURTURED
CELEBRATED

We need to teach our kids … “to know what to do, when they don’t know what to do”

Russell Gordon - Tumuaki | Principal, Ōtūmoetai College

BACKGROUND - ŌTŪMOETAI COLLEGE

- In 2022 our kura piloted the Literacy and Numeracy common assessment activities (CAA)
- Results were encouraging compared to national results - there is always room to improve though
- Implementation of schoolwide literacy strategies continued across 2022 and 2023
    - What | How | Why
    - Because | But | So

LITERACY FOCUS - 2023

- School wide focus on literacy across all learning areas
- Soft Materials and Processing Department - focus for collaborative Professional Growth Cycle based around school goals
- Straightforward strategy to support any student, no matter their ability
- Collaborative effort
- Aim for all students in Year 10 Food | Soft Materials as starting point
    - 10 x Half year classes (6 x Food | 4 x Soft Materials)
    - 1 x Full year class (Food)

We are one cog in a massive machine - but every cog contributes!

Ōtūmoetai College vs. National

- Results in 2023 were much better than expected
- In writing, 86% of our students have achieved the expected level as compared to the national pass rate of 66.3%
- Our achievement rate in writing has increased by 25.7% from 2022 - 2023
- Ōtūmoetai College is outperforming the national average across the board - in particular by 19.7% in writing

	2022				2023				% Change
	Achieved		Not Yet		Achieved		Not Yet		2022-23
	OTC	National	OTC	National	OTC	National	OTC	National	OTC
READING US 32403	76.0%	67.3%	24.0%	32.7%	81.4%	68.5%	18.6%	31.5%	+5.4%
WRITING US 32405	60.3%	49.8%	39.7%	50.2%	86.0%	66.3%	14.0%	33.7%	+25.7%
NUMERACY US 32406	74.2%	64.1%	25.8%	35.9%	70.3%	65.1%	29.7%	34.9%	-3.9%

2024 - NEXT STEPS

- Soft Materials and Processing Department - continued collaborative Professional Growth Cycle based around school goals
- Merge together the implementation of new L1 NCEA assessment across all learning areas with our literacy focus
- Aim to build on 2023 - many of the same cohort
- Revisit | Refresh | Build
- Aim for all students in Level 1 Food | Soft Materials Department as starting point
    - 2 x Level 1 Food Technology classes
    - 1 x Level 1 Soft Materials Technology classes
    - 4 x Level 1 Hospitality classes

STARTING POINT

- Now! There's no better time
- At the beginning of teaching and learning program
- Provide no structure - just ask the question!
- Students are not prompted in any way
- Expect varying degrees of response
  - Short, single word answers - not always appropriate/related
  - Long, waffley answers with not much depth or direction

ACTIVITY

Have a go at these examples - embrace your '**Inner Year 10**'

Think of who your reluctant writers are

- 3 key points

MATERIAL SELECTION - Banana (lemon dip vs. non)

What exactly am I asking ākonga for?

Comparison?

Visual description?

Choice?

Decision making?

Summary of results?

Be SPECIFIC - it shouldn't be a secret!

PACKAGING DESIGN ANALYSIS

Digital evidence collection - portfolio

Slides default settings

18 Font

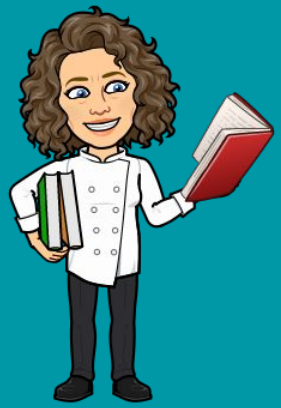
1.15 line spacing

Space after paragraph

How can we help ākonga articulate their thinking?

Introducing…

Technical Language



With the person next to you…
What does this word mean to you?

SCORE

SCORE

- **Physical Education** - The tally of points in a game - What's the full time score?
- **Music** - a written representation of a musical composition showing all the vocal and instrumental parts arranged one below the other.
- **Food Technology** - notch or line scratched into the surface - score pastry

- **Street language** - an act of buying illegal drugs
- **Teenager language** - to hook up with a potential boyfriend/girlfriend/partner

TECHNICAL LANGUAGE MATTERS!!!

WHAT IS TECHNICAL LANGUAGE?

- **TECHNICAL LANGUAGE** - the words and phrases that we use for a specific purpose
- Specific to a learning area or discipline
- Technical language unlocks the knowledge and understanding of a subject
- Context and content specific
- What language do we want ākonga to use? Build it together!

BUILDING TECHNICAL LANGUAGE

- Unpacking activity with students - in groups, on board - find the words/phrases together
- Identify words that are common and already known
- Introduce new language and terminology
- Use glossary terms to define and support thinking
- Build a word bank
- Add the word bank to the activity so students know what you're looking for - it's not a secret!
- Leave space at the bottom of the bank for new words discovered during the learning

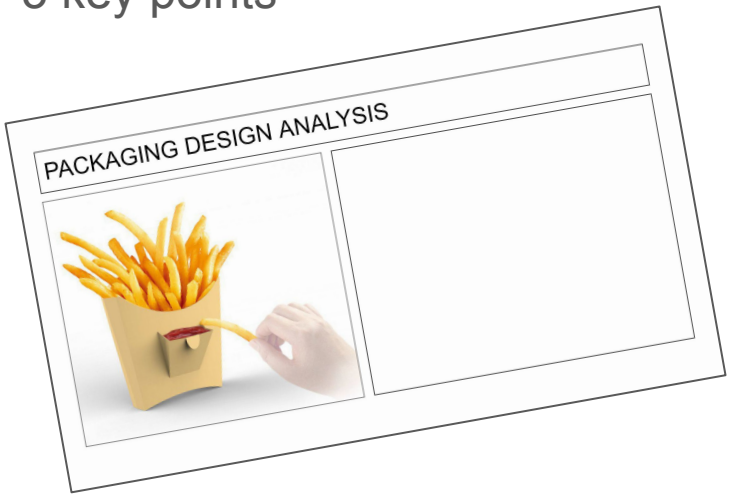
EXAMPLES - Just to name a few…

Brief	Attributes	Constraints
Physical	Functional	Outcome
Fit for purpose	Feasible	Decision
Design	Empathy	Define
Ideate	Prototype	Reflect
Combine	Manipulate	Transform
Form	Need	Opportunity
Kaitiakitanga	Tikanga	Man-made
Natural	Auahatanga	Stakeholder
End user	Feedback	Problem
-	-	-
-	-	-

ACTIVITY

Where did we get to as our reluctant learners?

- 3 key points



PACKAGING DESIGN ANALYSIS

-
-
-

PACKAGING DESIGN ANALYSIS

- Sauce holder
- Plain packet
- Tab to open sauce holder

Give ākonga the technical language we need them to use…

It’s still not a secret!

PACKAGING DESIGN ANALYSIS - TECHNICAL LANGUAGE

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
- Plain cardboard
- Sauce holder
- Flap/Tab
- Sustainable
- Base
- Takeaway
- Single-use
-
-

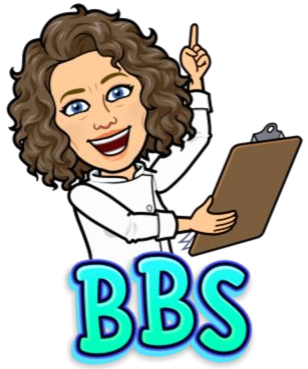
-

-

-

STRATEGY - BECAUSE | BUT | SO

- Schoolwide strategy to support student writing - led by Kahui Āko
  - Started in Social Science Department
  - Adopted and adapted by Soft Materials and Processing Department
  - Filtering out to other learning areas
- Aim - to become a **default strategy** for ākonga
  - *‘What I could do, when I don’t know what to do!’*
- Each part adds depth of understanding
- Descriptive | Predictive | Evaluative
- SOLO links - ‘Know it | Link it | Extend it’



Start by writing a statement sentence for each point…

We need our learners to move beyond a couple of words for their responses

PACKAGING DESIGN ANALYSIS - STATEMENT

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
- Plain cardboard
- Sauce holder
- Flap/Tab
- Sustainable
- Base
- Takeaway
- Single-use
-
-

- The single-use takeaway chip pottle has a sauce holder on the front
- It is made of plain cardboard with nothing printed on it
- It has a flap with a tab to open and close the sauce holder

Now we need to add some depth…

BECAUSE

- Reasoning that supports the statement.
  - Your observations
  - Research evidence
  - Stakeholder feedback
  - Factual
  - Predictive
- Bring in the WHY

Due to… Such as… Evidenced by… This might be due to…

PACKAGING DESIGN ANALYSIS - REASONING

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
- Plain cardboard
- Sauce holder
- Flap/Tab
- Sustainable
- Base
- Takeaway
- Single-use
-
-

- The single-use takeaway chip pottle has a sauce holder on the front **because** the end user doesn't have enough hands to hold sauce, chips and to eat the chips
- It is made of plain cardboard with nothing printed on it **because** the printing makes it less sustainable
- It has a flap with a tab to open and close the sauce holder **because** it's designed to help you open it to put the sauce in.

Time to pivot slightly…

BUT

- An alternative idea
- Supplementary information
- An argument for or against
- A different viewpoint
- An alternative outcome - unexpected

However… Alternatively… Instead… Unlike… On the other hand…

PACKAGING DESIGN ANALYSIS - ALTERNATIVE IDEA

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
- Plain cardboard
- Sauce holder
- Flap/Tab
- Sustainable
- Base
- Takeaway
- Single-use
-
-

- The single-use takeaway chip pottle has a sauce holder on the front **because** the end user doesn't have enough hands to hold sauce, chips and to eat the chips **but** sauce is a wet liquid and cardboard can be absorbent if you leave it there for a while and it might get a bit soggy
- It is made of plain cardboard with nothing printed on it **because** the printing makes it less sustainable **but** the printing can also be used to show what the brand is
- It has a flap with a tab to open and close the sauce holder **because** it's designed to help you open it to put the sauce in **but** it is quite small and it might rip when the sauce is in there and the cardboard gets soggy

Now to link it all together…

SO…

- This is the **‘so what’** moment
- An opportunity to show deeper | extended thinking
  - Make a suggestion of what might be next
  - Plan for the future direction
  - Predict what might | could happen
- Show links to other learning experiences

Therefore… Next time… In future… This leads me to…

PACKAGING DESIGN ANALYSIS - DECISION

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
- Plain cardboard
- Sauce holder
- Flap/Tab
- Sustainable
- Base
- Takeaway
- Single-use
-
-

The single-use takeaway chip pottle has a sauce holder on the front **because** the end user doesn't have enough hands to hold sauce, chips and to eat the chips **but** sauce is a wet liquid and cardboard can be absorbent if you leave it there for a while and it might get a bit soggy **so** to make it more feasible you could put a coating on the inside of the sauce holder so it doesn't absorb the sauce

It is made of plain cardboard with nothing printed on it **because** the printing makes it less sustainable **but** the printing can also be used to show what the brand is **so** the company will need to find a way to put their brand on it in a sustainable way to show they have thought about kaitiakitanga

It has a flap with a tab to open and close the sauce holder **because** it's designed to help you open it to put the sauce in **but** it is quite small and it might rip when the sauce is in there and the cardboard gets soggy **so** to make it more functional they could make the tab longer across the whole length of the flap and less able to come apart if it gets soggy.

BECAUSE… BUT… SO…

MAKE A STATEMENT

What your writing is about - the key idea.

BECAUSE…

Reasoning that supports your statement.

- **Your observations**
- **Research evidence**
- **Stakeholder feedback**

BUT…

An alternative idea - supplementary information

SO…

What are your next steps? Suggest | plan | predict

Let's have another go…

PACKAGING DESIGN ANALYSIS - Overall…

Stakeholder Feedback:

WORD BANK

- Brief
- Attribute
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Kaitiakitanga
- Tikanga
- Auahatanga
- End user
-
-
-
-
-
-
-

Statement:

Because

But

So

MATERIAL SELECTION

Click to add text

MATERIAL SELECTION

Material Trialled - Banana
What: I chose to trial freezing banana slices.
How: Some were dipped in lemon for 30 seconds and some were not. Half of each had the skin on and half had the skin off. Then I wrapped them with gladwrap and put them in the freezer overnight.
Why: Then I could compare the differences and evaluate them the next day.

WORD BANK

- Brief
- Attribute
- Purpose
- Physical
- Functional
- Outcome
- Oxidation
- Feasible
- Decision
- Design
- Appearance
- Stakeholder feedback
- Combine
- Manipulate
- Transform
- Visually appealing
- End user
- Flavour
- Shape
- Kaitiaki(tanga)
- Tikanga

What I discovered was that the appearance of the bananas that were combined with lemon juice looked more fresh and had less brown on them

Because lemon juice contains citric acid which is a natural antioxidant that helps to prevent the oxidation process and stops them from going brown

But the ones that didn't have lemon juice on them looked a lot older and darker in colour making them not so visually appealing

So I would recommend putting lemon juice on bananas to keep the banana looking more fresh t meet the attribute of pale banana colour. It may affect the flavour a bit though because the lemon can be a bit strong.

To be a kaitiaki I also trialled using the skins too so that I didn't have any waste. They went brown and a bit slimy which wouldn't work for a feasible idea as it didn't taste good and was not nice to eat.

Stakeholder feedback - she agreed that the lemon dipped banana was the best because it didn't go brown and it tasted the most like banana. She did say the lemon was an interesting extra flavour and asked if it will be tastable in the banana bread?

TRANSITION WORDS

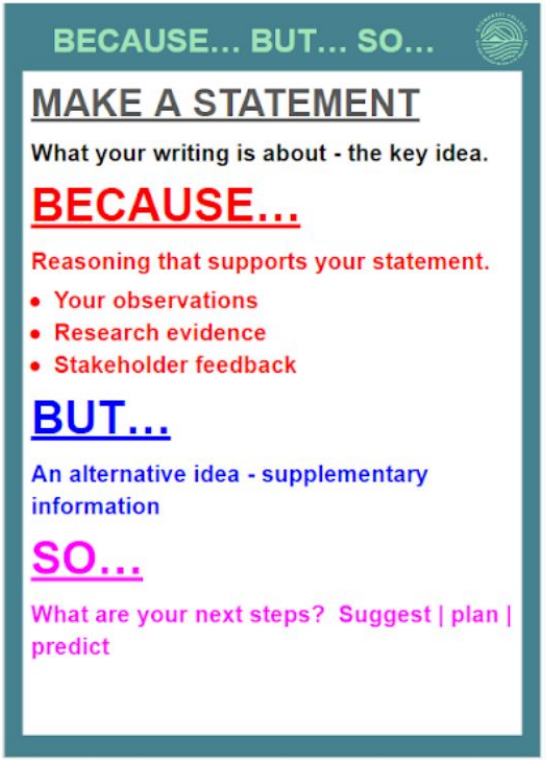
- Link ideas together
- Show relationship between ideas
- Provide cohesion to give greater emphasis
- Can be used to guide the reader through steps or sequence
- To move from one idea to another
- Continue an argument
- Useful when ranking/ordering

BECAUSE | BUT | SO . . . OTHER TRANSITION WORDS TO CONSIDER

Because - explanation	But - In contrast	So - Predictive/Future	Other
• Also • Firstly, secondly…, • additionally, • along with • as well as • including, • together with, • moreover, • in addition to • what's more • Plus • accompanied by, • Finally • In common • Like • Likewise • Similarly, • as a result • causes of this are • Due • The reason that • This is due to • Notably • Above all • Importantly • Especially • In particular • In my opinion • When all things are considered • paradoxically,	• together with • neither…nor • not only…but also • finally, • whereas • otherwise • alternatively • nevertheless • although • instead of • However, • on the other hand, • even though • In contrast • Unlike • in common • like this can be seen • in the same way • as with • equally • Likewise, • notably, • above all, • in particular. • An exception to this • Paradoxically	• moreover, • besides • Firstly, secondly… • meanwhile, • Subsequently • Finally • nevertheless, • instead of • even though • like • this can also be seen • in the same way • as with • equally • likewise • similarly, • consequently • due to • if… then • since, • this is due to • notably • above all • in particular • in conclusion, • paradoxically, • if this trend continues then • this may result in • as a consequence, • we can expect that • I would anticipate, • in all likelihood, • on reflection, • I believe that • this leads me to propose that \ • the implication of this is	• also, • moreover, • plus • too • finally, • like, • in the same way • equally • likewise. • Similarly, • notably, • above all, • in particular, • in conclusion. • To summarize this • an exception to this, • paradoxically, • on reflection, • I believe that • I wonder if • my hypothesis that • overall I think

ASSESSMENT

How do we know we have made a difference to ākonga and their ability to articulate their ideas?



Technology Common Assessment Task
Paragraph Assessment Tool - Yr 10

Achievement
The paragraph includes a minimum of 4 sentences which attempt to answer 'Because', 'But', and 'So'.
Uses 4 pieces of technical language throughout your paragraph.

Merit
The paragraph includes Achieved and successfully answers 'Because' as well as either 'But' or 'So'.
Uses 6 pieces of technical language throughout your paragraph.

Excellence
The paragraph includes Merit and successfully answers 'Because', 'But' and 'So'.
Uses 8 pieces of technical language throughout your paragraph.

Technical language must link to what you are learning. It could include techniques, desired attributes, performance properties, mātauranga Māori kupu, etc.

Technical language is not - a list of selected materials, irrelevant opinions, non-specific adjectives.

EXAMPLES

FINISHING TECHNIQUES:

Edge stitching

Bagging out

The most **feasible** technique for my outcome is bagging out **because** it creates a better looking finish and looks more aesthetically pleasing and will be more durable than the edge stitching as it does not fray. **But** this technique is a little complicated and I don't have the knowledge of skills to recreate it right now **so** I will ask my teacher for help about how to do this finishing technique.

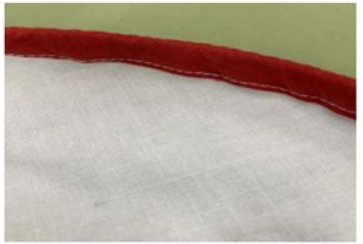
Stakeholder feedback: *Today we went through the 'bagging out" technique and how to construct it by using an edge foot on the sewing machine*

Response: *Now I have learned how to bag out a circle and I believe I can recreate this on a larger scale for my final outcome. It looks more aesthetically pleasing and will be more durable*

CASING TECHNIQUES:

Fabric donut

Bias tape



The most **feasible** technique for my outcome is the bias tape **because** it looks much more aesthetically pleasing and will not fall apart and break like the other option. **But** the bias tape is quite thin and might not fit the safety pin and/or cord that I want to use through the casing **so** I will test out whether it fits and then decide if it is a feasible casing technique.

Stakeholder feedback: T*he bias binding technique does give a good finish, but yes I do agree that it will be difficult to get a safety pin through the casing. The casing is very small. What would be a better option?*

Response: *A better option would be to use the bagging out as a casing technique by sewing another line of stitching because I can choose how wide the casing would be while still getting a nice looking finish.*

(iv) Discuss how you made improvements to your design during the development process.

You might consider:

- improvements to better meet the needs of the person, whānau, or community the design is for
- improvements in sustainable practice (materials, economy of use, waste disposal potential, or other aspects of kaitiakitanga).

You may support your response using images on the next slide.

An improvement that i meet for my outcome is using an invisible zip instead of a normal one because it looks neater, it is also more aesthetically pleasing and more waterproof ,but i trialled the normal zip and it was easier to sew. So i am using the invisible zip because it will benefit my product. I made sure I have economised materials and resources by ,using scrap vinyl pieces to cover my bag and make it waterproof. And if the vinyl wasn't the right size i would cut pieces off other scraps to help fit my bag. The inner layer of my bag as well as the layer connected to the vinyl are donated fabrics that I found in the sewing box that was provided for us to use.

The waste I had was even smaller pieces of scrap polyester and vinyl. I managed this by putting it into a recycle bin, i also ensured that when i was cutting my materials i wasn't wasting any fabric. If there were any scraps of vinyl that were too small to reuse i just threw it away. It could be repurposed for stuffing for a pillow or something that needs to be filled.

The materials I selected for my outcome were donated materials which was polyester and scrap vinyl .I selected these because, the polyester was strong and durable and the vinyl is waterproof as well as an extra layer of thickness to my bag. They were also all available to me on the day because they were donated. So I didn't have to spend any money.

My design is also fit for purpose as it is easy to fold and store away until it is needed. In the pictures below you can see how easy it is to grab the waterproof duffle bag if there was ever a state of emergency and it is in reach of everyone in my household. On the inside of my bag i made an improvement of sewing open pockets instead of zip up pockets, by creating and inside layer out of leftover polyester and i sewed open pockets. This is because it is more functional as well as making the bag thicker and stronger.

Let’s have another go…

PHYSICAL ATTRIBUTES

FUNCTIONAL ATTRIBUTES

POTENTIAL USES

TECHNIQUES USED IN PRODUCTION

Explain the techniques used, why they were important

What other techniques could have been used?

MATERIALS USED

Explain each of the following:

COMBINE

MANIPULATE

TRANSFORM

STORAGE

POSSIBLE IMPROVEMENTS

MATERIAL SELECTION

The material I tested was chocolate. I wanted to compare different types of chocolate to see which one was the most suitable for my outcome - cheesecake filling. My stakeholder carried out a sensory test and told me that she preferred the dark chocolate because it had an intense flavour and it wasn't too sweet. She also said that the milk chocolate had a bit of a grainy texture. She suggested that the Dark Chocolate might be nice with fruit of some kind to make her feel like she was being healthier.

I found that when I melted the chocolate the milk chocolate was more difficult to combine with the cream cheese. The white chocolate was very sweet but the flavour got a bit overtaken by the cream cheese and you couldn't really taste it.

WORD BANK

- Brief
- Attributes
- Purpose
- Physical
- Functional
- Outcome
- Fit for purpose
- Feasible
- Decision
- Design
- Empathy
- Stakeholder feedback
- Combine
- Manipulate
- Transform
- End user
- Kaitiakitanga
- Tikanga
- Auahatanga
- Sweetness
- Flavour
- Colour
- Material
-
-
-
-

Decision

Because

But

So

Any pātai | questions?

Kupu Māori

Unpacking what we are unsure of…

Where do I even start???

COMMON CONCERNS…

- What if I don't understand?
- Should I already know this?
- How do I know what I don't know?
- That's a silly question, I can't ask that…can I?
- What if my question or comment offends?
- How can I ensure my ideas and knowledge are genuine before I bring them to my classroom?
- How much do I include - it's not even assessed!

When kupu are explained I can start to understand…

When I can see meaning it helps me to remember…

When I can connect the learning, I am more self-confident...

ŌTŪMOETAI
COLLEGE
Kia māramahia te ora o te akoranga

ACTIVITY

- Discuss in your groups
- Use Te Aka - the Māori Dictionary
- Have a go at unpacking Manaakitanga
  - Find the smaller words
  - Find their meanings

MANAAKITANGA

Ma

Mana

Ki

Kita

Ta

Ita

Aki

Manaaki

Ana

Nga

Tanga

MANAAKITANGA

Ma
By way of, go via
Indicates future possession
White, clear

Mana
To be legal
Prestige
Control
Power
Status
jurisdiction

Ki
Say
To, into, onto, upon
Indicates motion towards something

Kita
Guitar
Bright, tightly, fast, intensely

Ta
Draw, paint, carve
Sir
Apply moko
Beat, strike, tackle

Ita
Hold tightly, firmly securely
Be tight, Fixed, Fast
East

Aki
Encourage
Assist
Urging,
Beat, throw down, strike with great force

Manaaki
Support
Give hospitality to
Take care of
Protect
Show respect
Generosity and care for others

Ana
Cave
Yes or no - possessive
Indeed
Whenever, when, if, as soon as

Nga
Many
Take breath
Breathe
Plural

Tanga
Encourage
Assist
Urging,
Beat, throw down, strike with great force

Defining what Manaakitanga means to me…..

To care, protect and show aroha to all while maintaining their mana, encouraging and supporting as we move forward together, while holding fast to where we have come from.

OUR TAKEAWAYS

- Ask the questions - ALL the questions!
- You’re in exactly the right place to get involved - right here, right now!
- Be honest with ākonga - we are all learning together
- Find ways to explain and understand - break it down for ALL!
    - pūrakau | stories are a great way to unpack
    - Videos also give another angle and can be quite memorable for students

Have a go - he waka eke noa!

Any pātai | questions?

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