The Wilkie Way

Newsletter October 2021

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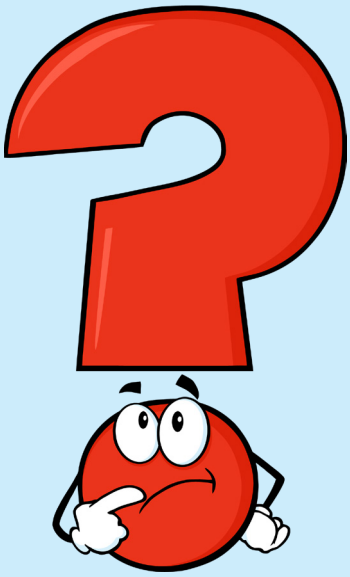
Why do we ask questions?



"Good" questions can create the environment for meaningful classroom discussion and learning.
By asking good questions, students are invited to think, to understand and to share their learning with their peers and their teachers. We are aiming for students to become actively engaged in the construction of their own mathematical understanding and knowledge.

However just asking open questions doesn't necessarily lead to learning for all students - students also play a role. Firstly they must come to understand that the learning goal of mathematics is not just getting correct answers to calculations by repeating specific procedures. They need to understand mathematics at a conceptual level - seeing relationships and connections that enable them to use mathematics to solve problems and recognise the degree of accuracy required. Technology is available to carry out complex calculations.

Primary level mathematics is about building an understanding of the number system - developing number sense. The other strands support number understanding and the early stages build vocabulary and meaning for students to be able to make sense of the application of number in multiple situations.

Creating good questions requires high teacher knowledge of both the mathematical goals of the lesson and information about their students - the misconceptions the students may have (or you know about). The teacher needs to know what concepts or procedures students have previously covered inorder to make the connections to their prior learning or to remind them of what they already know and could make use of.

Questions must be presented using accessible mathematical language. Much of students disengagement with mathematics is through students not understanding what the teacher is asking. The question may need to be rephrased and check the students understanding of the question being asked. The communication cycle is only completed when the receiver has indicated they have received the information in the way it was intended. As students progress through primary school there needs to be a focus on developing the language of mathematics so that students can continue to participate in the learning area.

Teachers need to make good use of concrete materials - if students don't fully understand the words seeing the ideas modeled with materials can help them with their comprehension. Materials and diagrams assist thinking. Equations represent a situation already understood. An equation is a mathematical way of recording a situation that would take many words if written out in full.

How much time do you give students to answer the question?

Allow wait time before you rush in with follow up questions - these should be reserved for when you need to readdress or redirect misconceptions or difficulties.

Purposeful, consistent and patient wait time will ultimately increase engagement and active participation. If the goal is to elicit mindful, insightful and mathematically sound answers, then you need to give your students time to think and formulate their conjectures and answers before opening up to classroom discussion.

Asking students to use the silence of wait time to think and formulate their ideas before starting a conversation can be difficult for all involved (including the teacher). Using the five second rule is a good place to start - no one is allowed to speak for five seconds after the question has been asked.

An understanding of the mathematics involved in the question being presented will help you determine the amount of time a question may take to process and answer.
Because of time pressures in the classroom we often give more time to answering than to processing. When students think the answer is the most important thing they become answer focused and don't engage in any processing.

Processing involves giving time to discussing both students' answers and the reasoning behind the answers. Students need enough time to fully develop a thought or conjecture as answers are discussed. Understanding your students as individuals plays a big part in creating situations where they feel safe and confident to share their thinking.

For many students, they think being good at mathematics is about speed so those students who take longer to process ideas see themselves as no good at mathematics. It is quite often the reverse and the slower processors are thinking at a deeper level than those who can calculate and get answers by carrying out a procedure quickly. Students who are quick often have a view of themselves as good at mathematics and don't see the need to engage at a deeper level. Students need to learn that it is okay to not agree with their peers. Often there is not just one answer or process and students need to be encouraged to keep an open mind and support the thinking of their peers. Some of the most powerful learning happens as students try to prove or disprove what appears to be faulty thinking.

Some questions to guide and faciliate discussion:

- Why do you think that?
- How did you know to try that strategy?
- Who has a different strategy?
- Will this work with every number? Every similar situation?
- How could you prove your answer is correct?
- Do you agree or disagree with .... idea/answer?

Resources for Wilkie Way Members

Subscriptions purchased at the online store at www.wilkieway.co.nz

Individual $45 - paid via paypal

NZ School paid via invoice - complete form at online store

Up to 100 students $150+GST

101 - 300 students $250 + GST

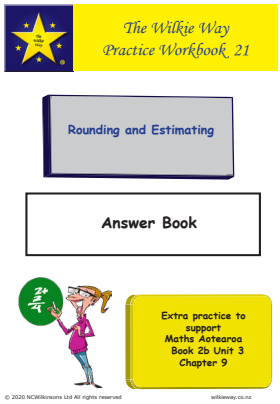
300+ students $350 +GST

Non NZ School $400 - paid via paypal

I seem to have been working on Teacher professional support material for quite some time as teachers become more familiar with the numeracy learning progressions.

These progressions should be used for planning well before they are used for making an assessment.

Links to the progressions have been added to all unit plans.



Learning Outcomes for progression have been developed and attached with this newsletter. Word documents are in the members area to enable you to easily cut and paste into your planning.

Answer books have been completed for the 2b Practice Workbooks

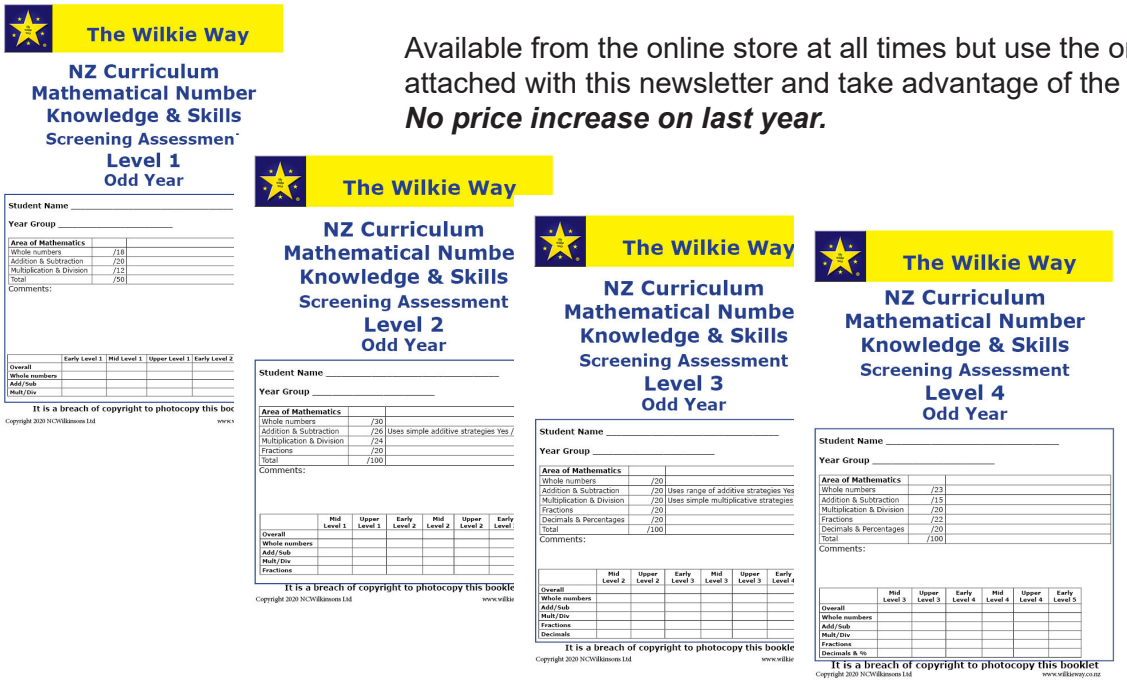
It was great to hear how useful the student resources have been during lockdown as the files can easily be uploaded to SeeSaw and students can work either digitally or printed at home.

October Featured Resources

Find out what your students know in order to build on to
Find out what your students don't know so you can specifically target the knowledge students need to continue their understanding.

It is time to order your 2022 Assessment Screens.

Available from the online store at all times but use the order form attached with this newsletter and take advantage of the discount.
No price increase on last year.



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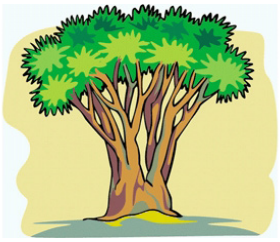
Problems with Trees

Mum picked 10 apples off the tree.
Some were red and some were green.
How many red and green apples could she have picked?

Jess climber $5\frac{1}{2}$ metres up the tree.
Kim climbed higher. She climbed $7\frac{1}{4}$ metres up the tree.
How much higher has Kim climbed than Jess?



Mr Green planted 78 trees.
Mr Brown planted 3 times as many trees than Mr Green.
How many trees did Mr Brown plant?

Manu cut down a dead tree. He estimated the volume of wood as $60m^3$
He kept 75% of the wood and sold the rest for $125 per cubic metre.
How much money did he earn from selling his wood?