# Transcript

**Numeracy Webinar Series: Assessment and Feedback in the Numeracy Classroom**

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NARISSA LEUNG: Hi, everyone. Welcome to the Numeracy Webinar series. We are here with you at Bastow. This is the third in the series and tonight we're putting the spotlight on assessment in the numeracy classroom and we're going to put a little spotlight on feedback as well. So really excited about tonight's session. I have called in the big guns to help me out with tonight. So I'm really excited that I'm not the only person presenting tonight. We've got some really great things in store for you.

Before I begin, I would like to acknowledge the traditional owners of the lands on which we come to this webinar tonight and pay my respects to Elders past, present and future and also to thank them for taking care of the land over countless generations.

For those of you who don't know me, my name is Narissa Leung. I'm an education consultant here in Victoria. My contact details are on the screen there. I’m @rissL on Twitter. I’m OzLitTeacher on all the other pipes. On OzLitTeacher I share lots of picture storybooks useful for teaching in the classroom and other resources. My email address is over on the right-hand side. I do not have an edumail account. I have a gmail account. We do have a Narissa that works here at Bastow now and she has an edumail account so try not to email her when you’re trying to email me. I do appreciate people's emails after the sessions. I always look forward to the feedback and suggestions for future webinars. So thank you to those people who do email me afterwards.

As I said before, I'm not the only person talking tonight. So this is really exciting and new for the webinar series. Tonight, I've invited Grant from Central Office to come and talk to us about some of the assessments that are already available to you free of charge and this is partly because, as a teacher who is from a country school that didn't have a lot of money, I always think when I'm presenting I want to present to people who are just like me, sitting there thinking, “We don't have a huge budget. We can't afford to buy all these external assessments. What can I do with the things that I already have access to?”. So that's why we're having Grant come in and chat to us tonight.

If you are new to the webinar series, then welcome. The way that it works is that we try and make it as interactive as possible. So we've got a Padlet that's been set up by the lovely Laura and her team at Bastow. She would have emailed the link out to that Padlet previously but it's on the screen as well. I see a few of you have already introduced yourselves in the Padlet and let us know where you’re from, which is great. I encourage you throughout the webinar to let us know what you're thinking. If you've got any resources that link to the things that we're talking about, then drop those in the padlet so we can build our knowledge across the State.

The great thing about the Padlet is that it's available after the session. So if you see lots of terrific resources in there tonight and you think, “Oh, wow, I don't have enough time to get all of those written down”, that's totally fine. You can access this link afterwards and access all of the resources that people are sharing. So just keep that Padlet address handy and I'm sure Laura will email it out again after the session.

So the quote that I've shared there is about essentially what we're trying to achieve by using the Padlet. So “Pedagogies that hold meaning making as a principal goal” - and that's what we're about tonight – “are such that teachers demonstrably position talk and interaction with students and among students as a core foundational practice.”

Now, obviously we're not face to face so we can't have that physical turn and talk. Some of you will be in staff rooms with other people, so that's great; you can do that. We use the Padlet for those of you who are flying solo tonight. So introduce yourselves in the Padlet. Also, I'd love to know if you've trialled anything from any of our previous webinars. I always love to hear what’s happening out in schools.

The agenda for tonight: we are kicking off by learning about the assessment tools available from the Department, so already available, free things that you might be familiar with, you might have used in the past. Maybe you weren't getting the most out of them. So I think you will find what Grant has to say really interesting. He is going to look at assessments for lower primary but he's going to look at some assessments for senior primary and secondary as well. So I look forward to that.

When Grant is speaking, I definitely encourage you to put your questions in the chat. Let's get him working. So after he finishes talking to us about the assessments, we're going to pause and then have a bit of a Q&A session with Grant. So if you've got anything that you want to know from him, pop it in the chat and we might be able to talk about it in our Q&A session.

After we listen to Grant's talk about the assessment from the Department, we're going to look at assessment, the big picture, and think about how your school approaches assessment and the balance of that assessment in numeracy.

Finally, we're going to talk about formative assessment in the numeracy classroom and we are going to finish off with some practical things that you can implement in terms of formative assessment. I know teachers love practical. We like theory but we love practical. So we'll finish off with some practical formative assessment things.

The Understanding Goals for tonight's session: the first is that you will deepen your understanding of the assessment tools available from the Department. I think Grant's also going to talk about some that are available outside of the Department as well. You will build your knowledge of the importance of taking a balanced approach to numeracy assessment and you will strengthen your understanding of a range of formative assessment tools and strategies.

For the success criteria - look at me modelling good teaching with a success criteria - first, you will be able to give an overview of some of the assessment tools available. You will reflect on the balance of the mathematics assessments in your school, and Laura would have emailed out previously. Hopefully you've got your school's assessment schedule next to you. You will be able to list a range of formative assessment related tools and strategies. And, finally ‑ I think this one is probably the most important - you will be able to identify a range of resources to engage in further learning because we are only talking for 90 minutes tonight and it's not anywhere near enough to learn everything there is to know about assessment in the numeracy classroom. So tonight, it's a tasting plate. We want it to be a launching pad for you to start to know where to go for further resources to keep building your own knowledge around this topic.

Alright. Let's kick off with assessment tools available from the Department. So without any further ado, I will introduce you to Grant.

GRANT McKELL: Thanks very much, Narissa. My name is Grant McKell. I am the Manager of the Assessment Implementation Unit in the Department. We sit in the Performance Division of Schools and Regional Services and we provide implementation support for the Insight Assessment Platform; a little bit of support around NAPLAN online when that happens; Digital Assessment Library - something that's coming, which I would like to tell you about - and we also support generally assessment best practice across the Department. So different programs that the Department runs. We look at how we can inform embedding assessment best practice into those programs.

I've got that shot on there because I didn't want to necessarily repeat my face being broadcast. I'm more proud of that photo than I am of what you see here. That's my best‑ever golf shot. I thought it was good because it's also a numeracy task in itself. I shot that on a par 3. The ball is 50cm from the hole after shooting at 135 metres. It's my best‑ever golf shot. So in the Department, that's what I use as my profile picture rather than my actual face. So if you see an email with that photo on it, you know it's definitely from me.

So what we're going to look at today is I'm going to take you through some of the numeracy assessment tools that are on offer from the Department and the Victorian Curriculum and Assessment Authority. I am going to spend a bit of time talking about the Mathematics Online Interview because it's widely used in the early years of primary school and sometimes we get the impression that it could have been used to better effect than it is used. It is used widely but that doesn’t necessarily mean it’s used well.

We'll look at an accompanying and very similar tool which people don't always know about called the Fractions and Decimals Online Interview and then we'll look at some other offerings that a lot of people do know about with the on‑demand assessments.

I'm going to give you a little teaser about something that will be coming in 2020 called the Digital Assessment Library and we'll have a quick look at something you probably already know about but referencing some assessment resources that are part of the Mathematics Teaching Toolkit, and then that will be my time up.

So let's have a look at the Mathematics Online Interview. So what is it? It's delivered through the Insight Assessment Platform. Everybody has access to the Insight Assessment Platform if you work in a government school in Victoria and we access it through the VCAA. So if you navigate to the VCAA website and go through their assessment pages, you will find the Insight Assessment Platform. The best thing you can do, if you've never found it before, is just to type into their search at the top of the box - put in ‘Insight’ and it will come up pretty quickly.

What it is, it's an online tool for assessing the mathematical understanding for students in the early years of school and it looks at the knowledge, skills and strategies in relation to this idea of growth points in strands of number and algebra, measurement and geometry. What we get out of the Mathematics Online Interview - you don't get percentage points or a percentage correct or anything like that. You get a profile of students’ capabilities. So it's a really good tool for identifying where student learning is at and where student learning can head next. I’ll come back to this point later on.

The Mathematics Online Interview was created to measure this idea of growth points, which are not the same as the Victorian curriculum. So it was not created to assess the Victorian curriculum. However, it can be used to inform teacher judgment around that, and we'll have a little bit of a look at that.

The target audience for the Mathematics Online Interview is Foundation to Year 4. It can be used with some other students who may be at risk of not developing their numeracy skills to full potential in the middle and upper primary levels as well. So if you want to really use it diagnostically to see where kids' learning is at, where student learning is at and where it's going to head next in a more targeted intervention, it is good for that sort of thing too.

So what is it? It's actually one tool but it's divided into a number of different sections, which you can see there on the screen. You choose which section you're going to assess, so you could be doing one on counting - counting looks at very entry‑level skills that you would probably be doing with Foundation students - all the way up to geometry‑based stuff like visualisation and orientation. In one assessment, you can choose to do just one section. So if you're starting to do some work, say, on place value, you can choose just to do a pre-assessment on place value to identify where students are at, or if you want to do a number of sections, you can do that too.

The beaut thing about the Mathematics Online Interview being on the Insight Assessment Platform is that any assessment data you collect in that process is kept on a student record and it can be referred back to, and it can be referred back to from year to year. So you can assess a student in one year. A teacher next year can look up the assessment results and look at all the assessment data for the previous year to inform teaching going forward.

So a little bit more about the structure of it. It's a one‑on‑one interview with students. That's a really important point. The one‑on‑one interview is resource-hungry. It is a lot to take a teacher out and work one‑on‑one with the student. However, it does give you lots of opportunity to not only do the assessment with the child using the assessment tool but to make those other subjective observations which can also inform your teaching program with a young person. It's those things like their willingness to engage, their persistence - those sorts of things aren't captured in the tool but can be really, really useful and noteworthy for designing learning tasks for them.

The tasks are all hands-on. They use a particular kit on the Mathematics Online website, which you can access through the VCAA pages. It tells you how you can put a kit together. But there's hands‑on tasks and students can demonstrate mathematical understanding for increasingly complex tasks as they go through.

Each section takes about 15 to 20 minute to administer. It depends on the child and their level of ability, their willingness to engage and so forth. But if you're just delivering one section, it’s probably 15 to 20 minutes - sometimes it goes a bit shorter; sometimes a bit longer. As I said before, you deliver it by section.

Counting has another little section in it called the Foundation Detour. I'll go back to that in a little bit. I'm just going to go to this point and tell you a little bit more about growth points. Sorry about that. So, as I said before, the Mathematics Online Interview assesses around this idea of growth points. So there's a couple of things you have to understand about growth points. One is they're not Victorian curriculum outcomes. They came out of a specific research project around which the Mathematics Online Interview emerged.

So there's a couple of assumptions you've got to accept about growth points if you're going to use the Mathematics Online Interview. The first assumption – and it’s built into the design of the tool - is that if you can do growth point 6, you can do growth point 5, 4, 3, 2, and I've got an example of some growth points from counting there on the slide.

The second one - and this gets a little bit more contentious – is that once you've demonstrated a growth point, you can't ever not have it. Now, the idea behind that ‑ a lot of people will challenge that because you have examples of, “Well, I taught the student this; I came back the next year and they don't remember it”. That's not quite the same thing. That's forgetting. What we're actually assessing here is we're assessing capability to learn. So the example I like to give is learning about long division. If I gave most people in the office at DET a long division sum out of the blue, it would cause widespread panic. However, if I sat down with them and reminded them about how they learnt to do long division, they would soon get it back and not in the same way as if they are learning it for the first time, because we've all learnt to do long division at some point - at least I hope so; otherwise this analogy is problematic.

This is how the Mathematics Online Interview works, and that's important because the data that's kept to generate the student profile is retained on subsequent assessments. Now, you could get into an academic argument about whether those assumptions are right or wrong, and that's fine, but if you're going to use the tool, you've got to know that that's the assumptions on which it's built. You can't recreate the tool I guess is what I'm saying. You can see that the growth points increase in complexity as you go through.

So I’ll get back to that Foundation Detour point I was making before. There is another section that is sort of an add-on called the Foundation Detour. The Mathematics Online Interview navigates you to where you've got to go next. You press arrows on a screen and it takes you to the next question you need. If the student gets question 1c wrong, you’ll be navigated to this thing called the Foundation Detour. The other time you can get to the Foundation Detour is if a student gets 1d correct, you get a choice, as it shows on the screen, to go to the Foundation Detour if you want.

So what is the Foundation Detour? It's not about growth points. It's discrete questions that are presented to the student in the form of problems, hands‑on problems, but it allows you to explore capabilities that are lower than that first growth point where it is growth point 1, “Rote counts the number sequence to at least 20”. So if a child is not able to do that, you may want to explore what they can do in a bit more detail, and the Foundation Detour allows you to do that.

What it generates is a profile which shows what questions the child was asked and whether they got each question right or wrong. So you get a matrix of capabilities of right or wrong which can further inform your teaching if a child, particularly if we're talking about Foundation students, is not capable of counting to 20, which could very well happen in the first few weeks of school, in prep.

To give you a bit of an idea of the profiles that the Mathematics Online Interview generates, this is the first one. It's a class profile. You will notice at the top there it also says ‘Show dates’. If you click on the ‘Show dates’ button, all those boxes will actually have a date printed on them as well. What that means is you can see - so the growth point A relates to the first section, counting, and you’re probably thinking to yourself: how am I going to remember what A-1, A-2 and A-3 mean? If you hover over those, the tool actually shows you what those growth points are. So the best way to access the reports is actually in the Insight Platform. Hovering over the heading tells you what the growth point headings are.

Dark green means that a student answered all the questions needed to get that growth point. So we can see young Chandler Bing got all the questions right to achieve the first growth point in counting. Light green means the student was given that growth point by backfill. Now, what that means is - you've got to think of the Mathematics Online Interview a bit like a choose your own adventure book. If you get this question right, it will say, “Go to this question here”. So it's a branched assessment.

We have linear assessments, which are those ones where you have got to answer every single question, and they typically are ones that generate a raw score out of maybe 100, which maybe sometimes is converted to a scale score, but you get every single question in a row. Those who know the English Online Interview, that's an example of a linear assessment.

An adaptive assessment is a bit like what they want to do with NAPLAN online, where the test adjusts its level of difficulty according to the success that the child demonstrates. A branched assessment is actually different pathways through a test. So if you get this question right, now go to over here. For those who could remember - and I'm showing my age now - in the '80s, programming in BASIC, it was basically a bunch of ‘if/then’ commands going through the assessment.

That means that not every child will get every single question to be actually awarded a growth point but it gets back to that first assumption: if they get all the questions right to be awarded, say, growth point A‑4, then they will be awarded growth point A‑3 and A‑2 by backfill, by default, because they can clearly do everything that precedes growth point A‑4, and I'm looking at Benjamin Button as an example there on the screen.

I'll just head down to the bottom to an example of how the Foundation Detour works. You can see that it doesn't arrange things in the same way. It's a series of ticks and crosses against questions across the top: F1a, F1b and so forth. So that’s what I was talking about before. It reports in a slightly different way.

Why would you use this profile? This is really good for seeing where clusters of ability currently are in your classroom. So you can look at this and see: I've got a bunch of kids who can do growth point A‑5 and a couple who are achieving at growth point A‑6. I can see some who are just rote at the moment, just learning how to rote count. So that can inform groupings of students and Individual Learning Pans according to their need - not according to their achievement but according to their need because all of those students who have achieved growth point A‑1 will be working towards growth point A‑2.

Now, the next thing that the Mathematics Online Interview generates are student profiles. This is another cheat's way to get the headings of all the growth points because the student profiles are the achievement for individual students and they actually state the growth points on there.

You have a column called ‘Current Status’. It says what growth point the student currently is able to achieve, and if you click on the ‘Show History’ tab, as I've done up the top there, it will also show you when the student achieved that growth point. So for this example here, we've got a very bright young lady called Victoria Beckham who was assessed on January 28, 2019 and in that assessment she was able to demonstrate growth point A‑3, which is counting by 1s from 1 to 100 forwards and backwards from various starting points. When she was reassessed in July this year, she's progressed one growth point, so now she can count from 0 by twos, fives and tens. The little arrow that point to the left just mean the awarding of growth point A‑3 is still awarded to her, carried over from a previous assessment.

These sorts of reports you wouldn't necessarily print for every student. You'd probably print these for students who you want to drill down a bit into their Individual Learning Plans. They're really good for printing out and discussing with parents as well because you can clearly see in this report where the child's learning is at and where that student's learning is heading. So the next growth point you can see for Victoria is she's not going to be counting from 0 by twos, fives and tens but from any starting point by twos, fives and tens. So that's enough about the Maths Online Interview.

I'm going to talk a little bit about the Fractions and Decimals Online Interview. From those of you who are from other years in primary, so the later years, this is the one for you. Again, it's set out in a similar way to the Mathematics Online Interview but it's targeted more towards the middle years of schooling. So we generally say Years 5 to 8, again delivered through the Insight Platform, and we're looking this time specifically, though, at fractions, decimals, ratio and percentage, but the best thing is we're looking at misconceptions as well.

Why the Fractions and Decimals Online Interview could be a valuable tool is because it does a something that a lot of assessment instruments don't. Now, I'm an ex‑maths teacher and sometimes you're teaching fractions and decimals and, for whatever reason, the child just doesn't get it. What actually happens in learning, when you're learning about fractions and decimals, is sometime, usually around Year 2 or 3, kids build up their own story, their own narrative – students build up their own narrative about why something works, and then something tricky happens where we might introduce different denominators and all of a sudden that doesn't work anymore. So this assessment is actually really good at identifying what misconceptions has that student latched onto that no longer are working for them as the curriculum becomes more complex.

As I said up there, it's intended for Years 5 to 8. You could, if you wanted to, use it to see where learning is heading for high-achieving students in Year 4. You definitely could use that, but also students in Year 10 who may be struggling, if you want to know where you could target some intervention.

So there's the structure of it. We look at fractions, decimals, ratio and proportions and the misconceptions and alerts. Again, it's a one‑on‑one interview. It takes about 30 minutes to complete and it has its own kit as well. With the Fractions and Decimals Online Interview, we really do recommend that you use it in a targeted way for students where you want to drill down and get a little bit diagnostic, where you want to understand and inform a learning plan. Because of that one‑on‑one nature of it and the 30 minutes that it takes, it's not the sort of thing that you're going to do with the whole classroom. You really probably want to think about which kids you want to know more about.

You can see the report that's generated in a similar way. It's a very similar look to the Mathematics Online Interview. It clusters capabilities all together. The red ones on the right‑hand side down the bottom are the misconceptions and alerts, and again you hover over the top and it tells you what the headings are. Here's an example of a student profile report, and right down the bottom of the screen you can see where it starts to report on those misconceptions and alerts. So you can see this young person misinterprets fractions as this many parts out of so many without regards to the actual size of the parts themselves. So a very, very similar look. It reports in terms of overarching ideas as well in terms of capabilities.

Now, this is the best use section of MOI and FDOI. I’ll tell you what it's not good for. What it's not good for is demonstrating improved achievement according to the Vic curriculum. It was never designed to specifically assess against the Victorian curriculum. There are documents available through the Insight Assessment webpages that you can access through the VCAA that do link different questions in particularly the Mathematics Online Interview to the Vic curriculum but you've got to understand the tool was never really meant for that. Both tools came out of really specific research projects that identified overarching ideas and misconceptions and alerts, and Fractions and Decimals Online and growth points for Mathematics Online, that's what they're actually assessing.

Having said that, both tools are really, really good for identifying on a continuum where a student's achievement is and where teaching should head next. So I strongly recommend it as a formative tool that you would use with other things to plan out and map out where learning is heading next.

It can be used to inform teacher judgment. If I was doing the Mathematics and Fractions and Decimals Online interview, I'd be taking lots of observation notes too because the way the child engages with the task is every bit as valuable. For that reason, just like you would with any standardised test, they shouldn't be used standalone anyway.

Sometimes we get asked, “How can I take this assessment and decide where a child is on the Victorian curriculum?”. I wouldn't recommend you do that with any standardised assessment. You should be using lots of data to inform teacher judgment. At the end of the day, it's teacher judgment that decides where a student is on the Victorian curriculum. So go for it.

I don't apologise for it: these assessments are resource-hungry. I recommend you use them purposefully and strategically to really think about how they can inform and support effective teaching. There's lots of different ways you can do that.

We're going to have the email address for our Insight team and it's called insight.support@edumail.vic.gov.au. If you want a bit of help from someone to craft how you do use the tools strategically and purposefully, our team is really, really happy to help with that. And I've just been told that Laura is going to email that address out to everybody as well, so you will all have it.

I'm going to touch base quickly on the on‑demand tests. These are the ones we will have a lighter touch on. The on‑demand tests are run by the Victorian Curriculum Assessment Authority and have been around for some time. They assess levels 2 to 10 and they use both adaptive and linear assessments. These assessments are referenced to the Victorian curriculum and are useful for point-in-time assessments that students do themselves. So you set up the assessment; the children go away.

That's another point of difference with the Mathematics Online Interview. Students in early years often can't do assessments self‑directed using an online platform. So that's one of the advantages of those interview formats. It is something also to consider about strategic and purposeful use for Fractions and Decimals Online as well.

There's a lot of variety in question formats in there as well, so there’s multiple choice, short answer and so on. I'm going to have up on the screen here a link to the on‑demand site at the end of the section. They're reasonably straightforward to use. Actually, on that site there's a lot of supporting information available to help you use that assessment resource. But it is definitely there.

One of the exciting things I'll tell you about is the Digital Assessment Library. This is a bit of a watch-this-space one. It's being built by the VCAA and it's going to offer on‑demand literacy and numeracy assessments that are aligned to the Victorian curriculum levels 3 to 10. At this stage, they expect delivery in the middle to latter part of 2020 but keep an eye out for communications about its release. It will be on its way. So just keep an ear out for Digital Assessment Library tools. It’s going to be very interesting when they come out.

The other one that we should mention - and I'm sure you're all aware of - is the Mathematics Teaching Toolkit. A great site. It hosts lots of quality information and links to resources to aid in the teaching of mathematics. The toolkit has a section dedicated to mathematics and numeracy assessment and it's particularly worth checking out. The links and the information on there include links to Insight and the on‑demand testing but there's information on there too about the numeracy learning progressions and lots of additional resources and guidance on assessing students' levels of numeracy. I think we all know the Mathematics Teaching Toolkit but it would be remiss of me not to point out that they have a whole section dedicated to mathematics and numeracy assessment.

If you want more information, that will be on the slide deck that will be sent out, but there's a bunch of links there to all of those tools that I've mentioned. By all means, get in touch with my team. We're happy to help. Thanks, Narissa.

NARISSA LEUNG: Wow! Thank you, Grant. We always have a drop in numbers after people mention websites to visit, so we'll be checking! Don't go there just yet. You wait until after the webinar has finished!

What we're going to do now, Grant, is - in the resource pack that Laura emailed out to you - we always have a reflection after each section just to give us some time to absorb some of the thinking and some of the discussion that we've just had. So I'm going to give you three minutes to engage in the Activity 1, the reflection, and we'd love you to share what your circle responses are. So what questions do you still have? What's still rolling around your head now, because we've got Grant here. We've already got a few questions in the Padlet. I'm going to ask some of those questions after this three‑minute break, but we want to know what other questions. While we have Grant here, let's ask away. So I'm going to start the timer and we'll be back in three minutes with a short Q&A. (Pause).

OK. Thank you. That was a very quick three minutes, as if three minutes can change in length. But we do have some questions that I'm going to ask you, Grant. I’ll put you in the hot seat. Thank you to everyone for asking questions in the chat. So our first question is: does the Insight data transfer between schools?

GRANT McKELL: Yes. That's the easiest question. It's all on Insight. The data is all linked in with cases 21. So as a student moves from one school to another, they appear in the next school and the teachers in the next school will be able to see all their information.

There is one exception to a tool that's on there called Ables. That doesn't always transfer through but that's mainly because Ables is actually sort of half-delivered through Insight and half through the University of Melbourne archive system. But apart from Ables, yes, it does transfer through.

NARISSA LEUNG: Great. That is good news. The next question is: I'm working with below-minimum standard Year 10 students; would this online interview be worthwhile and where would I start?

GRANT McKELL: Yes, it depends upon how far below minimum standard they are, and I understand that. Probably a good starting point might be the place values section. Again, without knowing the student, it’s a little bit hard. But I'd be looking at place value, addition, subtraction, multiplication and division. Have a look at those. That would be a good starting point, I think.

NARISSA LEUNG: Okay. We've had a question about: can you start at any section? And I think some people have already answered that.

GRANT McKELL: Yes.

NARISSA LEUNG: So that’s just a quick thumbs-up, that one. Is there a video or a manual for the language used in the interview?

GRANT McKELL: There are two answers to that. The first is there is a guide and tip sheets. So if you go to the VCAA Insight page, there are actually links back to a Mathematics Online Interview site and there's a guide on there and tip sheets which take you through how to administer it.

In terms of the language used, when you're actually in the tool itself, if you can imagine there's a pane on the left‑hand side and that has instructions and language that you use, and the pane on the right‑hand side is really specific about instruction. It has speech bubbles and says "Say this". So it's very specific.

NARISSA LEUNG: Okay. Terrific. Is on‑demand testing free?

GRANT McKELL: Yes.

NARISSA LEUNG: Whoo hoo! We love free things in the Department.

GRANT McKELL: And I’ve got to say, on‑demand testing is not my specialty but I've had a look at the VCAA site and there's actually a lot of information on the VCAA site for on‑demand.

NARISSA LEUNG: Okay. A question that I had: so last year I attended one of your online sessions. Where do people go - so if you've been watching this and people are saying: we've had Maths Online Assessment in our school’s assessment schedule for 100 years and I've been doing it just because it's on the assessment schedule but I haven't really known how to extract a lot of information or to get the most out of the time investment, and now that I've heard you speak, I'm starting to think I’d really like to learn how do I actually use this properly? Where can I go to get training?

GRANT McKELL: Sure. We run online workshops and they're largely operational. So if you want to have a little bit of a taster on how it works and a bit of a demonstration on it, there are online workshops. We do put all the links pretty much on the VCAA Insight page. I know I keep referring back to it but there is a section on there for support for government schools and a link to Insight training. If you bring that up, it will bring up some dates for training. We're actually running a session tomorrow morning on Mathematics Online Interview, so if you want to go and have a look --

NARISSA LEUNG: Don't tell them that! They’ll go and log in now while the session's on!

GRANT McKELL: It’s 8:00 in the morning. We are going to be putting up some dates. We're finalising some dates to put them up for next year. So we're just finalising those at the moment. But they're always on the same Eventbrite page and all the details are on there.

The other thing we can do is we have our insight.support email address. If you want to have a bit of a deeper discussion about how your school or maybe get some groups of school, leaders together, about how you can use it purposefully and strategically in your school - there's no one way to do that because it depends on the school and the resources and so forth, but we're happy to provide advice around that. So have a conversation with us through that would be the go.

The other thing I didn't mention was that in the platform itself, you can have a practice play with it on the VCAA Insight page. There's a practice space with a login and a password you can type in and have a play. But also when you're in the tool itself, there's a preview test button where you can actually run through the test without it generating any data for any student. So you can get in and have a play and have a go. There's nothing dangerous about it.

NARISSA LEUNG: That sounds like a really good thing to do on your holidays, Grant. Would you agree?

GRANT McKELL: Oh, yes. What else would you do?!

NARISSA LEUNG: Now, we’ve just got one final question. Oh, I see someone's asked: can students do the test for non‑cases schools?

GRANT McKELL: Non-case schools ‑ so if you're non-government, if you're a non-government school, some non-government schools have access to it. There's an email address on the VCAA site for non-government schools. If you're a new school in the government, not yet, but once you're on Cases, then you will be able to do it.

NARISSA LEUNG: Okay. Thanks, Grant. Now I've just got one more question. This one was really important. It’s about: what is your golf handicap? What has that got to do with assessment?

GRANT McKELL: The standard answer is you swing! I've been told the only thing that's not scared of me on a golf course is the hole! Everybody else wears stack hats. It's 24.

NARISSA LEUNG: Is that bad or good? Dad would be so angry that I asked that because he watches every golf game in the world.

GRANT McKELL: It's not great.

NARISSA LEUNG: It doesn't matter. You did one really good hit and that's all you need, isn't it?

GRANT McKELL: Just the one hit. I can live off that forever.

NARISSA LEUNG: Alright. Thanks so much for coming, Grant. Grant is going to stick around just for a little bit, so he might be able to answer some of your questions in the chat. If you do have any more questions, then please pop them in the chat and he’ll do his best to get back to you on those.

GRANT McKELL: I just wanted to do add one thing too. Our team is really interested lately in assessment policies that schools are developing. We want to see those. So if you're really happy to share your school's assessment policy with us, it's an open invitation. We'd really like to get our head around what schools are doing, what they're targeting, what the elements of their assessment policies are like, just to contextualise some of this work a little bit. It’s just something we’re a bit interested in. I’ll just throw that in. So you can send that to the insight.support page if you want to and you're happy to share.

NARISSA LEUNG: Well, I did see someone in the chat has actually said that their school developed an assessment policy that involves administering the Maths Online Interview for F‑2. So it would be great if they put their school name and then Grant can track you down, in a good way.

GRANT McKELL: Keep having a conversation with us through the email address and we'll go from there.

NARISSA LEUNG: Terrific. Well, thanks very much for coming in, Grant, and it was lovely to hear someone else's voice. I'm just speaking for myself there. You may or may not agree out in the audience.

So, let's move on now. We're going to talk about a balanced approach to assessment. So if you've participated in any of Bastow's Leading Literacy programs or the Literacy Data Assessment Practice course, this will already be familiar to you. But I think it's really important that we think about the bigger picture of assessment in our school.

So, first of all, I just want to reiterate what Grant said about using the assessment for the right purpose. So he was really talking about making sure that we are clear on the purpose probably before we start the assessment or before we engage in the assessment with our students.

So I put there the two purposes for assessment. One is to support learning and one is to audit learning. We need to be careful and make sure that we're using the right tool for the right purpose. I was really pleased to hear Grant talking about, with the Maths Online, that we need to understand what is the purpose before we engage in it. Are we using this to track whole-school growth and was that the intention of the tool when it was first designed? So being really conscious about the purpose of the assessment is really important to make sure that we're using the assessments in the right way and getting the most information out of it.

This is also really important if you're leading numeracy in your school and working out: “Maybe we want to track our student growth or measure our student growth across the year and what are the assessments that we are engaging in that could be used for that purpose?” versus, “I'm a classroom teacher and I want to know where my students are at for a specific topic. What's the assessment that I can use? Can I use the same assessment or am I trying to use the same assessment to be the magic bullet that does everything?”. When we get into that area, that's when the waters start to get a bit muddy and we're not going to get the most information out of that assessment.

So I'm going to introduce you to this concept of the Assessment Pyramid. Now this assessment pyramid was designed by Steve Willy and Keay Cobbin from Wilcob Education Consulting. So they're the team that run all of the literacy work at Bastow. But it's absolutely relevant to all areas of assessment in schools. It's based on the work of lots of authors and some of those are Black and Wiliams. So you will hear Wiliams' name a lot, particularly in the area of formative assessment, and also authors like Rick Stiggins, who I’m going to talk about a bit later on.

So with this Assessment Pyramid, we want to be thinking whole school; what's our whole school's approach to assessment and do we have a balanced approach, which is the question that we really want to investigate. So, first and foremost, the foundational layer of the Assessment Pyramid is ongoing in class formative assessment. This is the foundational layer because all other layers are built from this layer. It is the part that the research says has the most impact on student learning. It's really well researched, the impact of formative assessment and the links to student improvement in learning.

So we need to be really clear about what are the formative assessment tools and strategies or techniques that we can engage in to make sure that we've got this foundational layer of assessment happening in our school.

So, firstly, I want to share this. This is my second favourite quote for formative assessment. I think you're allowed to do have favourite quotes, particularly for formative assessment. Probably don't share them at dinner parties. That's a bit weird. But this is my second favourite quote. So this is from Black and Wiliam and I said that they are sort of the early gurus of all things formative assessment. It is a long quote but I really like the verbs that they have in this quote. They say assessment is formative “to the extent that evidence about student achievement is elicited, interpreted and used by teachers, learners or their peers to make decisions about next steps in instruction that are likely to be better or better founded than the decisions they would have taken in the absence of the evidence that was elicited.”

Okay, that's a lot. Let's highlight the verbs. This is the really important part, so “elicited, interpreted and used”. Three really important verbs, and if you think about the practices in your school, we in this data-heavy world are so good at eliciting evidence. So we do lots of assessments. We love testing. We’ve got all these assessments that we put our students through. So we're great at eliciting the evidence.

Now, thanks to things like PLCs and other data analysis workshops, we are getting better at interpreting that. So once our students have engaged in assessment, we are strengthening our ability and our capacity to interpret what that assessment is telling us and working out the next steps or what the student knows already.

The next verb: ‘used’. This is the part that we're not so good at. So we do a lot of assessments. We now have all these meetings about analysing data, but it's the next part that we don't always focus on, and that's the most important part. It's how we are using that information to change or to tweak your teaching so that students can move forward in their learning.

The other thing about this quote is that it's about teachers and learners and their peers being in on this information. There's a quote that says we need to let students in on the secret, that they need to be a part of this assessment, and if you think about the assessment practices in our schools, sometimes that's not always the case. It's sort of remained a teacher's secret.

So particularly with our focus now on student voice and agency, this part of letting students in on the secret and bringing them into the guild of people who can make judgments about their own progress, this is really critical now. So think about your practices in your school. How well do you elicit the evidence? How well do you interpret it and how well do you use it, and how do you know that that third part, the using part, is happening and what does that look like?

Okay, this is my first favourite quote, or I guess ‘my favourite quote’. I don’t need to number it first. This is cited in the Hattie book but Hattie didn't actually write it: “When the cook tastes the soup, it is formative. When the guests take the soup, it is summative.” I love this, partly because I love food, but I think the visual of this is I am cooking up a chicken soup; I've got a really clear idea about exactly what I want that chicken soup to taste like. And, as I'm cooking it, I'm dipping my spoon in and I'm tasting it and saying, “Oh, how is that compared to the goal that I have in my head? Do I need to add something? Do I need to take something out? Maybe I need to start all over again.” So constantly through that process, I'm dipping my spoon in and I’m testing it always with that end goal in mind. And then when I give it up to the guests, that's summative. It's done. I can't make any changes to it. It is what it is. They're getting it how it is.

The next part of this quote is that Hattie says that serving poor soup to the guests is probably the best indicator that the cook was lousy at tasting it during preparation. So if you can think about some of our approaches to assessment in the past, we might not have been tasting the soup the whole way along and then we've dished our kids up to NAPLAN and been really surprised by the data. We shouldn't be surprised by the data because we should have been tasting that soup the whole entire way. Does that make sense? I really like that analogy. It doesn't have to be chicken soup either. It can be pumpkin soup.

So a couple of other things. Now that we've cleared up what’s formative assessment, let's think about these two important quotes. The first one is that “the shorter the time interval between eliciting the evidence and using it to improve instruction, the bigger the likely impact on learning.” So if we're asking our students to engage in an assessment, let's say the Maths Online Interview, we need a short time frame between when the students engage in that interview to when we analyse the data to when we change our teaching practices as a result of it. The shorter the time frame, the better it is for student learning.

So just for example – we don’t want to be waiting - say our students did an assessment earlier in the year and we didn't look at the data until really late in the year, that's probably not the best use of that data. So for formative assessment purposes, really short time frame.

To be considered part of formative assessment process, the information has to be used to inform the learning of the current students; that is, the students sitting in front of you right now. So this is the difference between: we did a unit on fractions and we looked at fractions with our students and we gave a post-test maybe at the end of the assessment and we worked out that a whole bunch of our students didn't learn this concept, so next year when we reteach this unit, we're going to make sure that we change how we do that. So we wouldn't call that formative assessment because it's not adjusting the learning for the students sitting in front of you currently. I think those two quotes really help to clarify the idea of formative assessment.

So back to our pyramid, the first layer is the ongoing in‑class formative assessment, and Black and Wiliam refer to those assessments as the day‑by‑day, minute‑by‑minute assessments. At the next level, we have the end-of-unit assessments. So these might be pre- and post-tests. I see some of you mentioned pre- and post-testing in the chat. This could also be portfolios of work. It might even be maths journals. I know in George Booker's book, he talks about portfolios of work and maths journals, if you want more information about that. So these are the end‑of‑unit assessments that we can use to look at maybe student growth throughout the unit.

The next level of assessment are benchmark assessments. These are the ones - I'm sure you're familiar with these - where we're probably engaging them less frequently over the year, so maybe once a year or even twice a year, at the start and the end, and we're using these generally to track growth over time. As a leadership team, these are probably the ones that we're leaning on to say: how is our numeracy work going across our school? What is the growth looking like? Then, finally, at the top we have the NAPLAN, so the national standardised testing.

We have to be really clear on each of the purposes of the assessment that we're engaging in. The really important thing to understand here ‑ and so much research backs this up - is that without this foundational layer, that really important layer on the bottom - actually one of the authors, Rick Stiggins, who is really passionate about assessment and really passionate about getting it right, he says that without this foundational layer, the rest of the assessments are rendered impotent. He's really strong about it. So this just goes back to that idea that the cook has to take the soup the whole way along, otherwise you would be serving cold soup or the wrong soup.

So my wondering around this is, okay, if all the research says that this is really important, this is where you're getting your bang for your buck, what are our school assessment schedules saying? How balanced are they? Do we have a pyramid or is our pyramid maybe inverted? How much time are we spending on each of these layers? I would argue that the amount of time we spend on the layer is visible in this pyramid. So on the bottom you can see that's the largest layer of the pyramid. That's where we need to be spending most of our assessment time.

Let's do a little bit of reflection on what's happening in your school. So in the supporting resources that was emailed out, I want you to now think about your school's assessment schedule and I want you to think about what are the assessments that we're currently engaging in for numeracy in our school and then go a step further to think about: what's the purpose of this? Who is going to use the data from this? What data do we hope they're going to get from this? And which layer of the pyramid does this come in on? Or is our pyramid a square or is it upside‑down? So I'm going to give you five minutes and get you to look at your own assessment schedule and do a bit of reflection. (Pause).

Okay. Thank you, everyone. I hope it was a good opportunity for you to reflect and have a look at that assessment schedule and start to just wonder why or start to ask questions. It's not something that you're going to overhaul by the end of this term - you probably have a few other things to do between now and then - but I do strongly recommend that on your assessment schedule you work to add a column that says ‘Purpose’, and that's for your benefit but also for other teachers' benefit to say: why are we doing this?

Sometimes when we get the opportunity to reflect on our assessment schedules, we realise we've actually had some assessments on there because they've always been on there so we always do that one. But it's probably time to ask: why? What are we getting out of it. Is it still serving the purpose? Is it still giving us lots of information that's useful for us as teachers teaching this class in front of me? And just being really critical about making sure that we're getting the most bang for our buck, because we only have a limited time in schools so we really can't be wasting it on assessments or spending time in assessments that aren't giving us what we really need to help us to engage in powerful teaching and learning. So that could be some work for the future. But I just wanted to draw it to your attention so you could have a think about the balance of the assessment. I think it's a really important concept.

Our final section for tonight is we're going to look deeper at formative assessment in the mathematics classroom. So just a couple more things that I want to frame up around the idea of formative assessment. Firstly, formative assessment includes all activities that provide information to be used as feedback to modify teaching and learning, and I put in there for current students because we know that it's for current students. So all activities that provide information to be used as feedback to modify teaching and learning.

That means that it is not to be seen as some add-on to what we're doing, so “I do all of this work and now you're telling me I have to do formative assessments at the end. What does that test look like?”. We need to stop thinking of it as an extra. We need to think of it as the work.

So formative assessment, I would suggest, is more of a way of teaching. It's a way of understanding and measuring the difference between your intent - what you hoped the students would achieve or you know would be able to do - and your impact; what is the reality; what has actually happened.

So when I engage students in an activity or a task and I am thinking, “Yes, this is going to deepen their understanding of this specific area of fractions”, what I need to then do is put on my sort of feedback radar to say, OK, when I've put it down on the floor and it's hit the floor and the students are engaging with it, are they engaging with it in the way that I hoped and I expected that they would? Do I need to change something? Do I need to re-teach something? Do I need to push? Maybe it was too easy for them. So it's a way of teaching. It's not a whole separate test that I now need to go and Google.

Using formative assessment techniques helps teachers continuously examine how students' ideas about concepts and procedures form and change over time as well as how students respond to particular teaching approaches.

If you're a school that engages in the professional learning community's approach, you’ll know exactly what we're talking about here. So formative assessment is just as much about are the students engaging in the task the way that I wanted them to; do I need to move them forward; do I need to give them an enabling prompt or an extension prompt, as well as a mirror to you to reflect on to say, “When I engaged in teaching in this way, or when I used this pedagogical practice, the students really got what I was talking about”. So that's good feedback for me. Or “When I used this strategy, the students really didn't quite understand the task.” So this is feedback for you and it helps you to develop your pedagogical content knowledge, your ability to match the content and to know the content deeply but to match that with good pedagogy for teaching that specific content. So it's good for you and the students to engage in formative assessment and it's more of a way of teaching.

Alright. A couple of things - and I shared this slide. I did a presentation here at Bastow last year on formative assessment, and you can access it on Bastow's YouTube channel. They've got all of the previous videos from the webinars on there. So if you want to know more about this particular slide, then I recommend that you go ‑ not right now; I know what you're doing, not right now - afterwards onto Bastow's YouTube channel and watch the webinar on formative assessment where I go into detail for each of these four things.

But I wanted to draw your attention to these because formative assessment can't sit outside of effective practice. It is part of effective practice. So the first one there: shared learning targets and criteria for success. Before when I was talking about the chef tasting the soup, the really critical part about that is not the fact that the chef is filling himself or herself up on soup. It is that the chef knew exactly what they wanted the soup to taste like. So that is the learning target or the criteria for success. You’ve got to be really clear on exactly where you are headed with these students.

So if we are engaging in a lesson around fractions, what is the really specific target that I'm trying to achieve in this lesson or this series of lessons? If you don't have clarity on that, the students won't have clarity on that, and there's lots of research, particularly John Hattie's work around the impact of teacher clarity. So that's the first one.

The second element of effective formative assessment is classroom discussion to teacher questioning. Teacher questioning I always say is a lifelong endeavour. That is something that we’re constantly working on. So, as I said, watch the previous webinar for more suggestions on developing your questioning.

Provision of effective feedback comes in here. The feedback needs to be linked to the learning intention. So when we're really clear on what it is we're trying to teach the students in this lesson or this series of lessons, our feedback relates directly to that learning intention. And the feedback students give to other students relates directly to that learning intention.

Finally, students' self-assessment. So this is where student voice and agency comes to the fore. We want our students to be able to self‑assess against the criteria for success. So in today's example, I'm using a success criteria. You might be using a rubric, any of those types of things.

Can our students decide for themselves whether they've improved in their knowledge in this area of numeracy that we're engaging with today? This is where the work's really powerful, where the students own that and they have agency over their learning. So these are four ‑ there's often a fifth one in here, which is engaging students as teachers for each other, and I'd also recommend that as well. But for more information, you know where to go.

So let’s look at some formative assessment tools and resources. We need to get into the habit of - first and foremost, let's go back to the Birth to Level 10 Numeracy Guide. I introduced this a couple of webinars ago. This is created by the Department. It has so many resources in here. One of the resources is a curation of useful and quality-enriched tasks and activities.

So the first thing that I'm going to do when I'm looking for formative assessment or whatever topic I'm about to teach is I'm going to the Birth to Level 10 Numeracy Guide and I'm going to press the magnifying glass on the top right‑hand side and I'm going to type in ‘formative assessment’. I want to see what comes up.

So, in this case, the first thing that comes up is this. It says ‘Maths Assessment Project’ and there are some other things that come up as well. I'm just going to show you this one just so you can see how this website works. When you click on that, you get taken to this page. It gives you an overview of what the resource is. Remember this is a curation. So this is some really intelligent people at Central Office who are really rich and, I guess, knee‑deep in all of these fantastic resources. They don't want us to waste our precious time going to Google and ending up on Pinterest to find a worksheet. They want us to find really valuable resources.

So this is the overview. Top right‑hand side you can see that this is a level 6 to level 10 resource. So for all of those secondary teachers who always feel second fiddle to primary schools, here's a resource for you. It gives you a bit of an overview about what it is, which proficiencies it would assist in teaching, and down the bottom right‑hand side it gives you a link to the actual resource, so the resources stored outside the Department's site.

When you visit this particular site, it says that they have 100 lessons for formative assessment - some focused on developing maths concepts, others on solving non-routine problems. That sounds pretty useful.

So then, when you click on that, it takes you to this page and it has a whole bunch of formative assessment resources that have been divided into the different topics there and the different year levels. So that's just one example of the amazing resources that we have linked to our Birth to Level 10 Numeracy Guide. Don't look at it just yet. I'll know if you do.

So the next thing - if you know me, you know I love books and I always recommend books to people because it's about teaching people how to fish rather than finding their fish for them or catching the fish for them. And if you knew anything about my record for catching fish, you’d know that you don't want me to catch them for you.

So I've got three resources here for you so that you can have a look at these and take your own learning further in our own time. The first one is a book called ‘The Formative 5’ and I'm going to just go through what the 5 are. It is ‘Everyday assessment techniques for every maths classroom’. So I’m going to take you quickly through those five.

The next one is a book called ‘Mathematics Formative Assessment: 75 Practical Strategies for Linking Assessment, Instruction and Learning’. And the third one is the same as this one, except it's volume 2, so you have even more; an additional 50. These are primary and secondary resources in here.

So these are not assessments. These are techniques. These are things that you can employ in your classroom, ways of teaching that can help you to gather formative assessment about your students and their knowledge and skills in the maths classroom.

Let's have a quick look at the first one. So ‘The Formative 5’, the five that they talk about in detail in this book: observations - and Grant mentioned observations when he was talking about the interviews, which is the second one. They talk about the power of observation and highlight that idea that we as professionals don't value our observations as much as external assessments and we need to change that thinking. We are professionals and we need to value our professional observations.

Interviews - and they give you some suggestions for how to engage in effective interviews; all of those types of things. Show me - and they talk about different apps that you can use or different processes that you can use, and they have a lot of links to digital technology. So if you use iPads, you might use apps like Show Me or Explain Everything.

Hinge questions and exit tasks - and I think, hopefully, most people are familiar with the concept of an exit task now. A short, sharp activity you will engage with before you leave the lesson and it gives the teacher some really quick assessment data to say, “Okay, what do I need to tweak for tomorrow's lesson?”.

I'm going back to hinge questions, though, because I think that's probably the one that people will say, “Oh, I'm not so familiar with that one”. So this is from the book here: “The hinge question provides a check for understanding or proficiency at a particular hinge point in a lesson” and they say that usually the hinge question is delivered towards the end of the lesson but it can be at any stage during the lesson. It's a question that you ask that truly provides feedback to guide your next steps, both within your lesson and moving forward to the next lessons.

In order to use this technique of a hinge question, you have to think about this when you're doing your planning for the lesson. This isn't something that you kind of just go, “Ooh, let's throw this question out there now and see what the kids have to say”. When I'm planning for the lesson, I've written down what my learning intention is; I know the really specific thing that I'm trying to teach the students in this lesson, and the next thing is: okay, what's a question that I could ask the students that can help me get information about whether the students have understood that concept? Of course, this is tricky at the start to work out what is a question that can help me to understand the students' level of understanding.

Let's have an example. So the lesson focus - and this is the example that was provided in the book: division of a whole number by a fraction. So the question they've come up with - and this is a couple of teachers who engaged in this: “Our class was laying out the 3 kilometre run on the trail near school. We had the students put up markers for each half-kilometre of the course. How many markers were needed?”. Two ways of engaging in this. The first teacher gave students a multiple choice option. These multiple choices weren't just randomly plucked. They were carefully thought through. So the teacher thought, “What might be some of the misconceptions that I expect students to come up with?”, so he or she has created answers that would reflect those misconceptions, obviously with one of the answers being correct.

The second teacher didn't provide multiple choice. All the students had a whiteboard and they had to answer the question and the teacher just said, “You have to be prepared to tell me how you know or to show me how you know that”.

So that's just an example of a hinge question. So that helps the teacher to understand where are the students at with their learning in terms of the lesson focus: are we ready for the next lesson? Do I need to tweak tomorrow's lesson? Do I need to completely overhaul it? What do I need to do with my teaching?

A couple of things that can help you to come up with an idea for a hinge question: first, will the question assess important mathematical understanding of the day and, before that, do I know with clarity what the actual concept for the day is for this specific lesson? Will the students understand the question? Will they be able to respond in about a minute? So the idea of this hinge question is - this isn't the task kids go off and spend half an hour working on. This is a really short, sharp assessment to find out the temperature in the room, I guess. They suggest in this book no more than two minutes for you to deliver the question and get student responses so that you can analyse very quickly where your students are at.

Also, they talk about using different forms of technology, so say if you're doing a multiple choice, you might use Plickers, which is a website that you can look at afterwards. You might use Google Forms. Any form of multiple choice. Or you could use the good old‑fashioned pen and paper. That still works, I’ve heard.

Will expected responses be such that they can be analysed and interpreted quickly? You know, teacher time is crucial. We don’t have a lot of time and our students don't want us to be wasting all their time going through the analysis. So can we just get a really short, sharp assessment of where everyone's at with their thinking? And will the responses assist in shaping planning for tomorrow's lesson? So if hinge questions is something that you would like to know more information about, that book ‘The Formative 5’ is your place to go.

The final thing that I'm going to share are some of the practical strategies shared in this resource: ‘Maths Formative Assessment’ because I know we all love practical strategies. You will see through these strategies that we're not talking about separate tests. We're talking about this is embedded in the learning.

So here's some of them. I'm going to go through a few of them. The first one is agreement circles. So agreement circles are: if you put a statement on the board, so relating to today's learning intention, and have the students stand inside the circle if they agree with the statement, outside the circle if they disagree with the statement, and those students then face each other and they have to talk about their view of the statement and try and convince the other person to agree or disagree.

I will say a lot of formative assessments, a lot of effective formative assessment, is really around strong oral language and strong talk in the classroom. If we go back to the effective elements of formative assessment, number two is around classroom talk. Your role as a teacher here is you've got to put on those giant, extendy ears, the BFG ears, and you’ve got to be listening to see what are the students saying. That is your formative assessment to find out what are their beliefs, what are they talking about with their peers when they're in these agreement circles or when you're using any of these techniques?

Card Sorts is another one that is when you put some concepts on cards and the students have to sort them into maybe agree, disagree, true, false, examples, non‑examples.

Create the Problem is when you give the students the answer and then the students have to identify when that might be relevant in the real world. So the example is, say, if you've got two-thirds of 15 equals 10, when might you use this in the real world? So when might you come across this?

Fact First Questioning is when you provide the answer to the students and then ask them why it is so. So “This is an isosceles triangle. Why? What makes it an isosceles?”. And “X equals 6 in this. Why is that so?”. So it sort of flips how we are used to doing things, because we're usually posing the question and getting students to come up with the answer. In this case we want to go back to the proficiencies. We want our students to reason and justify. So it gives us more information as a teacher around their knowledge around that topic.

Fist to Five is really short and sharp. It is “Put up your hand. Show me your level understanding of this.” Zero, or fist, is “I have no idea what you're talking about”, to five, “I really understand this concept that we're talking about” and then you can choose one in the middle.

Four Corners is you might have a multiple choice question and you ask the students to stand in the area of the room for the response that they think is correct and then you can get them to try and justify with other groups. So, first, you can get them to turn and talk as a group to say, “Why do we believe that this is the answer?” and then you can get them to share with the whole class to say why they believe and to try to convince the other groups. Again, we're going back to that really strong justification reasoning.

Frayer Model is really about the vocabulary. We talked a little bit about the vocabulary in the last webinar but Frayer Model asks you to put the word in the middle – so let’s say ‘ratio’ - and then we ask them to provide an example, a non‑example and description of what ‘ratio’ is and maybe even a pictorial representation just to help us to understand their level of knowledge about that word, and we talked all about the importance of that vocabulary knowledge in mathematics.

The Human Scatter Graph - I really love this idea. This is similar to Four Corners, so you might have – well, you don't have to have four answers; you could have three or four answers - and the students have to go and stand, say, along the front of the room for the answer that they think is correct. So you might have three or four responses across the front of the room and then going towards the back of the room is their confidence in that answer. So if they're not confident, if they think it's the third response but they're not really confident, then they will stay right at the front of the room. But if they think it's the third response and they absolutely know it's the third response, then they would stand at the back of the room in line with that answer. So I think that's a really quick visual for you to understand or to formatively assess students' knowledge and confidence in the concept that you're presenting to them.

I Used To Think… Now I Think - some of these are some of the written responses that you can engage in. I mentioned that George Booker talks about students using a maths journal. So this is one of the prompts that you might use in something like that. The maths journal is not supposed to take up the whole lesson. It is really short, just five minutes at the end of the lesson or the end of the unit where we're reflecting on our learning, because we want our students to have metacognition and to use that to reflect on themselves as learners.

So I Used To Think and Now I Think, it’s “I used to think this about ratios and now I think this, and this is why”, so really short and sharp.

Look Back is pretty much the same thing. At the end of the unit it's just looking back through the unit to say, “This is what I learnt through the unit and this is how I learnt it”. You might have students use a T chart. So on the left‑hand side they’ll say, “This is what I learnt” and on the right‑hand side, “This is how I learnt it”. That can give you some good feedback about the pedagogy that you engaged in and to see what was effective for which students as well.

Muddiest Point – you just have to write a one‑liner to say what was the trickiest thing in this lesson, which part of the lesson got a bit muddy or where in the lesson did I have the most confusion. Again, it’s good feedback for you for tomorrow's lesson.

Paired Verbal Fluency is just about turn and talk. You might use this when you're introducing the topic. So remembering formative assessment is assessment for learning, so we want to know what's the prior knowledge of our students. So if we are introducing, say, ratios, what's the prior knowledge? What don't I have to teach? We don't want to re-teach all of that. So this is a turn and talk with a partner. One partner talks for one minute and they say everything they know about ratios and then the other person speaks for the minute. And you as the teacher, this is prime listening time, so you're going around and listening to what the students are saying, what they think their prior knowledge is.

3‑2‑1 Reflection is “Three things I learned, two things I'm still struggling with and one thing that will help me in tomorrow's lesson”. So, again, it's just a short, sharp written one.

And 2-Minute Paper, this is mainly a high school focused one. It’s just two minutes at the end of the lesson - you might need three or four by the time they find a pen - to reflect on the lesson and what their learning was. You might give them a prompt and say, “What was the trickiest part? What was the part you succeeded in? What made you a good mathematician today?”, those types of things, whatever your prompts are.

So they are just some of the 75, and don’t forget there are two books, so there's 50 in the other one. But you can see all of these things are the way that you teach. They're not an extra, “Okay, let's teach like this” and then “Let's give out this test”. It's all about the way that you teach. for effective formative assessment.

I am going to give you time to reflect in your own time, so when you're driving home tonight you can be thinking about all of these: which strategy, which technique might I use with the content that I'm using tomorrow? This is the part where the professional comes in. It's up to you to work out which content would match which formative assessment technique. So “Maybe Four Corners is useful for the topic that we're working on tomorrow”. “Maybe I'd be better doing a Paired Verbal Fluency”. So this is where your content knowledge and your pedagogical knowledge come together to that sweet spot in the middle that's pedagogical content knowledge.

Alright. I'm just going to finish off by giving you three more books – well, I'm not giving them to you; you have to buy them, but I'm just going to point you towards them. So if you want more information about formative or assessment in general, these are three of my go‑to books. They’re in no particular order, by the way.

The first one is Rick Stiggins’ ‘The Perfect Assessment System’. It is a very short read. He is very passionate about it. And it just gives you a really strong understanding of the whole place of assessment in teaching and learning. You could probably read that one before bed. It's not too heavy.

The next one is ‘Advancing Formative Assessment in Every Classroom: A Guide for Instructional Leaders’. This is the second version of this book. The original version had a cream cover but they've now updated it and they have included more detail. So there's lots of really good ideas in here, lots of great quotes. I would highly recommend the first chapter of this as a study for your PLC. You can probably actually find the first chapter of that online somewhere.

The third one is Dylan Wiliam's book ‘Embedding Formative Assessment’. Again, this will just give you a really deep understanding of formative assessment, what are the effective elements of it and how can I go about it in my setting. So three resources for you to look at. I always like to give you something to go forward with.

Okay, we're just finishing off. So the success criteria for today: you can give an overview of some of the assessment tools available through the Department, thanks to Grant; reflect on the balance of maths assessment practices in your school, and maybe you’ve put that aside as an area of work for us moving into the future; you can list a range of formative assessment related tools and strategies; and the most important one is that you have a range of resources to consult for further information about maths assessment. Hopefully you can tick yourself off with all of those four.

For further maths learning, next week we have the Numeracy Leaders webinar. That's on Wednesday night. So if you're interested in attending that, please register on the Bastow website. Otherwise, I will wish you a good night. Thanks for staying with us tonight. Thanks for all your questions in the chat and we'll look forward to seeing you next year. Thank you, everyone.