**Katerina Poropat:** Good afternoon and welcome to today's webinar, Introduction to the Victorian Curriculum 7-10 Mathematics. My name is Katerina Poropat and I'm project manager in the Victorian Curriculum F-10 unit here at the Victorian Curriculum and Assessment Authority. It's my great pleasure to introduce you to the curriculum manager for mathematics, David Leigh-Lancaster, who will be leading our presentation today. I would like to thank Alicia Farrell, also from the Victorian Curriculum F-10 unit, who has done a lot of the work behind the scenes to make this webinar possible today.

So before we begin, we will start with an acknowledgement of country. I would like to acknowledge the traditional custodians of the many lands across Victoria on which each of you are living, learning and working from today. For myself and those of us in the Melbourne metropolitan area, we acknowledge the traditional custodians of the Kulin Nations. When acknowledging country, we recognise Aboriginal and Torres Strait Islander peoples' spiritual and cultural connection to country and acknowledge their continued care of the lands and waterways over generations, while celebrating the continuation of a living culture that has a unique role in this region. I would like to pay my respects to Elders past, present and emerging, for they hold the memories, traditions, culture and hopes of all Aboriginal and Torres Strait Islander peoples across the nation, and hope they will walk with us on our journey.

So, before we get into the presentation, I'll briefly go over some housekeeping. Please note that the chat function is only being used to share relevant information and links from the VCAA. You will notice that a Q&A box has been set up, so please use this to put your questions and comments in, as this will help us to ensure all your queries are attended to and we do not miss any questions. When you use the Q&A box, please make sure you select all presenters so that all panellists can see your questions as they come in. We will answer these in a couple of ways. Firstly, we may type a response directly into the Q&A box, which all participants will be able to view, or we will have a dedicated Q&A session at the end of the presentation where David will address these queries. A number of questions also came through during the registration process, and these will be addressed during the session as well. The second part of our housekeeping is to let everyone know that this session is being recorded, and a copy of both the recording and the PowerPoint plus a transcript will be loaded onto the VCAA's F-10 resources webpages under the Professional Learning section. You will also be provided with a copy of those after the session as well at a later stage. So without further ado, David, I will hand over to you for our presentation.

**David Leigh-Lancaster:** Thank you, Kat. Good afternoon, everybody, and welcome. This session complements one done earlier on F-6 by my colleague Dianna Chapman. Contact details are at the end of this PowerPoint, and you're more than welcome to contact us at any time if you have discussions about the curriculum or other queries in relation to that. There will be, of course, the questions you can put in today and we may not be able to answer all of them, but we'll try and answer as many as we can. So the VCAA is a statutory authority. It covers government and non-government schools. The government school sector and the Catholic sector use the Victorian Curriculum. The independent sector can either use the Victorian Curriculum or the Australian Curriculum. The Australian Curriculum is incorporated in the Victorian Curriculum mathematics. Next slide, please.

The purpose of this session is to give an overview to the Victorian Curriculum mathematics 7-10. So, the Victorian Curriculum F-10 was an evolution from the VELS, Victorian Essential Learning Standards, and then the first four subjects in the Australian Curriculum review were English, maths, science and history. So there's an in-between stage called the AusVELS where the Australian Curriculum was used for English, mathematics, history and science within the Victorian structure, and the other parts of the Victorian structure remained the same. And that transitioned to the full Victorian Curriculum, which means one framework with the same structure for both capabilities and learning areas, and that is the Victorian Curriculum, which was introduced in 2016 and has continued until the current time. Next slide, please.

So, on the website, one can access the curriculum as it stands. The Victorian Curriculum mathematics, when it was first introduced in 2012, we made the decision to write the achievement standards associated with that by strand. So, Number and Algebra, Measurement and Geometry, Probability and Statistics. So, the achievement standards have a slightly different structure within the Victorian Curriculum to the Australian Curriculum, and that should facilitate reporting against those strands. It's also the case that from the initial introduction in 2012 to the full Victorian Curriculum, that we had some feedback from practitioners in Victoria and made some minor developments to smooth out some of the aspects where people thought, for example, that work on estimation approximation occurred a little bit here and then there in the Australian Curriculum - we tried to make that a bit smoother.

We also introduced a content description relating to algorithms and computational thinking in the algebra and patterns sub-strand of Number and Algebra - just one, and that is part of the Victorian Curriculum mathematics, which isn't in the current Australian Curriculum.

The F-10 website provides teachers with access to curriculum area resources, cross-curriculum resources and professional learning. Within the cross-curriculum resources you will find, for example, stuff relating to numeracy across the curriculum, which were some new resources which were developed over the past couple of years and highlight the numeracy demand within other curriculum areas.

If you go into the mathematics section of that, in particular, you'll find that in common with others there are four key, I guess, if you like, subsections, one which has got curriculum planning materials, another which helps find teaching resources, assessment resources, and then there's a section for frequently asked questions. There are only a couple of frequently asked questions at the moment - there's one in relation to what to do with material for preparing students going on to methods-based courses. There's one in relation to understanding faces, vertices and edges and how a more general concept is that of surface and boundary. There is also one in relation to the material covering computational thinking and algorithms, and there's some documents there which provide elaborations for that. So, we're always on the lookout for frequently asked questions - ie, those where you'd find that several people ask them multiple times in a year - but we can also look at some questions which people bring up and we say, "Oh, OK, that's a really good thing to provide some advice on." So, both here and subsequently, if you have some good ideas about things which have been in your mind over more than one year's implementation, or maybe over several discussions, please put them forward and we can include them in the "frequently asked questions" section.

The "help me plan" section includes things which show how, for example, if we looked at the sample programs, which have an allocation of time within an 18 weeks per semester across 7, 8, 9 and 10, if you look at those topics and you colour-coded them for the three strands, you get a kind of bar graph presentation which shows an indication of weighting or total time spent within those areas. So, for example, there is a lot of work in measurement, which is done early on in the primary years, and then that becomes more particular in the secondary years, whereas in the secondary years, the number work has been developed, there is some work on irrational numbers, irrational real numbers in measurement context, but there's a lot more work on algebra. So, within the "help me plan", there are both interactive documents which enable people to develop their own curriculum, there are also documents which help you work out the weighting of how those things would go together.

In the, finally, teaching resource, you'll find that there are things like both the sample programs, but there's also other materials like activities related to computational thinking. Within the "help me assess" section, you'll find that there are annotated student work samples and they're at Foundation, 3, 5, 7 and 9, and, obviously, they provide people with the kind of scoping for each of the three strands in relation to the same years in which a NAPLAN is conducted. We had actually planned to do a broader even-years development of annotated work samples, but unfortunately that was interrupted with the COVID pandemic last year. Next slide, please.

OK, so, in broad terms, the curriculum have multiple lanes. One of those is obviously to look at the mathematical and numeracy skills. The perspective from the VCAA is that the numeracy skills are actually developed, or the skills needed for people to be numerate, are developed in the mathematics curriculum, but then they're refined and applied and developed further across the whole curriculum and in other contexts. So, one of the key things we want by the time students end up transitioning from the F-10 curriculum is that they've developed mathematical and numeracy skills which support their ability to be a critical and active citizen in our society today.

Obviously, one of the key things from a mathematics context is that certain concepts are introduced, refined and developed. Some concepts just keep on being developed in more sophistication. Others will have a certain introductory stage and then basically complete, because you've covered that stage of development and there's no further development, but then they have other applications. So, this is not only in mathematics, but also in other disciplines where, for example, data analysis and statistics are used in sciences, they're used in humanities and various other studies.

We also want to make sure that students acquire the specialist knowledge and skills in mathematics, which means they can proceed to further study in general, further, in methods, and in specialist, and also subsequently onto studies which are mathematics-based or draw on mathematics a lot once they leave school. And, perhaps a little idealistic, but one of the things which is... Mathematics has been around for a heck of a long time since human civilisation first started, and even before that, so it's developed its own discourse, its history, its ideas, its narratives, problems. And people come up with words like, looking at "elegance" and "simplicity", and there are certain ideas about mathematics which enable it to be used as a modern tool in the world. And one of the interesting things there is that, at one level, its abstraction is the very thing which gives it the power for application, because it's not tied down so much. So, there's an interesting balance and flow between the generality and abstraction and its ability to be applied to a whole range of problems in different contexts. Thank you.

So, within the mathematics curriculum, there are three joined strands - Number and Algebra, Measurement and Geometry, and Statistics and Probability. There are some natural connections there. There are also some other connections which are not captured in that. For example, if you are thinking of continuous measurement scales in data, then there's a connection between measurement and geometry. You can also have a look at the idea that when you're graphing functions in relations in the plane, there's a connection to Cartesian coordinate geometry. So, while they are three major groupings, there are aspects of those which connect across the other strands as well, and the curriculum designers came up with a number of sub-strands. Some of those sub-strands go all the way through. Some have a natural focus in, for example, the primary years, and then, in the later years, will transition to something different. So, for example, some of the work with Pythagoras and trigonometry is an aspect of Measurement and Geometry, which occurs obviously in the secondary level, but not earlier. But precursor material would have occurred earlier.

So, within Number and Algebra, these are the sub-strands which we have there. At the 7-10 level, some of the... We certainly are looking for students to have developed to a good understanding of the natural numbers. Then we start moving into signed numbers and integers. They will also have a good understanding of fractions and decimals, because when you get on to the real numbers, you start getting to that more sophisticated question as to how many decimal places is a number defined, is a number computed, and therefore what is a relevant degree of accuracy? And, of course, when we get to the irrational real numbers, the understanding that the decimal expansions are infinite, and they're non-recurring. So, for example, I could ask everybody now to write down a decimal expansion of an irrational real number, and all you have to do is come up with a process for writing down something where...which is infinite but there are no recurring patterns within that. So, for example, writing down the sequence which lists the prime numbers would give a decimal expansion of that.

Of course, in the financial area, being able to look at dealing with very small and very large amounts of money or, in fact, very large amounts of small amounts of money, and looking at accuracy in relation to that is quite important, and there's obviously relations to connections to linear relations and exponential relations, growth and decay in financial mathematics. And the pattern and algebra work leads on to stuff with linear and non-linear relationships. Non-linear relationships can be as simple as looking at factor pairs of a number at Year 7 and 8 and then building up to the well-known linear quadratic exponential, and, if people are looking at the additional material, going further and looking at logarithms and circular functions developing on from trigonometry.

For most students, there will be a standard group of relations and functions which they come across and develop the sophistication of the understanding of both those functions, tables, patterns and graphs which go with it. In Measurement and Geometry, a lot of ideas are quite often connected, but they are also distinctive. So, for example, in relation to angle, there is a concept of angle which some people think of as a turn, others think of as divergence, others think of a region in the plane - and that concept exists in its own right. When you can show that the sum of angles in a triangle in the plane are two right angles without knowing the measure associated with two right angles, and that's part of geometric reasoning and proof.

On the other hand, we develop notions of measure of angle from very early on. We talk about fractions of a turn - quarter of a turn, half a turn and third of a turn, and then we look at degrees as a measure which is associated initially with the length of time of day in relation to the Earth's circuit around the sun, which, while an ellipse, is actually an ellipse which has a low eccentricity, so it's very, very close to the circle, and that's why the tilt on the Earth is significant in terms of change in season.

So, there's some really nice modelling stuff associated with geometry, with measurement, which gets progressively developed through the curriculum, and in the 7-10 there is looking at saying, how can we use the development of ideas from angles at a point on a line to opposite angles - some people like to say vertically opposite angles - to the parallel relations, and then deducing things about triangles, about other quadrilaterals, classifying them, congruence, and leading on to Pythagoras' theorem and trigonometry, which is the way which connects the notion of distance in the plane with coordinates.

And chance and data is a really interesting area of the curriculum, which... There are multiple terminologies - Statistics and Probability is a very old one. If you have a look at a lot of the work which has gone on in the past several decades, there's actually been, with the assistance of technology, a range of different data representations. So, part of what's interesting with data is there's variability out there. You have a question of interest, there's variability. You get a distribution in relation to something and you say, "What's a typical value?" What are atypical values? Are there any characteristics of the shape of the distribution which tell us something about what's going on here?"

So, the ability to look at different types of data, whether it's purely just nominal data, just a name, and you're just counting, or whether it's ordinal data, which might have, for example, like a ranking of a restaurant - if you look at the distribution, which says, "Go onto Google, look at a restaurant," and you get the little bar graph, and then you get a value like 4.2, what does 4.2 mean in that particular context? So, different types of data have different types of measurement scales. Of course, when we look at the notions of chance, there are both the ways of looking at that through experiment, so, in other words, we consider events which we either run through experiment, or events we observe, and that gives us an interpretation as to the likelihood of certain things, and then, when we look at combined events, we have questions. "Does one affect the other? Does the likelihood of one changing increase or decrease, or is it completely neutral?" So, we get into the conditional probability work.

So, there's some very nice stuff going on there which connects statistics and probability, and, certainly, if you look at the media, you will have seen - and business, in particular - a whole range of different ways of representing types of data and comparing data distributions. So, statistics and probability is one of those areas in the curriculum which certainly has, I think, had a strength and range of applications in our society. One only needs to think of the circumstances of the last year to see how much data mathematically is presented when you're trying to communicate publicly about various things.

So what are the organising features of the curriculum once we've got past the level of strands and proficiencies? The first construct is the level description, and what the level description says is, these are the sorts of activities which the students have been engaged in to be able to undertake the learning, which we are hoping, in terms of the content, which has been taught through the content descriptions. So, the level statement can be thought of as a kind of overarching commentary on the sorts of things which students are doing as part of their learning at that level. And it's very important to say here, because I think one of the questions we come to at the end is that the Victorian Curriculum, unlike the Australian Curriculum, talks about levels, because we understand that while you are saying this is what we think most students, reasonably engaged and reasonably taught in a reasonably resourced context, that's the learning which is reasonable as a progression of the mathematics...within any given class, there will be people at multiple levels. So, while you can nominally associate that with the year level in which you would develop and address that material, students, some students, will be ahead of it in one strand and maybe not another.

So, the levels - and when you're looking at the curriculum and you're sort of going through something, it's really important to say, look at the two levels on either side of it as you're planning your teaching program. So the content descriptions are the detail of what people look at in their planners, and some people would draw these together within the notion of a topic. So, you might say, "OK, if I'm looking at some work on rational functions, I might actually include some work on scale and enlargement from geometry. I might include some work on ratio and proportion related to probability. There's a range of things I can put together." So, the content descriptions are what is taught. This is the content which you go through, and they're supported by elaborations. Now, some of those elaborations may be more or less appealing, or more or less helpful, in terms of supporting what's going on in the content descriptions. And teachers can certainly look and think about their own elaborations, which might go with that stuff as well. These are ones... Elaborations are...material which is provided to give an insight into things which might be done in relation to teaching that content, but the content description is the mandated required material.

So, the achievement standards form the third part of the trilogy of the level statement, which has its focus on the student activity and learning. The content descriptions, which say, "This is what's taught," and the achievement standards, and, as you can see, they're broken down into the three conjoined strands... They're saying, "When the student's gone through that, by the end of that level" - but we tend to do our reporting by the end of the year - "but a student, at the end of that level - nothing's going to be perfect - but, by and large, they've nailed this. These are things they can do, and if they can do these things at that level, then they're prepared sufficiently to undertake, in a robust way, learning at the next level." And that's what the stepping stone, content descriptions, they are the bits which you put together as part of the coherent teaching and learning program, so, at the end, you can say, "Alright, when I'm looking at the student's work overall, they've basically got that." Now, there might be some things which they're not quite so flash on, and they need to do some more work on, but the concept is there, the idea is there, the skill is there.

So, the proficiencies, the way in which that aspect of, "How do you go about doing the mathematics?" is represented in the Australian Curriculum and therefore within the Victorian Curriculum and the curriculum in other states and territories around Australia - and they came originally from some work at the National Council of Teachers of Mathematics in the US. There were six of them there. There were a couple of more affective ones, but the four which were selected for the Australian Curriculum were understanding, fluency, problem solving and reasoning. They have elaborating paragraphs, and in the Victorian Curriculum, what we've done is write those elaborating paragraphs as a collection of bullet points. They don't have their own content descriptions or elaborations. They are the things which are interwoven within the development of the content of the Australian Curriculum or Victorian Curriculum. So, fluency, for example, is not just about the capacity to do something with automatic recall, although that is very important and is part of it. What it also means is the ability to identify those things which are required in a context to be able to carry them out with a degree of proficiency and to be able to move on to the next thing. So, there's some subtleties in terms of understanding, fluency, problem solving and reasoning. And we do know that the level of understanding of students will develop over time, so someone can be fluent in something, with having an understanding at one level, and still be developing that understanding.

So, the proficiencies are an area where people would look to say, OK, in this part of the development of the curriculum, where it says modelling, for example, or it says some of the work in geometry, there's a focus on reasoning or problem solving, where in these other aspects we're looking at conceptual development, and here we're looking at fluency, understanding that they're not four separate silos. There are things where you might have one focus on one more than the other, but they come together as a package. And the sample programs include some notes with respect to how particular proficiencies might be a focus or an emphasis within a topic and its presentation. The scope and sequence charts provide the kind of thing which you can stick up on a staffroom wall and they show you, "OK, if I look at that idea, that's how I track that through." There's obviously a scope and sequence chart for F-6, and there's also the current one, which we're looking at, for 7-10.

Now, some of those things can be connected otherwise, but they provide a basis. If you went through and you looked at that connection and you followed that, that would be a reasonable presentation of the curriculum. 10A is the structure within the existing curriculum which attempts to address what's been a perennial issue in mathematics education as students transition from Year 9 and 10 through to their subsequent VCE studies. Sometimes students don't have a clear idea of where they want to go. Their degree of diligence, attention and interest is variable. So, what the Australian Curriculum, Victorian Curriculum structure provided was some optional additional content at level 10. And, in response to this, what we've identified is those content descriptions which, in particular, provide useful support for students who are going to continue on to Mathematical Methods Units 1 and 2.

There is other stuff which can be done, and some people might use that as suggestions for extension and enrichment. Teachers will naturally look at various things - for example, one could do more work in the area of combinatorics and look at some of that material as extension of the 10 material. The 10A material complements and leads on from the stuff in Year 10. So, 7-10 is the expected material which all students will have had the opportunity to learn to be able to make pathway decisions with the support of the school and in consultation with parents and so forth.

So numeracy is not a separate part of the curriculum. It is complementary to the curriculum, and there was a national project which produced what are called numeracy progressions. Those progressions identify particular stages of development within the learning of the mathematics curriculum which are strong indicators of numerate behaviour in students. So, they're used as a complement to the curriculum. They are not the curriculum. They don't replace the curriculum, they're not an alternative to the curriculum. They're an aspect where, while you're developing the mathematics, you're also monitoring progression of students with respect to those aspects of numeracy.

And a project undertaken by another colleague of mine, Crystal Afitu, was to look at, in conjunction with the department, the numeracy demands of other areas in the curriculum. So, sciences, geography and so forth. So, these documents were only published, I think, during the last year, and they give some insight into how other areas both require the numeracy aspects which have been developed in the mathematics curriculum, but also support and reinforce it. So, I commend those resources as ones which people might like to have a look at in conjunction with their colleagues, because one of the perennial discussions is between science teachers and history teachers, and... "When are the kids learning this bit of mathematics? Because I need them to have that for what I want to do in the curriculum, in my curriculum." And that's a natural discussion in schools. This support, this resource, will support that quite nicely.

So, what this... This particular slide gives you some links to sections, those which I've spoken about, which will enable you to get the annotated work samples to enable you to get to the indicative progress examples. So, this is saying, "OK, if we have to make a judgement partway through a year, and that's the level I'm coming from, and that's the level I'm aiming to, in between, if I had to make a judgement about how students are progressing in their learning, what are the things I'd be looking for?" So, these used to be completely written in about five or six dot points. Now what we do is highlight a couple of examples of how they might be constructed, and teachers make something which works reasonably in the context of the way they've put their program. It may well be that there's a certain conjunction of treatment of linear functions with work in geography with work on gradient, and so one school plans it that that way. Another school might have a focus on other aspects of measurement in relation to science and rates, for example. So, the indicative program...gives examples of something where schools can use those as a basis for developing their own aspects of assessment which they're looking for to make that mid, if you like, middle-stage judgement about student learning.

There is also a resource which has been developed a couple of years ago in terms of formative assessment and rubrics, and that gives some case studies which say, in relation to this activity, this is how some teachers identify what they would be looking for as a series of rubrics for assessment of student learning, and develop these ones. So, not an expectation that people use those in particular, but they could model their own work on that process.

So, just to recap some of that, I think, if you are developing a curriculum plan, making links to aspects of these will be quite useful. The sample programs provide a template which covers all of the content descriptions for a level, and it does it in two lots of 18 weeks, with an assumption of roughly three and a half hours' time spent on that - and I know at different year levels there will be more time available, or some might have three hours or so in relation to that. So, those sample programs are something which can be pulled out completely and used as a template structure for teachers and schools to develop their own. Or they might like some of the stuff and they might want to adapt it, edit it, put in additional resources.

The computational thinking poster and activities address those aspects which I mentioned earlier on about algorithmic and computational thinking. This is not new material in itself, but it's a particular way of focusing on some of those aspects. So, for example, the use of a function machine to introduce the notion of a function of something where each input has a unique output associated with it, and how function machines can be reversed, how they can be joined, and there's some nice activities which go with that. The formative assessment guides I've mentioned.

We have a section on external resources links. This will provide links to stuff which comes from, for example, Moneysmart, the Australian Tax Office, and over the years we've had discussions with them to say, "What are really good resources for this?" So, the Australian Tax Office has got some wonderful materials available which look at money and financial mathematics in the 7-10 area. Others are well known, like the National Library of Virtual Manipulatives, and, indeed, there are now a plethora of places where you can go to links to get things which will do spinners, which will do construction, which will do algebra blocks. There's a very rich range of resources there. The external resources and links provide some key connections. So, for example, the Resolve Project, which ran in Australia a couple of years ago, developed some brilliant resources from the Academy of Sciences. This links to that. The Department of Education and Training FUSE is an exceptional set of resources. There's the numeracy guide, the mathematics toolkit and the companion, and the authority work very closely with the department to ensure that right up front in each of these there's a link to the content description which that bit of the resource relates to. So, again, I think the interesting issue with some of these is not, "Where is there any material?" but, "There is so much material there. How do I curate it, how do I make a selection?" And certainly that's a very profitable area for professional work in schools.

So, this is the computational thinking poster in small. It can be run off in an A3 version for students. It can be run off as a series of multiple pages, which can then be stuck together. We even have some very high-quality cardboard print versions of this, which we are happy to distribute to schools on request. I think we probably have about 50 to 100 of those left. But it's actually representing...a combination of key features which are common in digital technologies and mathematics. And when that part, those additional content descriptions, were put in one at each level within that strand, they were coordinated between the digital technologies and mathematics. And, in a sense, computational thinking, which can be plugged or unplugged, using technology or not using technology, is about the strategic basis on which computation and exploration is undertaken in mathematics and digital technologies.

So, as I mentioned, we have an FAQ webpage, which we are absolutely looking forward to people coming up with, hopefully, lots of frequently asked questions of the same type - but if you have any questions at all, you're more than welcome to contact myself or my colleague, Dianna Chapman, and I guess this is probably a good time to look at some of the questions which we have received.

So, the first one, I think I had a phone call from somebody who was very keen on getting the actual hands-on materials. I did a very quick web search before presenting this session, and there are some very good virtual manipulatives available. For example, there's one called Toy Theater. One has to be very careful. You go and have a look, and..."Are these free resources, or are they people looking to promulgate a resource?" But there's lots of material available which is interesting to have a look at, and that material can be complemented with, obviously, the physical material. So, the different types of dice which are available, the different types of spinners, blocks for construction. The Mathematical Association of Victoria has a very well subscribed annual conference at La Trobe University each year. There's somewhere around about 1,500, or perhaps a bit more, perhaps a bit fewer people, and a major trade display there. So, the MAV is very familiar with the range of resource suppliers...who provide these sorts of materials, and come up with new materials - new materials for simulations, new materials for doing geometry, new materials for doing algebra. So, there are a lot of them out there, and, I think, talking to the subject association, as well as going through and doing the normal search of resources is a good way to go there. Although I would recommend that there are many, many virtual resources, which can do a nice connection with the physical resources as well. Some learners are more kinaesthetic than others and like having access to physical materials they can manipulate.

Second one...is... I think we've touched on this a little bit. The key thing is, moving students between levels, part of that is deepening their knowledge of a concept, their facility with a skill. I don't think there is any easy way to deal with this, and it depends a lot on knowing the students and their background and the range of resources which go with it, and also having, I guess, a good...a regular range of informal and formal assessments to check where the students are as a group, and picking up the ideas which flow from, for example, how one would build up an understanding of combined probability...whether events are independent or not, with or without replacement. So, it's continuing the progress, understanding that students will access those ideas at differential levels all the time anyhow.

For students who are well below standard...I think the key thing there is to have a look at...the range of options which they would take. 95% of students will undertake a VCE in mathematics in Year 11. Others will go into vocational programs, and they will have numeracy requirements which go with that. In practice...those students would be doing of a lot of work with the use of an appropriate technology tool or calculator which is relevant to the context in which they do that work. So, while strengthening the understanding of magnitude, order of magnitude...the way computations behave, but having the tools to scaffold students being effectively able to deal with the range of problems which are relevant to those contexts is what I would say the focus is.

My own experience is that you can find students who might have less of a capability in one area will sometimes be stronger in another area, and that area can be used to scaffold the understanding through some natural connections between those two. But I think the main thing is to have a look at the pathways where they're going, the kind of things which are required in those pathways, and to make sure that's the focus, and to be comfortable with, at the same time, ensuring that students' understanding of, say, number of measurement and various things is as robust as it can be in as many practical circumstances as possible. Also saying that the scaffolding of the appropriate tool is a useful thing.

And the last one is, "When will the next review of the Victorian Curriculum occur?" Well, curriculum is reviewed on a cyclic basis and currently ACARA are working at developing or reviewing the Australian Curriculum, and those... The results of that initial work for consultation will be forthcoming over the next few months, and I think that will be the first thing which people will look to in terms of informing their further thinking at that review of curriculum within a state or a territory. So, the current arrangement is that the Australian Curriculum mathematics is being presented through each of the state and territory approaches. Where that goes next is something which is... Watch this space! But the first part of that space will be looking at the work which has come from ACARA in terms of the review of the current Australian Curriculum in mathematics and in other areas and other capabilities.

And last but not least, there are the contact details for Dianna and myself. And you are most welcome to contact either of us. Sometimes I'll be able to answer a question directly or Dianna will, or we might refer it on to... from one colleague to another, or to another colleague within the VCAA.

**Katerina Poropat:** OK, so we did have a question that's come through. So, "Do all of the maths strands have to be assessed in every semester?"

**David Leigh-Lancaster:** The actual... That will depend a little bit on how the program is developed. I think it would be...likely that all three strands would be touched on, maybe not to the same degree. What they do have to do is be assessed on by the end of the year. I think perhaps it's about reporting, which is actually not a VCAA matter, but what the department or the Catholic Education Office or how independent schools would have those arrangements with their parents. So, I don't think there's a categorical answer on that. You have to cover all of that curriculum. In doing it naturally, I think there will be bits of each strand which one might report on in each semester. There's probably a bit in the middle there where there's a bit of crossover as well. But for reporting requirements, they're covered by the sector.

**Katerina Poropat:** Thank you. OK, so, we haven't received any other questions through the Q&A chat box, so, again, thank you all for attending. Please feel free to contact Dianna or David if any other questions pop up, and enjoy the rest of your afternoon. Bye, now.

**David Leigh-Lancaster**: Thank you. Bye.

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