# **Understanding the revisions for the Mathematics learning area - Secondary**

**[Leyna Buller]:** Good afternoon everyone and welcome to today's webinar, Understanding the revisions for the Mathematics learning area - Secondary.

My name is Leyna Buller and I'm the Senior Policy and Strategic Advisor for the F–10 Revision Project at the Victorian Curriculum and Assessment Authority. It is my great pleasure to lead the webinar today. Before we begin, we'll 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 for those of us in 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/Place, and acknowledge their continued care to 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 the Aboriginal and Torres Strait Islander Peoples across the nation and hope they will walk with us on our journey.

Before we begin the presentation, I'd like to thank you for your attendance today. It is a pleasure to virtually see so many of you. We are excited to share with you the Victorian Curriculum F–10 Mathematics Version 2, but also want to acknowledge you are very busy and how intense some of your schedules must be, so thank you for carving out some time for this.

You will note on the screen that there are four parts to today's presentation, an overview of the revision and familiarisation of Victorian Curriculum F–10, which will be presented by Gerry Martin, who is the Director of Curriculum Revision. Then revisions to the Mathematics curriculum, which will be presented by Michael MacNeill, the Mathematics Curriculum Manager. Then familiarisation, which will be presented by me. Finally, we have the dedicated question and answer time that I mentioned earlier, where we will respond to as many of the questions provided as time allows. These will be directed to specific aforementioned presenters.

I'll now hand over to Gerry to start.

**[Gerry Martin]:** Good afternoon everybody, and thank you, Leyna, and welcome to this afternoon's webinar on the Victorian Curriculum F–10 Mathematics Versions 2.0.

I'm well aware the schools are very busy and dynamic environments, so I really greatly appreciate you've taken the time out to attend this webinar.

As you're all aware, the Victorian Curriculum and Assessment Authority is responsible for the development of curriculum and assessment for Victorian students from birth to 18-plus. This includes the Victorian Early Years Learning Development Framework, or VEYLDF, the F–10 curriculum, and senior secondary, which includes VCE, VPC and VM.

The VCAA provides curriculum and assessment to all three sectors, to the government, Catholic and independent sectors.

Reporting and pedagogy sits outside the legal remit of the VCAA and this responsibly sits with the sector authorities on how the curriculum is implemented in schools and how student achievement is reported on. You may have many questions around what reporting requirements for mathematics in '24 and '25, and we'll direct you to the relevant sector authorities to seek guidance in this direction. We understand they will be providing advice on this in the immediate future.

The Victorian Curriculum Assessment embarked on the revision to the Victorian Curriculum in mid-2022. Revisions to the Victorian Curriculum F–10 are based on feedback from Victorian educators, including thorough formal monitoring of the implementation of the Victorian Curriculum over the last four years, which many of you have contributed to, significant consultation conducted by the Australian Curriculum and Assessment and Reporting Authority, ACARA, in reviewing the Australian Curriculum F–10 Version 9, and advice provided by Victorian teachers from across all sectors. We've had over 255 Victorian primary and secondary teachers participate in panels over the last eight months. Their advice has been very valuable in contributing to the revision of each of the curriculum areas. I'd like to acknowledge and thank you all, as you've all contributed in different ways to the process in the last number of years.

Our objectives are to make the Victorian Curriculum more teachable and more manageable so that it's clearer to understand the content descriptions, achievement standards, and the continual learning across all levels. Our intent is to make it easier for schools and teachers to familiarise themselves with the curriculum and make it more efficient and effective in planning teaching and learning programs.

Additionally, the VCAA will be publishing supporting resources, templates and exemplars iteratively to support each of the learning areas, capabilities and CCPs.

Finally, the revision will ensure that there is a sequenced learning journey from birth to 18 for all Victorian students, the F–10 curriculum being a fundamental cornerstone in the transition from Victorian Early Years Development Framework through the F–10 curriculum and into senior secondary pathways.

It is important to note what has not changed during the revision process. The overarching structure of the Victorian Curriculum will continue to be organised around learning areas, capabilities and cross-curriculum priorities. Victoria continues to value and promote the importance of the disciplines and we will continue to offer unique curriculum such as the EAL and the A to D curriculum. We'll also continue to ensure that the curriculum is organised in two-year bands for all areas other than English and mathematics.

On the A to D curriculum, it's important to acknowledge that this is a unique curriculum to Victoria and therefore is not subject to the National Review. Victoria values the importance of this curriculum for students with significant intellectual disabilities and additional learning needs. Therefore, the VCAA will be engaging in a rigorous process and engagement with this community of schools, students and teachers to ensure this curriculum continues to meet their needs into the future. In the meantime, schools and teachers can continue to deliver the current A to D curriculum until the new one is revised and published.

Teaching, learning, assessment and reporting are the key components that schools plan for. The requirements for reporting are set by the sectors, as I've already stated, so Department of Education, Catholic Dioceses and individual independent schools. So again, please, I direct any questions around regarding reporting of mathematics to those particular sector authorities.

As you already know, the Victorian Curriculum F–10 Mathematics Version 2.0 and supporting resources are now published. We will continue to publish these resources throughout the coming weeks and into next year, so please revisit the website on a regular basis.

You may be well aware the Department of Education, the Catholic Education Commission of Victoria, has indicated to their schools that they can implement Mathematics from 2024 with full implementation in 2025.

Most importantly, irrespective when your school or your sector chooses to implement the Mathematics Curriculum Version 2.0, the VCAA will be here to support you with resources, professional learning and advice on the Mathematics curriculum.

Now, I'll hand over to Michael MacNeill, the maths expert.

**[Michael MacNeill]:** Thank you Gerry and thank you everyone for joining us this afternoon.

As Gerry said, schools are incredibly busy places and so I greatly appreciate your attendance here.

Tonight, we want to explore some of the revisions that have occurred for the Maths curriculum and what some of those, what some of the implications will be for the implementation through familiarisation.

So it is with great excitement that we do present the Mathematics Curriculum Version 2.0.

There have been a number of changes that have occurred. One of the greatest ones provides a greater opportunity for students to engage with the essential knowledge and skills that they're going to require into the future.

The curriculum was developed through the revision process by a panel of teachers from both primary and secondary, teachers from all sectors, including Maths education experts and academics and the Maths Association of Victoria. It was a very deep element of expertise and experience that contributed to the revision process.

The result of that revision process was that there was a more manageable strand structure. The proficiencies, which had frequently been seen as separate to the curriculum, or at least the connections weren't clear, are now embedded within the content of the curriculum. There's greater scope now to make connections across the Mathematics curriculum as well from the different strands. The content descriptions themselves are clearer in the way that they are written and they're better aligned to the achievement standards. There's been some movement of the content and that generates a greater alignment with both national jurisdictional testing and also international jurisdictional testing. It's a future-facing curriculum. There's more connections that are available for teachers to engage with, with their students in terms of the utilisation of digital tools where the teacher deems it necessary and appropriate. And there are stronger links that can be made across different strands. There's a stronger alignment with VEYLDF, and then there's also a continued alignment and a stronger alignment, we believe, between Level nine and 10 and VCE.

The key structural revisions in a slide are presented here.

There's an expanded introduction section, which provides a clearer explanation of how mathematics fits in to the greater curriculum and where it sits in the contemporary landscape.

The Aims have been made robust and there's an expanded learning in section, which provides details on what learning would look like in the subject.

The level descriptions have been made more accurate, with greater detail about the content and what the expectations might be, and there's clearer articulation of both the achievement standards and the content descriptions.

There are more elaborations now as well, and that's designed in order to empower teachers to engage with their own professional discretion and agency in selecting the way, the means by which they're going to connect the content with their particular cohort sitting in front of them.

Some mathematical processes have been more closely woven into the fabric of the curriculum, and the Aims have been expanded to more clearly articulate what students who are exiting the curriculum experience after a number of years would display, dimensions of success if you will, of the curriculum.

The proficiencies, familiar proficiencies are far more clearly written into the content.

The content descriptions themselves, they better encapsulate what's intended.

And then of course, the connections with the digital tools to be used at the teacher's discretion to provide a greater chance to enhance the learning of the students through those experiences in a digital environment.

The key skills, mathematical modelling and statistical investigations are a vitally important inclusion, made far more prominent and really permit students to connect the abstract mathematical concepts with the real world.

So the Aims. I wanted to highlight how they've been made more robust and some of the words that have been highlighted, you can read them here on the screen.

We want students to, at the end of their curriculum experience, to have developed useful mathematical and numeracy skills for their life as a citizen, understanding that the world is evolving and the technology, a technological world expectations for a citizen engaging in the world today are far greater and they're continuing to become more sophisticated and complex.

We need students who are going to be confident, proficient and effective, and importantly, adaptive users of mathematics as they need to be.

Communication of mathematical ideas is absolutely vital, and we really want students to be able to develop a mathematical mindset and to be able to judiciously engage that mathematical mindset as context and scenarios present themselves.

We also want to promote the development of a positive disposition towards mathematics and an understanding of just how important it is for engagement in life beyond schooling.

The mathematical proficiencies that are written into the curriculum for Mathematics 2.0 are familiar proficiencies, so I won't describe them beyond the mentioning here in the diagram, but the third dot point here resonates for me. The proficiencies speak to the ‘what’ and the ‘how’ of mathematics in action, and they would be the dimensions of a successful user of mathematics, a citizen, a student, who can engage at the appropriate times, recognising the appropriate contexts to pick up a mathematical approach as it would be appropriate. And also knowing when to disengage that mathematical approach should the situation not require a mathematical approach. They've been written very clearly into the content descriptions now. I've highlighted some words there to highlight the mechanism, and the mechanism is through the verbs that have been utilised in the writing of the content descriptions.

The content descriptions themselves can see a delineation, where some of the content descriptions really lend themselves to understanding and fluency and some of the content descriptions will lend themselves to reasoning and problem solving. The Australian Curriculum for Mathematics Version 9 had a very clear demarcation for this. Now, the Victorian Curriculum for Mathematics Version 2.0 does bear a close fidelity to the Australian Curriculum Version 9, particularly for Levels F to two. However, it's not facsimile and it has been adjusted for the Victorian requirements. And in doing so, the panel has modulated some of the content descriptions to ensure that they better encapsulate the proficiencies.

On a first reading, teachers will be able to see very quickly that the strand system has been adjusted and the dual strands have been decoupled. Familiar names, for sure, Number, Algebra, Measurement. Space replaces Geometry, and then Statistics and Probability. Probability commences at Level three now. I won't speak to that too much in this webinar. I have spoken about it in a previous webinar.

Teachers can continue to utilise familiar connections. Where it is appropriate, Number and Algebra may present a learning opportunity for your students, similarly with Measurement and Space, Statistics and Probability. However, the decoupling presents new opportunities for teachers to engage learning for their students and you may seek to draw some connections, perhaps across the Number and the Space strands, or Algebra and Measurement, when you're designing learning units.

A learning unit might look something like this, where we've got a unit that's centred on right triangles, where we have content descriptions from Number that are linked to the achievement standard and also from Measurement that are linked to the achievement standard, permitting a learning unit to occur that addresses the content and can have its assessment address the achievement standards.

The continuum of learning is illustrated through the achievement standards, and there are closer connections and a greater flexibility in these now.

Moving horizontally through the Number strand, we can see the progression of sophistication as the students learn in that particular strand across Levels seven, eight, and nine.

Similarly, looking only at Measurement, we can see the progression of learning from left to right. However, there's also a connection vertically between these and the progression of, students' progression can be tracked by linking the two strands' achievement standards together.

I've utilised some scope and sequence from statistics here as an illustration of how the sophistication of the content and thinking evolves through the levels.

So that was some of the curriculum structure or structural changes.

I'd like to look now at some of the more specific revisions and how that might impact on particularly your planning and your familiarisation.

So a lot of the changes can be placed under an umbrella. The first really obvious one, which is one of the changes that the panel was really quite excited about, the inclusion of this and the robustness that it adds to the curriculum - emphasis on mathematical modelling and statistical investigations. Really addressing that concern and implementing our learning that the Victorian Curriculum Version 1.0 highlighted, where we need to connect and we need students to be able to connect procedural mathematical facts and associated procedural skills to the real world.

And the vehicle for achieving that is through mathematical modelling. We'll talk about that shortly, and the statistical investigations that really present opportunities for students to reinvigorate their interest in the subject and reengage with it.

There's a continued emphasis on computational and algorithmic thinking and there's the new inclusion or the provision of pseudocode to support teachers. I'll talk about that more when I talk about Level 10 and the notion of a familiar coding language being, or teachers being supported in the event that they are not as familiar with coding languages.

There are a small number of new content descriptions that extend the scope of the ideas, in particular at Level eight. Level 10, there are two, and again, I'll talk about those shortly.

Changes to the content and what things will look like and how to look for them. And there are supporting documents that Leyna will speak about in the third section of this presentation.

Where content has been consolidated, and these are times when the panel identified that it would just make sense in order to combine these ideas, where teachers were predominantly teaching the content in a combined fashion in any case, and this is a great example where this has occurred.

In some occasions, there is new content which teachers will recognise on a comparison against the Australian Curriculum Version 9 for Mathematics. However, it's important that teachers are aware that any new curriculum adopted was very carefully scrutinised to ensure that it fitted in with Victorian priorities and standards.

The three brand-new things to look out for, at Level eight in Space - there's now the inclusion of mapping in the third spatial dimension for, under the strand of space. This was really included in order to open up those learning opportunities for students away from two-dimensional mapping and also provide the opportunity for the engagement with dynamic geometry software to utilise that electronic environment to expand upon their learning opportunities.

And at Level 10, two new inclusions.

Logarithmic scale. I think it's really vital that teachers are aware that we haven't included the solution of logarithmic equations, that's not what's going on here. The particular use of the word logarithm at Level 10 is really now confined to the strand of Measurement, and it's not designed to have students solve logarithmic equations. That remains an element of Level 10A. Again, I'll talk about that one shortly.

And also, the inclusion of networks and network diagrams in Space as a vehicle to introduce some content prior to VCE, but also an acknowledgement that this is a rapidly expanding area of investigation in mathematics.

There are some instances where content has been realigned down levels and it's important that teachers know what the content is that is going to be moved. That has been mapped and it will be identified, and it's important for teachers to know it does need to be covered at both levels in the first year of implementation.

This is a list of the elements that are there. It looks like a lot on an initial look and a closer examination will reveal that the content has been specifically identified, but it's perhaps also content that was already being introduced at these levels, or at least during these years or these grades where students would've been encountering them.

Probably the most prominent one is the introduction of Pythagoras' theorem at Level eight. I'll talk about that in a moment.

Just on Pythagoras' theorem, that was introduced at Level 10 for jurisdictional testing purposes to ensure that Victorian students have a curriculum experience of the content prior to that testing. However, it's also important to note that Pythagoras' theorem constitutes an element of the analysis of right-angled triangles, and that analysis has really been spread now across Levels eight, nine, and 10 in a far, far more scaffolded fashion. And that's in order to streamline the learning for students in this topic.

The Level 10 revision, now a quick comparison of AC nine for Maths against VC two will reveal that the Level 10, in particular Algebra, has been retained from the Victorian Curriculum Version one. And there were a few reasons for that. Predominantly, to ensure that the students will receive the appropriate preparation for VCE Mathematics subjects and also to ensure that there was clarity around what ought to be taught in terms of Algebra, and that was really the driving purpose in ensuring that the content was separated out in the fashion that it has been.

It's also important to note that the improvements from the Australian Curriculum are also included in Level 10 and these continue to provide that preparation for VCE Math subjects.

Engaging with some of these key elements. So I'd like to talk here about a few of those elements which are going to require perhaps a little more scrutiny, and perhaps you are already including this in, as part of your teaching or as part of how you present ideas to your students.

The mathematical modelling is the first one that I'd like to talk about. And that's this notion where we're we start in the real world with some real world or a theoretical construct which may exist in the real world, and then we apply a mathematical model in order to try to make sense of data or points or observations. And through the development of a mathematical model, inferences or observations may be made. And at some stage, a verification of how consistent or effective the mathematical model would be should be engaged with. It's a cyclic schema and so it doesn't have to involve just one cycle around. And at some stage a key element would be to have students perhaps compare different mathematical models to the same situation and make some decisions around efficiency of those mathematical models.

They're embedded in the content descriptions. And while I think I've got two elaborations that are on this slide here, it's important to note that for any of the mathematical modelling content descriptions, we've provided a significant number of elaborations that teachers may use should they wish to, but should also absolutely feel free to engage with that agency and select a context that your students are engaging with in their world. And perhaps a visual explanation of how that might work is on the screen here, where we're looking at travel and costings and what might be an appropriate setup, a mathematical setup for interpreting that situation.

And again, an emphasis for, of the skill would be to evaluate the mathematical model itself to determine perhaps its efficiency or a comparison of efficacy against other mathematical models.

Statistical investigations are another means by which students are going to be able to connect those abstract concepts with their real-world experiences and follow a similar pattern to what the mathematical modelling will do, where students will need to develop a particular question around what they might be observing in their life. Again, we have many elaborations to support teachers in starting off that process, but the process should involve students developing a question based on their knowledge of Statistics and where they're up to in terms of content, and then developing a set of statistical observations or interpretations and then interpreting that data and drawing findings, which may be answering a question, they may be proving, or I hesitate to say disproving a hypothesis of some kind if teachers wish to take it down that line. I use the word hypothesis there. This is not the same thing as the hypothesis testing from Specialist Mathematics. This is really a section of the course where teachers have got greater agency to engage with their students' learning in a manner that really connects mathematics to the students' own experiences.

Experimentation with mathematics, through the engagement with digital environments. We've got three examples here of what that might look like in a particular strand.

For Algebra, the notion that graphic software will allow you to transform a standard form for a graph, whether it be a linear graph or a parabola or even a polynomial if you're engaging with Level 10A, and being able to build within students an understanding of what transformations of that might look like.

For Probability, the utilisation of simulations in order to gain long-term perspectives and examine frequencies.

For Space, utilising algorithms to explore geometric constructions and theorems. There are many online tools to facilitate that. And this has again been hardwired into the content descriptions.

And again, the elaborations are presented in order to provide prompts for teachers in terms of where they are, you know, where they might need to look to begin the process of developing learning units and learning activities.

Computational thinking has benefits that have been well recognised in the literature and the VCAA has identified a four-part approach to computational thinking. Now there are many models for computational thinking in the literature, some far more sophisticated than we'd need to engage with; some, a lot simpler and perhaps not as readily engageable for the classroom operation.

The four elements that we at the VCAA have identified as essential for computational thinking will be decomposition, pattern recognition, abstraction and then the engagement with an algorithm.

It's important to note that computational thinking is separate from or different from the utilisation of programming, coding and it doesn't necessarily require engagement with a digital environment. It can, but it doesn't have to. In the previous writing of the curriculum, there was an indication that students need to engage with a simple coding language or a simple programming language for the development of algorithms. That's not necessarily a fit for everyone. And pseudocode was introduced into the VCE study design for 2023 to 2027. It's been similarly introduced at Level 10 as part of content and as an elaboration at Level nine. And the purpose of pseudocode was to provide a common vernacular for the discussion of algorithms between teachers and students, teachers from different schools and students from different schools, that doesn't rely on a proficiency with, or an aptitude, I should say, for coding within a coding environment. It does require some structure to it and what's on the screen looks a lot like it should be some element of perhaps Python coding, but it doesn't have to be. There are some particular reserved words and key words that are utilised and this, there are some conventions for setting out the pseudocode.

The intention is that students will be able to engage with processes of substitution, iteration and recursion as they may encounter them within the curriculum. And in doing so, utilising pseudocode or a coding language, a simple coding language if that's what is appropriate for your students, is that they'll be able to modulate their thinking and develop that approach, that thinking approach to the solution of mathematical problems.

It's come up as a bit small on my screen, but the VCAA do have a pseudocode page which introduces ideas and provides many samples of code, of pseudocode I should say to illustrate how it may be implemented. It is designed to support the VCE Units one, two, three and four, for Mathematical Methods and for Specialist Maths. However, the explanations, there's an explanation section in there which is just as relevant at Level 10.

Finally, I'd like to talk a little bit about Level 10A to dispel any myths that might exist around Level 10A. I find that Level 10A is probably better described by what it's not rather than what it is. And it's not designed to be a substitute for Level 10. It's designed to complement Level 10 content and it doesn't facilitate the learning of Level 10 content, nor does it provide in and of itself an adequate preparation for VCE.

The content in Level 10A is designed to support teachers or students or teachers and students in terms of providing a means of extending this student study in key areas of interest or where teachers may determine that students require a bit of a push along in certain areas.

It's cognitively positioned between Level 10 and Unit one and two. So in that sense it doesn't address anything from Unit one and two, key knowledge or key skills in the areas of study that would be required for the satisfactory completion of Unit one or Unit two.

Importantly is not required for access to the VCE Mathematics suite. It really is important, a vital point to make, that preparation for the VCE Mathematics suite is fully achieved through students engaging with Level 10. And I've chosen a couple of examples here of content descriptions. So in the top-left corner we see the concept of a polynomial, but a quick look at that will indicate that while factor and remainder theorems can be explored particularly in a digital environment, they don't constitute in and of themselves a sufficient exploration to gain a satisfactory completion of Unit one.

The rates of change or the average rate of change of a function and the idea of moving towards limiting values for an average rate of change is, again, it's positioned between Level 10 and Unit one or probably Unit two, really if we're thinking about calculus and instantaneous rates of change.

And the notions of bivariate numerical data positioned between, again, between Level 10 and Unit one of General Mathematics.

I will hand the controls back over to Leyna.

**[Leyna Buller]:** Thank you, Michael.

As I mentioned earlier, my name is Leyna Buller and I'm the Senior Policy and Strategic Advisor for the F–10 Revision project, and I'm here to speak to you regarding familiarisation for the Victorian Curriculum F–10 Mathematics Version 2.

When we use the term familiarisation, this encompasses both professional learning, like we're doing right now, as well as support materials and artefacts.

Although this webinar and the series we've curated over the last few weeks will provide a solid foundation for teachers and leaders to access and engage with the curriculum, the VCAA in mid to late Term four will also be providing a learning module that will delve deeply into the Victorian Curriculum F–10 Mathematics Version 2. This module has been broken down into different chapters so that the end user can pick and choose their learning journey and cater their learning to the needs they are experiencing at any specific time. We have further individualised these modules for different audiences from leaders to teachers, and then individualised further for primary and secondary schools. We acknowledge that although there are some similarities in the needs of these different groups, and you'll notice that some of them do run across multiple different audiences, we also know that you have some specific needs and these need to be addressed in a nuanced manner if we are to support teachers to engage students and provide a learning environment that ensures they receive their learning entitlement.

This module will be accessible through a learning management system that will allow the user to enter in and out of chapters as they need.

Professional learning is a critical element of the familiarisation, but it requires additional, tangible artefacts to be as effective as possible.

In order to support schools with the revisions to the curriculum that Michael outlined, we have already published a number of supporting resources. These have been targeted at teachers' initial engagement with the curriculum such as the scope and sequence documents and the comparison of curriculums document that Michael referenced.

Yesterday, we published some exemplar assessment tasks that illustrate how achievement standards can be translated into meaningful assessments. There are two F to 6 examples, but there's also two 7 to 10 examples.

The construction of these support resources has occurred as a consequence of direct feedback from educators indicating this is an area that they would appreciate additional guidance and modelled examples.

If you go to the F–10 Mathematics Version 2 section of the VCAA website, you can download them now and look at how achievement standards can be modelled through an assessment task and they have a teacher section and a student section.

Next term, the supporting artefacts are diving deeply into the curriculum area planning, which includes templates, examples and guides. These are designed to support schools, leaders and teachers to consider the Victorian Curriculum F–10 Mathematics Version 2 holistically and cohesively within their specific school context and prepare for the potential implementation in 2024. Many of these resources you'll be quite familiar with, the curriculum mapping templates, which we've had for quite some time, curriculum area plans that are colour coded, year-long plans that'll show you some suggested ways that you could organise the curriculum should you choose to do it that way. They'll discuss and show you how you could choose to couple or decouple the strands as Michael was discussing.

In addition to these resources, we also have the Digital Assessment Library. The Digital Assessment Library is free to use for all Victorian schools as an ideal tool in supporting implementation of the revised Mathematics curriculum. The DAL contains over 137 mathematics assessments. The content on DAL will be iteratively updated over the course of 2024, so at the start of term one there will be already updated content on there and it will be indicated which areas can be retained from the current Victorian curriculum. So whether you are implementing in 2024 or not, all of those questions will be accessible to you. You can find out more about DAL on the VCAA website.

I've mentioned a couple of these websites over the course of the familiarisation materials that I've been discussing and so did Michael, so we thought we'd put the links here just for you to be able to access at a later point. These will be in the PowerPoint that comes out to you, but it's also in the chat.

To be notified by email about updates to the Victorian Curriculum F–10, about resources that are coming out including new resources and professional learning opportunities, please subscribe to the F–10 Curriculum update.

If after these presentations, if after the FAQs come out, if after we've emailed you, you still have some questions around specific support that you require, or inquiries, please feel free to contact the F–10 Revision team on this number and email address that's on your screen.

We now have some time to respond to questions that have been asked in the chat. We only have 12 minutes, effectively, so please be reassured that any questions that we don't manage to get to in the limited time that we have, we are collecting.

As I mentioned earlier, we'll be publishing an FAQ document post the briefings that have been taking place over the last three weeks and this week, and we'll respond to the questions that we've received most often in that FAQ. We'll collect them and then have a really clear response to all of them.

We'll also be including any frequently asked questions that we've been receiving via email so that it's quite holistic.

If the question is quite specific that we've gathered through the Q and A box, we have gathered your email addresses and we'll be in contact with you directly.

So, there are many questions in the Q and A, so I'm going to direct them at different panel members as to who might be the most appropriate to respond. I am going to ask my first question to Michael. Why is Pythagoras in the Year eight curriculum now?

**[Michael MacNeill]:** It is a good question, thank you, Leyna.

It's probably the most prominent question that has been asked for some reason. It's got a very simple and straightforward answer too. I alluded to it earlier, it's in order to ensure that students will have a curriculum experience of that particular element of content prior to any national or international testing which might be occurring, and to ensure that Victorian students have had those experiences.

However, it also makes sense in terms of the learning around right triangles where students will encounter Pythagoras' theorem in Level eight for the first time. And then the analysis of right triangles becomes more complicated at Level nine, including trigonometry for right triangles, and then more complicated at Level 10 in terms of the number types which are engaged with, including irrational numbers, and then also the notion of combining Pythagoras and trigonometry to complete a sophisticated analysis of right triangles.

**[Leyna Buller]:** Thank you. My next question's for Gerry.

Are there any particular resources such as textbooks that are recommended along the Victorian Curriculum Mathematics Version 2.0?

**[Gerry Martin]:** That's a really great question and textbooks are an important resource for teachers.

For the VCAA we were responsible for developing the curriculum and advice around assessment towards the curriculum. However, we don't endorse any commercially produced products to teachers or schools. That's the responsibility of individual schools to select textbooks that most suit the needs of their own environmental context.

**[Leyna Buller]:** Thank you. My next question is for Michael.

Do you have recommendations on how teachers should approach teaching content from 10A? For example, should it be reserved for advanced stream classes or the like?

**[Michael MacNeill]:** That's a great question, Leyna, and it goes to that notion of understanding what the purpose of Level 10A is.

The notion of an advanced stream class engaging only with Level 10A or alternatively engaging completely with Level 10 and then also completely with Level 10A is probably, it's certainly not how the curriculum is designed. That's not the intention of Level 10A.

Level 10A is really designed to provide some content which extends ideas and provides a context within which teachers can extend students either on an individual level, if you've identified that they have an aptitude for, you know, perhaps from the example I showed up earlier, if they have an aptitude for Algebra and for graphing then, and null factor law, then they may perhaps, you may perhaps want to have some of those students extended to explore polynomials and the application of null factor law to say cubic or quartic polynomials and you might want them to do no more of or engage with no more of the content at Level 10A.

Again, I have to reiterate, it is certainly not designed as a substitute for Level 10.

To complete all of the content that is in both Level 10 and Level 10A, would be enormously challenging and so it's also certainly not designed in that fashion.

**[Leyna Buller]:** Thank you, Michael. I'm going to go back to Gerry.

There is a number of mentions of using knowledge from First Nations peoples in the elaborations. Will support on how, will there be support on how to incorporate this be developed by the VCAA and supplied? If so when, et cetera, et cetera.

**[Leyna Buller]:** Thank you for asking that question. It's a really, really important question.

Aboriginal and Torres Strait Islander histories and cultures is a really important cross-curriculum priority in the Victorian curriculum and it's one thing we really focused on as part of the revision to this curriculum, and we will be making it more embedded in the Victorian Curriculum Version 2.0.

We've actually had a particular review panel focused in this space, been providing advice and guidance both in terms of the curriculum revision and also resource needs that are focused on Aboriginal and Torres Strait Islander histories and cultures. And they will continue to work with us right through the familiarisation period.

So yes, we will be developing resources particularly for how Aboriginal and Torres Strait Islander histories and cultures is embedded in all learning areas.

**[Leyna Buller]:** Thank you. Another one for Michael.

How can we make the content relate to real-life examples and hands-on, practical application activities?

**[Michael MacNeill]:** Great question.

I think that one of the things that excited me most about the new curriculum really is that notion of mathematical modelling and statistical investigations. A great starting point for that would be to read the curriculum. Those particular content descriptions are very easy to spot because they, almost all of them I think start with using mathematical modelling, so it's a quick search, it's going to be very straightforward for that.

The content elaborations are the starting point. There are a lot of mathematical modelling content descriptions for all of the levels and so going to any one of those, we're going to the appropriate level, we're talking about 7 to 10 today, so starting in Number or Algebra or one of those for Level seven, and then looking at those content elaborations that are next to the content description. That's a great starting point for ideas on how the content itself can be presented in a context for the real world.

Similarly with the statistical investigations. Under the Statistics strand, you're going to find that there are content descriptions that specifically reference statistical investigations, and again, the elaborations themselves provide a great starting point to develop those connections.

**[Leyna Buller]:** Thank you.

There's a few questions about familiarisation that I might respond to. So for example, will the VCAA create sample programmes for Version 2.0 and if so, when can they be expected?

We've created curriculum mapping templates, curriculum area plans and teaching and learning units that will be available early Term four. They are not exactly a sample plan. As you'd be quite aware, those sample plans are incredibly detailed and they would require more time than what we have at this point. But what we do have is quite clear architecture and ways that you could engage with the different levels of curriculum planning that will be available at the start of next term.

Late next term, the professional learning modules will be available for you to keep pushing into that further learning about how you could approach some of those deeper maths questions.

So not in its traditional sense, no, the sample programmes will not be available, but there will be many resources to support your planning available at the start of next term, and some new ones that have been created considering how schools currently organise their teaching and learning plans across the school.

Michael, I have a question for you. Have any topics been removed from the Mathematics curriculum to combat the new introductions/dropping of topics to lower year levels?

**[Michael MacNeill]:** Great question again.

There have been some instances where content has been removed, where duplication of the content was occurring somewhere else within the curriculum or where the content no longer complemented the learning which would occur under that particular strand. And so there's been some, for example, at Level seven design and implement mathematical algorithms using a simple general purpose programme, has been removed on the basis that the development of an algorithm appears somewhere else within a, with a contextualization. At Level eight, plotting graphs of non-linear real-life data, has again that notion is addressed somewhere else in the curriculum. So, it doesn't need to be present there. There are some other examples at Level nine and at Level 10.

One other dimension that I will address is that the mathematical concept of volume as opposed to capacity and a comparison between the two has moved from Level six to Level eight, and that's to ensure that in the, in F–6, the notion of capacity is consolidated within students, but also that that notion of volume in being defined as a partitioned space within a three-dimensional coordinate system is really addressed as something which is separate to capacity or different from capacity, and so that has been shifted to Level eight for its consideration.

**[Leyna Buller]:** Thank you, Michael.

That brings us to the end of our presentation today. Thank you again for your attendance. We hope you've taken away a lot from this session.

As mentioned earlier, the recording of today's webinar and the PowerPoint slides will be emailed to you all within the next coming days.

In the meantime, for links to resources and other information mentioned today, please take a look at the chat box. The chat and Q and A box will stay open for a short time post this, should you have any last-minute burning questions or comments you would like to make.

If post this briefing you have additional questions, please refer to the email that we provided earlier.

Responses to questions not answered during Q and A will be published in the frequently asked questions document on the website at the conclusion of all of these briefings. So, keep an eye out on for that or we will contact you directly.

Finally, we value your feedback from this afternoon's presentation. Please take a minute to respond to the survey before you leave. It'll pop up when you exit and if you could just take a moment to answer those questions. They've changed some of our webinars and briefings and they're definitely informing how we're going forward with some of our familiarisation, so any of your thoughts and feelings are greatly considered.

Thank you again and enjoy the rest of your day. Have a lovely evening.

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