**Erin Wilson** - Today, we are focusing specifically on an introduction and overview of unit three. We'll go through a fair amount of detail in relation to the study design, but I do know that we've only got an hour, so we're probably not going to cover absolutely everything that you desire or have time to think about right now. If you do have questions, I'll ask you to use the Q&A function that's at the bottom of the screen, so you just need to post there. We will answer questions as we go along or at the end of the session depending on how much time we have. Some questions we won't necessarily be able to answer because they're to do with your school or it's just not the context or the right environment to answer those questions right now in particular clarifications relating to the study design will be answered through FAQs that will be available at a later date, so that's just that aspect of it, but let's get started.

To begin with, I would like to acknowledge that I am on Dja Dja Wurrung Country right now. That's in Central Highlands part of the Kulin Nations. So, I pay my respects to elders past, present, and emerging particularly for the way they hold the memories, traditions, cultures, and hopes of all Aboriginal and Torres Strait Islander peoples across the nation, and I think it's really worthy and worthwhile of us considering how Aboriginal and Torres Strait Islander perspectives have informed our understanding of Psychology and will continue to inform our understanding of Psychology as well.

As I mentioned, today's purpose is really to focus specifically on unit three, to give an overview of the resources to consider as you begin your planning for next year, to introduce some new features of the Psychology study design, to talk about the new assessment structure for unit three, and then also to provide you with an opportunity to consider some of the revised unit three content and the ways that you might engage your students in your classroom in relation to that content. Those experienced people will know that the VCE and VCAL Administrative Handbook is updated every year, So next year, it's really important that you are referring to the 2023 version, the VCAL Administrative Handbook, we'll make some references throughout the presentation in relation to that document and then also the VCE Psychology Study Design for 2023 to 2027, which is in a nice blue colour this time round.

There's also going to be three particular VCAA resources for you to be able to access, the VCE study page and that will be updated to have a new look for 2023, and that will include Support materials, so we no longer have or publish what we call the Advice for teachers, we publish a range of Support materials under the headings of Planning, Teaching and Learning, and Assessment. They will be available early term four and then the examination specifications and sample materials will be also made available, hopefully by the end of this year for the examination specifications and then the sample materials by the beginning of term one next year.

So, they will both definitely be available for the beginning of your teaching next year, recognising that the end of year exam is in October next year. If we think about the structure of the new Psychology study design, it is very similar to the previous study design in terms of the scope and study rationale and aims Cross-study specifications that have overarching, all of the VCE sciences, units of study, outcomes, key knowledge and key science skills, and then within that level of assessment, satisfactory completion and levels of achievement. The Cross-study specifications have been updated in relation to the new study design so please certainly take the time, I know it's really nice for us to want to make checklists about the key knowledge for each outcome that students will work their way through so we can make sure we're ticking off all of the required key knowledge, but really the Cross-study specifications have been updated, broadened, and strengthened and they're just as an important part of the study design as those Area of Study blurbs and explanations as well, so hopefully you've taken the time to read those aspects as well, already.

The broad aims of the VCE sciences across all of the five sciences have been updated and so I've just got a little Wordle art graphic here for you, not a Wordle, I think it's a, oh, I'm getting mixed up with my five letter words, there's certainly more than five letter words there, but it's really highlighting the focus of the VCE sciences across each of our five sciences, so we're really looking for students to develop understanding, to think about data, to think about limitations, to analyse, to apply, to have an open mind, to be curious, to understand what science is and what science brings to our lives and what science allows us to understand and engage with. And then specifically to think about the aims of VCE Psychology. We're obviously looking at humans and we're looking at human thoughts, emotions, and behaviours. We're thinking about what kind of approaches and models and theories and concepts we can use to understand human behaviour, to understand human thoughts, to think about how we might predict those and then also to think about how we can understand and enhance our understanding of mental wellbeing.

In the context of safety and wellbeing, there has been an increased focus in the study design across all areas of studies to focus on a strength-based and culturally safe and inclusive approaches in the delivery of the content and delivery in the classroom. To really support students' health and wellbeing. This is informed as well as the progression from the F-10 health and personal social learning curriculums. I know that one of the things that's always a challenge sometimes when you teach VCE Psychology is that you can live in your bubble of VCE Psychology, and we don't necessarily always engage with what is happening at the F-10 space, but I think one of the strengths around the new VCE science study design is really that continuation of learning from F-10 into VCE.

It is making sure perhaps your whole time in relation to the VIT professional learning requirements and professional rating will be taken up with understanding the place of the VCE Psychology Study Design in relation to the F-10 curriculum, but really thinking about appropriate safety proportions, cultural responsiveness, and providing the opportunity for you as the teacher to select teaching and learning activities, practical work, scientific investigations that best suit the school and student cohorts. And it really is one of the strengths of the VCE, the VCE with school-based assessment and then also that external examination allows you to design a programme that best suits your students and cohorts.

So, we expect to see different curriculum and assessment plans in every school that delivers VCE Psychology, because that's showing that you are supporting your students health and wellbeing, and then also being culturally safe and responsive as well and thinking about that strength-based approach to the curriculum. So, what does that mean? It means that we are looking at Psychology from an academic perspective. There is a little bit of probably legislative requirements placed on us more so than some other teachers when we work in the VCE sciences and we work specifically with humans and with human subjects, so we do have a duty of care in relation to the health and safety of our students. There is legislative compliance.

We need to adhere to community standards and ethical guidelines recognising that different communities and different schools will have different standards and ethical considerations, and that we also need to have respect for persons and difference of opinion. It's really important just as a reminder, if you are an experienced teacher of VCE Psychology, or if this is your first webinar that you've done with the VCAA, because you are in your first final year of teaching, you're going to be teaching VCE Psychology next year, that we provide appropriate supports and referrals in relation to individual health and wellbeing to students, because we are looking at it from a holistic academic perspective. We need to make sure that we're not asking students to disclose personal information or be asked to provide perspectives based on personal experience, identity, and or cultural background. And, also in that context, just be aware of the potential for othering and to take steps to minimise it.

There is further support that will be available in the Support materials under planning, in relation to safety and wellbeing. But these are just some things for you to consider first and foremost, in terms of an overview of this aspect of the course. The ethical conduct of scientific investigations will look very familiar. It has been updated, it has been updated to include documentation relating to the ethical conduct in research related to Aboriginal and Torres Strait Islander peoples in communities and there's some really useful guidelines for researchers and stakeholders so I would certainly encourage you if you're thinking about developing your understanding and knowledge in relation to Aboriginal and Torres Strait Islanders perspectives within the curriculum to refer to that document, as well as the updated other legislative and documents that have always been included, but then also the Australian Institute of Aboriginal and Torres Strait Islander studies code of ethics, for Aboriginal and Torres Strait Islander research.

And the links to these documents are front of the study design on page nine and 10. So make use of that and noting that the NHMRC statement on ethical conduct was updated in 2018. So, for the last time you accessed and download that document was in the beginning of the last study design you'll need to access it in. And then also the Prevention to Cruelty to Animal Regulations have also been updated too. I did mention that the Cross-study specifications have been updated, so previously what we used to have was key science skills and then a section on scientific investigation. Now the scientific investigation section has been updated to focus on nine scientific investigation methodologies and then we have these other areas within the Cross-study specifications across all the sciences, which are really that continuation from F-10 into the VCE studies that look at critical and creative thinking, ethical understanding, individual and collaborative scientific endeavour and Aboriginal and Torres Strait Islander knowledge, cultures, and histories.

The key science skills are just as important as the key knowledge that are included under each Area of study. You need to make sure that they're contextualised to VCE psych. One of the things that we often see great teachers do is specifically referring to the Unit 1 to 4 Psychology key science skills, remembering that by the end of year, unit four students who to demonstrate all of those key science skills that are included on page 12 and 13. So please make sure you make them explicit, that you give lots of opportunities to practise and then to deploy them in new contexts, and they have been updated for all of the new VCE science study designs, really to provide scaffolding and support and clarity around what we expect students to be able to do, remembering that skills are being able to do so unit four Area of study three includes the knowledge in relation to conducting the student-designed investigation, and then when we're talking about the science skills, we're talking about what we are asking students to be able to make, say, or do.

So, we're asking them to be able to plan and conduct investigations in the new study design and we're also asking them to generate, collate, and record data. We're asking them to analyse and evaluate data and investigation methods, recognising that they may have chosen a particular methodology, and then they've enacted a method to be able to generate the data. We are broadening it to ask them to think about constructing evidence-based arguments, as well as drawing conclusions and then also we're asking them to analyse, evaluate, and communicate scientific ideas. So, it's very familiar, but there has been a change in focus on some of those key science skills to really allow our students to think critically, creatively, and respond to the needs of society in 21st century kind of issues that we're regularly coming up against and providing a range of opportunities for our students who leave VCE Psychology to engage in critical scientific thinking. So, what we need to see is we need to see opportunities for teacher-facilitated, student-adapted, and student-designed investigations across Units 1 to 4.

The scientific investigation methodologies, there's the nine listed there. The majority of those will be able to generate both primary data, will involve the generation of primary data. Obviously, a literature review is usually the collation of secondary data. So, it's just useful for you to think about which ones will be most likely to support the practical work hours that are in the new study design because science and Psychology exists by us testing ideas, by exploring models and concepts and theories and that is done in a practical way. So practical work is a central component of learning and assessment. It includes any of the direct experiences described in the scientific investigation methodologies and you will note that there is a minimum of 10 hours of class time we devoted to practical activities across areas study one and two for unit three.

Logbooks still exist and are still in the revised study design. They need to be recorded as part of unit three for recording, authentication and assessment purposes. They should definitely be used towards the assessment of satisfactory completion of an outcome and then it is a school-based decision as to whether you use those as part of assessing student's level of achievement through School-assessed coursework. There's no specific format that's prescribed, however, recognising that logbooks, you know, that the falsification of results is a critical thing for you to think about in terms of authenticating students' work and just like in typical scientific research, we need to be sure that our results are verifiable. It is something for you to think about in terms of when you are deciding what's the best presentation format for your school, to be able to use that aspect in terms of satisfactory completion of an outcome.

The other section that is new to the Psychology study design, in fact, all of the VCE sciences, is a section called 'Terms used in this study'. You will see that there are definitions provided in relation to contestable terms in the study design or terms that need a specific focus for VCE Psychology or specific focus for the VCE sciences. Further information regarding the data and measurement terms in particular will be available in the Planning section of the Support materials, including some examples and breakdown of those terms as well. I'd also encourage you to have a look at the other sciences. The VCE Biology and VCE Environmental science study designs were implemented this year, so the new Support materials structure is already up on those web pages so if you are keen to get a little bit of a peak or have a look at what the Planning section or the advice around some of these new terms that is provided, have a look in the Planning section for Environmental science and Biology.

Also have a look at the Assessment section too because that will give you some advice around just general assessment approaches while we are waiting for the publication of the Support materials for Psychology, that are specific, to be available. There are general explanations and guidance and advice under both of those studies that you can already and readily access. If we're thinking about Aboriginal and Torres Strait Islander perspectives, I think the first, main thing, for us to recognise is that Australia is home to two distinct groups of Indigenous peoples, so we do use the term Aboriginal and Torres Strait Islander perspectives in the design, and then when we're talking about Indigenous peoples, we're talking about that from a worldwide perspective. So, together the phrase Aboriginal and Torres Strait Islander peoples refers to the group of peoples that live across Australia and throughout the Torres Strait. I think it's really important that we do recognise that we talk about peoples, and we hold that in our consideration throughout any of the teaching learning activities or discussions that we have with our students, because there are many different nations, cultures and language groups.

And the link there, so the slides will be available to you via the VCAA website, we'll pop a recording of this up on the VCAA website, as well as the slides so you'll be able to access the hyperlinks, but hopefully you are familiar with the Australia Institute for Aboriginal and Torres Strait Islander studies map. But if you are not, then that's a really useful map for you to be able to identify the major land use groups and their geographical locations within Australia and the Torres Strait. If we're thinking about in the context of unit three and Aboriginal and Torres Strait Islander knowledge, culture and history, it's really important to know who the Traditional custodians of your local area are.

So, for me, that's the Dja Dja Wurrung Peoples or the Djaara People, and they are a recognised Aboriginal or registered party, so an Aboriginal registered party and so there's opportunities for me to potentially engage with local elders and or Koorie organisations when I'm thinking about content in relation to memory, or I'm thinking about content in relation to learning. So what opportunities are there for your students to think about local perspectives? What about engagement with regional, state, national, and or international perspectives? And if you look at the front of the Psychology study design, and that's on page 17, you'll notice that there is an explanation around the fact that the Victorian Koorie community preferred education model encourages us to think about local first, then regional, state, national, international, recognising that from a VCE study perspective, there are many opportunities when we might be thinking about national and or international perspectives.

So, the Koorie protocols, VAEAI, is the peak Koorie community organisation for education and training in Victoria. Because we are talking about state, we are using the term Koorie to recognise that the Koorie people are the traditional custodians, or their countries are in what we identify as Victoria. And it's really important to have a look at those protocols for Koorie education in Victorian schools if you haven't, and the link is there, or else just Google it to find it, if you haven't yet downloaded that document to really read and engage and think about that. There's also further support on the VAEAI page about embedding perspectives, they put out a regular newsletter that talks about, particularly focused on F-10, but I think it's useful for us, for me as a non-indigenous person, I found it really useful to engage in the content and think more holistically and broadly so that I can really think about making sure that I'm thinking about content from a cultural relativist perspective and so there's some more information sources here that are available to you to really think about using those Koorie voices and Aboriginal and Torres Strait Islander perspectives. There's a number of resources there.

The other one that's more generally related to science as the Indigenous Science Network and again, provides you with a range of opportunities to increase your own cultural understanding, your own cultural awareness as well from that perspective too. This quote from Lisa Daly of Cultural Minds, I think is really useful for teachers, particularly non-indigenous teachers of Psychology to recognise that there's a distinct difference between teaching Aboriginal culture and teaching about Aboriginal culture. It's really useful to think, particularly for me, I think about what's the inside knowledge and the outside knowledge. What's the outside knowledge that it's appropriate for me as a non-Aboriginal person to teach in relation to Indigenous Psychology or Aboriginal and Torres Strait Islander perspectives. And then the onus really is on us to learn about Indigenous Australia, just in the same way we inform ourselves about any other subject that we teach. There are some specific considerations, and these make sense for any student or any cultural group, that we shouldn't be asking Aboriginal and Torres Strait Islander students to be singled out to speak as experts or provide their perspective on Aboriginal and Torres Strait Islander cultures, histories, and perspectives.

And we also need to make sure that we are avoiding, sorry, scenarios which may be seen to be culturally stereotypical or may be triggering for Aboriginal and Torres Strait Islander students. What we are really asking you to do is include learning activities that focus on demonstrating and applying factual knowledge of the concepts, approaches and models, and when you're selecting resources, think about whose voice is represented in the resources, who is speaking and from which country and what perspective. It's really important that where possible we use Aboriginal and Torres Strait Islander perspectives and voices in our content that we select, so use that when you're thinking about what resources you will access or use in your classroom. I think it's also really important that, if you've done any sociology training or you've worked in or engaged in the sociology space, to understand the difference between cultural relativism and ethnocentrism, and then consider how the representations that claim to be or could be interpreted as culturally relativist or ethnocentric.

And if those words are a bit unfamiliar to you, that is absolutely okay because that content is covered in the VCE Sociology study design and we have a really distinct separation between obviously VCE studies, and content that's covered in VCE Sociology can't be covered in VCE Psychology, but if your school offers VCE Sociology, then that's certainly a great source, your teacher, your Sociology teacher will be a great source to think a little bit more about how you might engage respectfully and appropriately in relation to these conversations.

The other thing is the F-10 Intercultural Capability resources, that there's a range of resources available to support the delivery of Intercultural Capability. And again, as VCE Psychology teachers, sometimes we don't necessarily know, well, we should know, hopefully if we've got a whole school curriculum plan of where our students are engaging with Intercultural Capability in the F-10, 7-10 space, but thinking about accessing these resources too. And then of course, remembering that it's really important to remember that Aboriginal and Torres Strait Islander perspectives are distinct and separate to the perspectives and experiences of people relating to multiculturalism and migration.

There's more resources available for you from an F-10 perspective that you'll able to access via the VCAA website in relation to that. What we've got too now is we've got, if we move on to critical and creative thinking, thinking again, back in terms of what are the opportunities I'm going to provide my students in relation to critical and creative thinking for unit three. So, these questions tie in the key science skills with the key knowledge for area study one and area study two. It'd be really good to be able to have these questions as a checklist, to be able to say where across unit three have I given my students the opportunity to develop questions and to test hypotheses. To design and respond to questions. To make reason predictions, to evaluate knowledge, to clarify content, to think about alternatives, to think about evidence-based decisions, and then where to design, devise real or imagined solutions, real or imagined solutions and solve problems, as that really ties into that scientific investigation methodology relating to product process or development. If we're thinking about ethical understanding, it is slightly broader than the previous study design.

So, we've got ethical guidelines and then we've also got ethical concepts. We're asking students to think about what opportunities are there to consider the implication of their own and others' investigations. What does it mean to imply integrity when recording my outcomes or the outcomes of their investigations? What does it mean to apply integrity when thinking about my own data or others' data? Where is the opportunity for me to consider ethical issues, to consider values and factors that influence responsible science related decision making. If the last two years have shown us anything it's shown us that life is unpredictable and that we can't certainly be certain, but also that ethics and responsible science-related decision making is a really important part of our lives and is certainly something for our students to be supported to engage in, so that's supported through the new aspect of ethical understanding.

Then we've got individual and collective scientific endeavour. We certainly couldn't have got through everything we've got through in the last, actually a bit scary that we're almost saying three years, but anyway, it was nice when we were just saying 12 months, but now we are getting up to three years and maybe this is what normal looks like. But anyway, you know, it's the collective scientific endeavour that allows us to develop new theories, to gain new understanding. So how are you going to support your students to offer viewpoints and suggestions while respecting the perspectives of others? How are you going to get them to support and work together? And it's a really interesting thing to think about, unit three is about our students developing or demonstrating their own satisfactory completion of an outcome and that work to be authenticated. Unit three is about students demonstrating their own levels of achievement, but how you also provide opportunities for collective and individual scientific endeavour as well. VCE assessment is obviously critical.

This is a very familiar slide to you, I'm conscious of the time, so I'm just going to say, Please make sure that you read the VCE Assessment Principles, and you understand what we mean by being valid, reasonable, equitable, balanced, and efficient. The new study design I think certainly helps meet the VCE Assessment Principles. We now have a much more balanced approach between the external examination and the School-assessed coursework, so we have a 50/50 split between the external examination and then School-assessed coursework of 20% and 30% so each Area of study is now worth 10%, and really that provides students the opportunity to design or schools to design teaching and learning activities for specific cohorts of students with assessment that's personalised to them.

So, I feel like I say it all the time, but school-based assessment is unique to the school and should be different to every single school and every cohort of students, because this means that you are designing an assessment task that allows students to show their levels of achievement, that best suit your students because you know them best and it is the strength of the VCE. We've seen it over the last three years that school-based assessment and external assessment, and the balance between those, has held up really well in terms of the integrity of the VCE certificate and also the fairness and equity of assessing students results.

There are two forms of assessment for each outcome satisfaction completion of an outcome and School-assessed coursework tasks, and Thea's going to provide you some really good examples of how you can think about satisfaction completion of an outcome, and then School-assessed coursework tasks. I cannot stress enough the decision about satisfaction completion of a unit is distinct from the assessment of levels of achievement. Satisfactory completion of a unit is an ongoing formative and summative assessment process that happens throughout the whole unit, and so what we are really wanting to see is we are wanting to make sure that you have seen a wide range of work that the students have completed in relation to the outcome statement that allows you to tick off that they have satisfactorily completed that outcome.

It is a school-based decision as to how you do, so when we're talking about school-based assessment, it's a school-based decision in relation to the conditions and arrangements. What you need to be able to do is you need to meet the VCE Assessment Principles, the study design requirements, the requirements of the VCE and VCAL Administrative Handbook, and most of all, be able to authenticate students work. Some lofty requirements sometimes I think, and if I think about myself in the classroom as a teacher, it's a fair requirement for us to be able to tick off and say, this student has met this requirement of this certified course, but it is just really important for you to think about how you plan that and use your skills and expertise in relation to assessment. To support you developing your skills and expertise in relation to assessment, there are videos that are available as well, and there is also what we call the VCE, 2022 VCE teacher's checklist. Now this will obviously be updated for 2023 as well, but if you are in the process of wanting to start to think about planning for 2023, then this checklist is a really good one just for you to start thinking about how you're going to work through that as well. And to start now talking about how we might plan and consider the checklist and all the things that I've talked about in the last 35 minutes, I'm going to pass to Thea now.

**Thea Carbines** - Okay, here we go. Hello everyone, my name is Thea, I'm in Geelong on Wathaurong Country and I pay my respects to the custodians of this beautiful land, including the You Yangs, Corio Bay, the Barwon River and the coast. I've taught Psychology through a few different study designs now and I feel really honoured to have been asked here by Erin to present here today. I've been tasked with generating some ideas and thinking about some different approaches to the updated study design. So, through my individual teacher's lens, I'm going to be taking you through considerations for teaching the key science skills, the revised content with some teaching and learning ideas and SAC options for unit three. The slide up now is a summary of the unit three structure and like all units in Psychology, the unit titles and the areas of study are presented as a series of questions to reflect the inquiry nature of Psychology. Am I not on the right slide here? Thank you.

**Erin Wilson** - You're welcome, Thea. I forgot presenter rights but now you've them.

**Thea Carbines** - So for unit three, these questions are not altered between the current and the upcoming study design. Sorry, I've got a bit of a basic set up here, I'm working it out, but thanks for bearing with me. This is a planning template that it's available via VCAA website. I used this last year for the re-accreditation process, and it is a really useful tool for mapping the key knowledge against the key science skills and thinking about what learning activities you're going to use to kind of bring them to life as well as how you'll assess the different areas and I'll you an example in a few slides time. So, the key science skills are listed on pages 12 and 13 of the updated study design and it's very clear that they're not to be treated as an add on, instead, you're encouraged to plan the integration of the skills into your teaching and learning programme.

And that's why that template from that previous slide is particularly useful. You're encouraged to think about how to provide the best opportunities for your students to develop these skills. You might plan to embed the skills progressively into activities, teach explicitly in chunks or use a flipped classroom approach. Whatever the case, the skills should be continually revisited in different formats throughout the year, and you should plan to ensure that students have opportunities to develop the key science skills before they're asked to apply them in assessment tasks, particularly the scientific investigation. And note, for those who've been around a while, the term research methods are no longer being used, the terminology is very clearly key science skills, and that is what should be used consistently with students.

Different schools with different student cohorts will have different ways that they implement the key science skills across units three, and then four. And you should plan to match your programme to your students’ needs and then as always tweak and adjust as you go. One important consideration will be students level of achievement in terms of the F-10 science inquiry skills and ideally, they will come to you at unit three with a set of key science skills already developed. But doing a set of formative assessment tasks early on will be critical to help you understand where your students are at and then build from there.

Over the next few slides, I'm going to discuss one approach to teaching the key science skills based on my context, and with lots of things that I talk about in my context, this is not in any way prescriptive, instead the idea is to generate thinking, and have you considered some ideas about what might work best in your context. So, I work with students re-engaging education, which means I can issue any previous knowledge of the key science skills or any psychological concepts. Many of my students coming into unit three have no prior study in Psychology and may not have studied at all for several years.

So, based on their needs, my approach is to carefully plan the sequencing of the key science skills and then teach them very explicitly, particularly at the start of the year using quite a structured approach. And then throughout the year, I'll try and bring them to life and continually revisit the skills through practical activities and analysis of studies. In order to do this, I've got a teacher created workbook that I use and each week there's a different topic with a concise summary of key information, followed by activities and questions. I provide the workbook to students in week one and it's completed over the first 12 or so weeks.

So, term one and a little bit into term two to kind of cover the core content. And it's a hustle, well, I'm not going to deny that it's a hustle because I'm trying to engage students with the new course, cover the key knowledge and the key science skills. However, doing it from that first week sends a strong message to the students that the key science skills are a core component of the course, and then it increases opportunities for multiple exposures throughout the year. I try and allocate as much time in class as I can, but inevitably some work has to be done outside of class and some students are always going to do more and take it more seriously than others.

This approach works for my context because I feel confident that I've covered all the key science skills. And then for students, it's a really useful reference for them to use throughout the year. So, when they ask me, how do I write a hypothesis, I can direct them back to the workbook and say, look at the template, look at the examples that you've already completed. Of course, you could take a similar approach to these by directing students to sections within a textbook or another resource. This is an example of the planning template that was shown a few slides ago, being used to map the first two dot points of Area of study one to the key science skills, learning activities and the assessment task.

So, you can see here with the first piece of key knowledge, we've got subdivisions of the nervous system and spinal reflexes, so very familiar content, and I've matched that against types of research investigations. In this case, including one of those nine methodologies, a simulation, a walk the plank game using a VR headset, which can be often, it will be very simple. I've got a cardboard little headset and I'm passing around my phone to play the game where you could have an amazing tech set up. Also, a classification activity, and then a controlled experiment comparing auditory versus visual response times. In this controlled experiment, students would also be identifying variables and formulating hypotheses as well as a range of different data tasks as well.

The second dot point is looking at neurotransmitters with some updated content, comparing those neurotransmitters to neuromodulators. I'd continue to look at research investigations here, in particular modelling, and some of the potential limitations of a model that might be used. So, students in this activity here, we've got two different possible modelling activities, but in this one here, students are creating an annotated model of neurotransmission at the synapse compared to neuromodulators that have a broader effect on brain areas. And they'd also include as part of that annotation, a statement on the limitations of the model.

So, in particular, there are any inaccuracies in the model that they've created or any gaps. The other key science skill being covered here is looking at ethical concepts and guidelines. So, I might have a look at some medical research such as dopamine blockers, being very clear to students that we might look at dopamine as a form of neuromodulator. Dopamine blockers might not necessarily be in the study design, but we are looking at some contemporary research in terms of those ethical concepts such as beneficence or integrity and also some of those ethical guidelines such as informed consent or withdrawal rights. The other thing that you'll see here is that some assessment tasks have been mapped to each of those key knowledge points and these are satisfactory/ non-satisfactory tasks to monitor satisfactory completion of the outcome.

As a teacher, these tasks, particularly early on, would allow me to gauge students current levels of understanding and start to provide really early student feedback on their areas of strength and what they should be improving upon. As Erin outlined earlier, there are nine scientific investigation methodologies in the updated key science skills, and you should be planning to cover some methodologies in each Area of study so that across units three and four, you have provided opportunities for students to develop an understanding of each methodology. So, trying to be very clear here, you do not have to run an activity or cover all nine methodologies in each Area of study. I mean, hats off if you can do that, I wouldn't be anticipating covering all nine in each Area of study, really, it's just to generate some ideas and get you thinking. Certainly, don't have time to cover all of them, but I'll point out a few here and here we've grouped some of the activities.

For example, with the case study, classification and identification, you could use a series of case studies to differentiate between acute and chronic stress and also psychological and physiological responses. So quite a nice, easy activity early on to get them used to the idea of case studies and classification and identification. Controlled experiments and correlational studies. You could have groups of students design a controlled experiment or a correlation study to test the hypothesis that fermented food improves mood. Groups could share their design method with the class and that could lead into a discussion regarding the usefulness, benefits and limitations of each investigation type. The literature review is new to the key science skills. Certainly, students would need to know the purpose of a literature review and what it typically entails, but don't think it's expected that they carry out a full-blown literature, detailed, review by themselves. In this activity here, we've got groups of students reading a different research summary on a topic.

So, for example, they might different groups go to Science Daily, and they'll read an article about the sympathetic nervous system. The groups could create a summary poster of their research aims, method, findings and limitations, share that with the class, and then the class as a whole could create a single document on key claims, conclusions and possible areas for future research. Following on, here are some ways that you could possibly incorporate the methodologies into Area of study number two, learning and memory. And one that I'll point out here that I've used with my students before and they've really enjoyed is in terms of product process or system development and having students analyse a game app in terms of existing reinforcement and punishment, and then suggesting new additional consequences to boost play time. And while I'm running through these and just be aware that you're going to have access to these at a later date, you can go back and look at things in further detail. There is a lot of terminology in the key science skills, and it can be challenging for students, and sometimes teachers, to wrap their head around all the key terms.

So, here's a few techniques that I find useful in their classroom to improve students' familiarity and understanding of the key science skills, and this includes using mnemonics, so we teach mnemonics and then I constantly try and walk the talk. For example, the term repeated measures experimental design has been replaced by within subjects design and that's to better reflect the language used in journal articles. So, to remember this, I'll encourage students to think of within subjects involving testing in the same people. In the new data and measurement key terms section, accuracy and repeatability are listed and there's some little mnemonic suggestions there that you might use with your students to help them remember the difference between those terms. Especially at the start of the year, every time I name a key science skill, I will define it and I probably send the students batty, but it's just about trying to give them as many repeated exposures as possible.

So, if we've looked at a study, I'll ask the class, did the findings of this study seem valid? Did it fairly measure what it was supposed to measure? Who's the population, the group of research interest for this study? And then trying to provide many opportunities for multiple and ongoing exposures. This can include written short answer questions, evaluating secondary sources of information, class discussions, and practical activities. Erin, I think you are talking to this one.

**Erin Wilson** - I am, thank you, Thea. If we look at unit three Area of study one, and we're looking at the outcome statement, so again, just really clearly showing that to achieve this outcome, students will draw on the key knowledge outline, that's my bad typing. In area study one and relevant key science skills on page 12 and 13 of the study design. That's what you were talking about Thea earlier. Yes, anyway, my editing and proofreading has got a bit to be desired, but there's two components of this Area of study. So, the first one is that to satisfactory complete the Area of study, students need to be able to analyse how the functioning of the human nervous system enables a person to interact with the external world. And then the second thing they need to be able to do is evaluate the different ways in which stress can affect psychobiological function.

When you're thinking about planning your activities and working at what you're going to use to assess satisfactory completion of the outcome, you need to address both parts of this outcome and the outcome statements. When you're thinking about School-assessed coursework however, and which task you're going to use to assess students level of achievement relative to the cohort or your student cohort, you don't need to cover the whole outcome statement and you certainly don't need to cover all of the key knowledge as well. So, it is a representative sample of the key science skills and a representative sample of the outcome statement, and also the key knowledge for School-assessed coursework tasks. So that's where those two types of assessment come into play. One, where you assess the whole outcome for satisfactory completion of an outcome, and the second one where you select and assess a representative sample.

**Thea Carbines** - The next few slides highlight key knowledge that is new or updated for the 2023 study design, along with some suggestions for classroom learning activities and these have been drawn from the Teaching and Learning activities that will be released as part of those Support materials by VCAA, hopefully by later this year. I'm just going to run through and highlight a few of the activities on each slide. We've got some updated content here around neuromodulators, and you could have students create neurons using pipe cleaners and little felt balls and create a network to demonstrate the effects of both neurotransmitters and neuromodulators, highlighting the differences in relative speed and longevity. Synaptic plasticity. I feel like this has jumped around a little bit, but it's back in year 12 with a focus on sprouting, rerouting, and pruning, and the role of each of these in memory formation.

So once again, you could use those pipe cleaner neuron models and students could demonstrate synaptic plasticity processes, take photos and annotate to create a one-page visual poster or create a short video. I also like the idea of finding an analogy such as walking paths to explain each of these processes. So, for example, with sprouting, you could think of a pathway is being used a lot and this leads to the creation of additional walkways or new branches. Maybe with rerouting, there's been a sinkhole that's opened up in the walking path and therefore you have to create a new pathway around that damaged area. The gut brain acts axis, completely new, very exciting, an area of contemporary research. I think it's going to lead to some very interesting discussions in the classroom as soon as we're talking about the gut, and I think it's got great potential for links to the key science skills.

So, an idea here is to annotate diagram to show the two-way relationship between the gut and the brain. Create icons or characters and create a story to act as mnemonic. There's a great Ted Talk there that you could have a look at, followed up by a discussion in class. How is the gut like a forest? How is it like a second brain? And what are the implications of this for therapeutic purposes? And then Area of study two. Erin you're on this one.

**Erin Wilson** - For unit three Area of study two, again, we've got two components of the outcome or two aspects of the outcome and these really relate to the key knowledge subheadings that are included within the study design. So, the first part of unit three Area of study two is to focus on being able to assess students' capacity to be able to apply different approaches, to explain learning to familiar and novel context. So, you will notice that there has been an increased focus in relation to different approaches to explain and understand learning.

And then the second part of this outcome statement is to discuss memory as a psychobiological process. I think it's really important that if we are thinking about satisfactory completion of an outcome, and you know we may have students in our classroom who are not undertaking scored assessment or not participating in the School-assessed coursework tasks, they still need to meet the cognitive requirements of the outcomes and the outcome statements, so thinking about what kind of activities I provide my students to be able to apply their understanding or what kind of activities I give to my students to be able to discuss memory is really important. And again, very clearly there's my mistake, 'cause I cut and pasted it except I did update the Area of study.

So, you're drawing on key knowledge and relevant key science skills and these will be different for every school. Thea's given us some great examples for unit three Area of study one in terms of the activities that she might select for her school and her students, but depending on which key science skills and the way that you embed and integrate and teach the key science skills means that you may have different key science skills that you explicitly assess for unit three area study two than another school and another teacher who explicitly assesses and teaches other selected relevant key science skills and we'll see that when we come to talking about assessment and the assessment tasks as well.

**Thea Carbines** - In unit three Area of study two, we have new content regarding Aboriginal and Torres Strait Islander approaches to learning. Erin's talked a little bit about this at the beginning of the webinar, but some ideas here, wherever possible, aim to start as local as you can in your area and then if needed branch out to broader regions and then the state and a national kind of context. Aware of time here, speed up a little bit. We've got some updated brain areas, so we are now focusing on the neocortex, the largest part of the cerebral cortex rather than the cerebral cortex per se, and the basal ganglia. Queensland Brain Institute has got some great information to check out and this is probably another good area to link to the case studies as one of those scientific methodologies. Alzheimer's and aphantasia, there's a slightly different focus with Alzheimer's and aphantasia is new content.

Interestingly first described in 1880, but then largely unstudied until 2015, so certainly lots of contemporary research there. An activity - to have students participate in a guided visualisation session and then right there, ability to vividly picture the prompts following the exercise and then you've got some data that you could collate, summarise and potentially used as an assessment task prompt. Mnemonics, so good opportunity here to integrate the key science skills. You could carry out a range of controlled experiments, looking at acronyms, acrostics, and method of loci, it's also a great resource to have a look at, explore the song line of the Seven Sisters. Formative versus summative assessment. As part of your curriculum and assessment programme, you're encouraged to consider the questions on approaches to formative and summative assessment. And in addition, it should be noted that the approaches that you use in unit three could be different to what you apply in units one and two. Quite a bit here, about thinking about, how are you going to know where your students are at what they know, what they don't know, how you going to provide feedback to students.

On this next slide, just as an example, this is how I might approach some of the questions from the previous slide. Once again, based on my context, in no way prescriptive. So how would I know where my students are at? So, beginning of each outcome, I would have students stick an Area of study completion checklist in their logbook, outlining the required S/N tasks and what SAC type they will have for that Area of study. Various times throughout that Area of study, I'll collect it, check progress and provide feedback. How would I identify students strengths and weaknesses in key knowledge in skills? Checking their logbooks. I love it, students hate it, but I do regular quick five quizzes at the beginning of a class, a few simple multiple choice, close activity questions, some short answer questions. I collect, mark and hand back to students. Class discussions, questioning of students one-on-one and also monitoring of textbook online programmes.

How am I providing feedback to students? It would be through that range of activities. The logbooks, the quick five quizzes, and one-on-one discussions that I have with students. SAC options for unit three. In the new study design, in line with the other sciences, there are four SAC options as listed on this slide. It is important to know that each task type can be selected only once across units three and four. This means you need to plan and consider which SAC type you will use for which Area of study, and you might want to consider the fit with the Area of study, the scaffolding of the key science skills and the nature of the task itself. Each SAC should be 50 to 70 minutes in length for a written response, or if a student is doing a multimodal or an oral response, 10 minutes.

Here we have some possibilities for applying each task type in Area of study one. Once again, to generate thinking, ideas and give you an idea about how each task type could be applied. The other thing here to highlight is that a SAC does not have to cover every single piece of key knowledge or every dot point within an Area of study. Instead, it can cover a representative sample of the key knowledge and then students can show satisfactory understanding through other tasks that they complete. For example, here with the task type analysis and evaluation of at least one psychological case study experiment model of simulation, we've got two different activity types. One idea - create and evaluate a physical model to demonstrate transmission of neural information at the synapse. A different idea - provide students with selected case studies related to stress and evaluate the usefulness of using different models of stress to explain experiences or responses.

For Area of study two, we've got another set of possibilities for each task type in this Area of study. For that analysis and evaluation of generated primary and or collated secondary data, two possible activities. The class could carry out a controlled experiment to compare the effectiveness of two different mnemonic devices and or they could analyse and evaluate secondary data in the form of brain imaging and post-mortem studies of brain lesions in people with Alzheimer's disease. There's a task type the third listed there where students are looking at three different student practical activities, in this case modelling, a case study, and product or process system development. Final task type relates to contemporary media texts, analysing and comparing two or more of them that could be related to Alzheimer's disease or some kind of memory related issue.

Some hints here for developing SACs. It's suggested to ease students in, maybe a false sense of security, earlier items in the, earlier on, in the SAC task, make sure you're using a range of assessment items, differing in levels of difficulty, to ensure a spread of responses and just be really mindful that each SAC for each area study is a 50-to-70-minute time limit. So, you want to make sure a typical student at your school can finish in that time limit, minimise non attempts, I guess that's being as mindful as those time limits if possible and I'd be really encouraging to always, encouraging students to always attempt to answer questions, that there's no mark for incorrect answers same as the exam. With an increased focus on using media texts as a stimulus material for SAC tasks, here's a set of questions for you to come back to and consider.

For example, depending on the length and complexity of the media text that you are providing, you may want to edit the item or provide to students prior to the SAC. And in that case, you'd have to think about how earlier you're giving it to them, can they annotate it? Are they going to get a fresh copy when they come into the SAC? How can you ensure consistency if there's multiple classes? You might want to think about if there's further materials you need to provide to students as a supplement. So, it could be a glossary of specific words or information on prior research or studies that have been undertaken and that link to the text that you are looking at. Just pointing out, you know, there's a range of resources that VCAA are providing to teachers. Some are available via the VCAA website, some as part of your school policies and procedures and others via your school's VASS platform and heads up if you haven't already subscribed to the VCAA bulletin, you can do this via the QR code included in this slide. Very fancy. I'm going to pass over to you now Erin, opening the floor for any questions.

**Erin Wilson** - Thanks, Thea. We've had a few questions in the Q&A that I've typed, answered, I've answered using type responses, but I guess what we'll do now is we'll just give you a moment to think about if there's anything else in particular that you would like to have clarified. Some of those may need to be through FAQs, some of them will be clarified in the Support materials, so we will do our best to answer those. I have seen that there's a question in relation to level nine and 10 Science and what is expected in relation to students understanding, and what I will say is that science is one of, it's expected that students are provided the opportunity to engage with level nine and 10 science.

So depending on your school structure and programme, you may need to have a review and consider your students engagement, so Thea has already pointed out earlier on that all of her students coming in, are re-engaging in education and so she can't assume any of that knowledge from level 9, 10 science in relation to science inquiry skills, or in relation to biological sciences in terms of content around organisms, multicellular organisms, and the way they respond to external environments or the structure of the neuron and neural pathways or their engagement in personal and social learning in relation to mental health and wellbeing and resilience or any of those capabilities.

So it really is probably important for you as teachers to look at that whole school curriculum planning from F-10, 7-10 in particular, see where the content that is providing students, that's supporting understanding and knowledge to engage with the VCE curriculum and then, do that formative assessment before they enter into the classroom, perhaps as a step up activity or as you go along when you're introducing the new content to make sure that student's background information is there. But the VCE, all the VCE science study designs are developed on the basis of the fact that students are exposed to level nine and 10 or come with knowledge and understanding of the level nine and 10 Science curriculum. We know that's not always the case, but that just means that you need to think about how your students responses in relation to that as well.

So, I think what we've got, I've got a lot of questions about will there be examples of SACs? I think have a look at the VCE Biology study page. There's certainly not going to be examples of specific SAC tasks, because SAC need to be unique to your school, but there is lots of scaffolding in terms of the performance descriptors and also how to design the SACs, so there's that aspect, but look at that in terms of the Support materials from that part there. And then I think about looking at all the other content, anything that's related to specific clarification of the dot points, as I said, we'll put in FAQs that will be available once the study is starting to be taught so I can't answer all those at the top of my head right now. I think, so we download the Q&A and we'll do that aspect as well. I think, we're at 5:43. Is there anything else in particular Thea that you think that we should discuss maybe?

**Thea Carbines** - No, I think there's lots to go back in this PowerPoint when it's available to kind of unpack lots of questions to consider and I guess draw upon each other and the networks that are out there, start planning the best that you can and then we do the best that we can and tweak as we go.

**Erin Wilson** - And I think right now, that fantastic overview and examples that you've given Thea, as you said, there's lots to go back and think about in relation to the PowerPoint. We hope that that's giving you a good overview and introduction to the study design and look out for the other resources that will be available. Thank you.

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