VCE Psychology 2023–2027 – Frequently asked questions

Teachers are advised to consult this document and other *Support materials* provided on the Psychology study page, when implementing the 2023–2027 VCE Psychology Study Design.

Teachers should note that the intention of the 2023–2027 VCE Psychology Study Design is to reduce the breadth of key knowledge being covered in order to allow students more opportunity to explore key knowledge and key science skills at a deeper level. This increased focus on depth sits alongside a continued focus on developing and assessing a student’s ability to apply their knowledge to unfamiliar research, contexts, situations and scenarios, where a real-world application of key knowledge and key science skills sits at the core of the revised study design.

Frequently asked questions (FAQs) will be updated if required across the course of the Study Design and teachers will be notified of changes via the VCAA Notice to Schools.

Key science skills: Units 1–4 Psychology

Do students need to be able to operationalise an independent and dependent variable?

No, the requirement to operationalise variables is beyond the scope of this study design. Writing a correctly operationalised variable will still allow students to demonstrate the required key knowledge; however, this is often a higher order cognitive skill. Teachers are encouraged to consolidate students’ understanding of independent and dependent variables at a non-operationalised level. Students should understand, though, the relationship between the specificity of defining variables and concepts of accuracy, precision, repeatability, reproducibility and validity.

Do students need to include a population when writing a hypothesis?

No. There is no mandated style for writing a hypothesis in VCE Psychology. Students should understand that a hypothesis is a testable prediction that includes appropriate reference to the independent and dependent variable(s), a clear direction for the relationship between variables and a mention of all groups being tested by way of comparison. Where appropriate to the investigation methodology and method, students may include a population, provided it does not contradict the rest of their hypothesis.

To what extent do students need to understand each controlled experiment design?

Three experimental investigation methodologies are listed in the study design: within-subjects, between-subjects and mixed design. Students should understand that in the context of experimental investigations, the use of a mixed design means that the investigation includes features of both a within-subjects and between-subjects design. For each methodology, students should be able to describe the methodology and identify when the methodology may be used. When evaluating research, students should be able to evaluate each methodology for its particular investigation context and make a judgment as to the appropriateness of the methodology selected, for example, whether a selection of a particular methodology has increased the uncertainty and errors in the investigation, and as a result decreased the internal validity of the experiment.

Do students need to know about a matched-participants controlled experiment design?

No. Students do not need to understand or recognise the use of a matched-participants design in a controlled experiment. Terms used in previous study designs, such as independent groups, repeated-measures and matched-participants are not synonymous with the new experimental methodologies included in 2023–2027 VCE Psychology Study Design, as their meaning and application are slightly different.

What is the difference between formulating a hypothesis and predicting a possible outcome of an investigation?

A hypothesis, as a testable prediction, should be written for investigations that involve the manipulation of an independent variable(s) and measurement of dependent variable(s). Predicting an outcome of an investigation is relevant for other investigation methodologies where developing a hypothesis is not appropriate, such as a correlation study, case study or product, process or system development, where variables are not being manipulated. For these investigation methodologies, students should be applying their psychological understanding to predict the likely trend(s) or pattern(s) or unique feature(s) of the results of the investigation.

Do students need to know specific examples of common errors in psychological research, such as placebo effect or order effects?

No. Concepts such as placebo effect and order effect are beyond the scope of this study design and students will not be expected to classify or name specific errors (such as placebo or order effects). Students should be able to classify the errors present in the investigation method as systematic or random and understand their potential impact on the precision, accuracy, validity, repeatability and reproducibility of results. They should also be able to explain the impact of such errors on the uncertainty of the results and whether or not they can be used to explain the presence of outliers. For example, students will not need to use the phrase ‘non-standardised procedures’ if the experimental and control group in an experiment are completing a memory test at different times of the day, but they should be able to identify this difference as being a random error that will impact the precision of the memory test results collected. They should also be able to identify whether extraneous or confounding variables are present in an experiment and explain their impact on the uncertainty of results and internal validity of the investigation (identifying specific extraneous or confounding variables by type is not required). Teachers are encouraged to introduce students to a range of commonly occurring errors and uncertainties present in psychological research. Further advice for teachers regarding how to cover data and measurement in the new study design can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Are students expected to be able to draw graphs and data tables in the end-of-year examination?

Yes, all the VCE Psychology Units 1–4 Key science skills included on pages 12 and 13 of the study design are examinable. Students should be able to present data in meaningful ways including drawing tables, bar charts and line graphs. Students are allowed to bring a ruler into the examination. Students should also be able to select the most appropriate (useful and meaningful) way to present the primary or secondary data being used in an investigation.

Are students expected to calculate percentages, percentage change, measures of central tendencies or standard deviation in the end-of-year examination?

Students may be required to do basic numerical analysis that does not require the use of a calculator in the end-of-year examination. Students should also be able to demonstrate their understanding of what more complex values and calculations, such as measures of central tendency and standard deviation, represent and what insight they offer in relation to particular results or research. Students should be able to suggest an appropriate value/calculation a researcher might conduct to help analyse the data collected. Teachers are encouraged to assess a student’s ability to calculate percentages, percentage change and measures of central tendency through School-assessed Coursework (SAC) tasks and through Unit 4, Outcome 3, by way of applying their understanding of these calculations to their own research (where their investigation involves the generation of quantitative data). Students are not required to be able to calculate standard deviations; however, they should be able to demonstrate an understanding of the standard deviation of data sets.

What is meant by ‘robust’?

Students should understand the purpose of repeating and reproducing investigations to ensure findings are robust. This means the results remain valid across a variety of conditions. Robust findings are ones that will be produced again when the data is collected from another sample. It can be linked to both repeatability and reproducibility of an investigation.

Do students need to name and describe all of the ethical concepts and ethical guidelines included in the ‘Terms used in this study’ section?

Yes, as part of the Units 1–4 Key science skills, students need to be able to demonstrate ethical conduct, apply ethical guidelines and evaluate psychological issues, as outlined on pages 20 and 21 of the study design. Students should be able to apply these ethical concepts and guidelines to analyse a range of different scenarios and contexts involving different scientific investigations and/or psychological issues.

Do students still need to explain convenience sampling?

No. Students should be able to describe the use of random and stratified sampling in an investigation and the effects of sample size on the quality of data obtained. The focus of this skill in the study design is on the use of sampling techniques used to achieve representativeness – hence only random and stratified sampling methods need to be understood. Convenience sampling as a source of error and uncertainty, as well as the impact of convenience sampling on the internal validity, is beyond the scope of this study design.

To what depth do students need to understand uncertainty?

Students only need to consider the uncertainty of a result of a measurement from a qualitative perspective (and not through statistical analysis). They should also consider potential sources of uncertainty when planning and conducting investigations. Further, students should be able to identify and analyse experimental data qualitatively through applying the concept of certainty in data. Finally, they should be able to evaluate research methods and possible sources of uncertainty and suggest improvements to reduce uncertainty. When evaluating data provided, students should be able to identify contradictory and incomplete data. Students should recognise that uncertainty and errors (random or systematic) are not the same concept. Further advice for teachers regarding how to cover data and measurement in the new study design can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Are students still able to use the term ‘reliable’ when analysing data?

No, the appropriate terms that now appear in the study design are repeatability and reproducibility. This change in terminology reflects updated language used in scientific literature. Students should understand the difference between these terms, as outlined on Page 19 of the study design, and be able to apply the concepts of repeatability and reproducibility to given research contexts. Further advice for teachers regarding how to cover data and measurement in the new study design can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Do students need to know about generalisability?

In the 2023–2027 VCE Psychology Study Design, students are required to understand the concept of generalisability when considering the appropriateness and application of data to different cultural groups. Students should also consider generalisability when reviewing the external validity of a particular research study and whether the findings can be applied to similar individuals in a different setting. Students should be able to consider the impact (implications) the results may have for a group of people wider than just the original sample. Students should be able to draw and justify a conclusion for a range of investigation methodologies, as well as discuss the implication of the findings and subsequent proposals for specific investigations. As part of this, students should also be able to analyse a methodology and method to explain the limitation of forming a conclusion using the given data. Limitations to forming a conclusion include the presence of errors and uncertainties within the investigation and their impact on validity, as well the use of appropriate sampling. The ‘generalisability of statistics from samples to the populations from which the sample was derived’ from the previous study design, is beyond the scope of this study design.

What abbreviations are appropriate for students to use?

Students can use any scientific abbreviation or abbreviation that is stated within the Study Design or the FAQs. For other commonly used terms within the study, students are encouraged to write the term out in full the first time, abbreviate it in brackets and then refer to the abbreviation for the remainder of that question only. If students are going to refer to the concept again in a different question, they should write it out again in full the first time. Given the use of electronic marking in the end-of-year examination, students can no longer rely on the use of a self-created abbreviation across different exam questions, on different pages. If in doubt, students are recommended to write the entire term and not use an abbreviation.

Can students collect information for food diaries and personal food intakes as part of the required practical work?

No. Recording food diaries and personal food intakes is not appropriate for students as part of VCE Psychology. As outlined on pages 8 and 9 of the study design, teachers and students are not trained nor equipped to assess and/or offer counselling or therapy related to the impact of food on psychological functioning and wellbeing. In addition, research has shown that the inclusion of classroom activities involving food may: contribute to the production of shame and weight stigma, which is problematic in terms of a strengths-based approach to health and wellbeing (see Evans et al., 2008; Rich, Holroyd and Evans, 2004; Rich and Evans, 2005; Leahy, 2009, 2014); support obsessive eating practices and dietary culture that is associated with eating disorders, and normalise these practices (Musolino et al., 2015); contribute to young people internalising obsessive practices that are deemed healthy but at the same time deemed problematic in psychiatry contexts (Musolino et al., 2015).

Research articles on the association of judgment, shame and obsession with students completing food diaries and personal food intakes are listed below for teacher reference.

Evans, J., Rich, E., Davies, B. & Allwood, R. (2008). [Education, disordered eating and obesity discourse: fat fabrications](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.4324%2F9780203926710&data=05%7C01%7CErin.Wilson%40education.vic.gov.au%7C12588202e325471632eb08db6d4bce52%7Cd96cb3371a8744cfb69b3cec334a4c1f%7C0%7C0%7C638223944579221224%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=uBbKOtPilPe7np%2FZgltvz%2BimntAw2C%2B58OVzU5iYCkw%3D&reserved=0) (1st ed.). Routledge.

Evans, J., Rich, E. & Holroyd, R. (2004). [Disordered eating and disordered schooling: what schools do to middle class girls](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1080%2F0142569042000205154&data=05%7C01%7CErin.Wilson%40education.vic.gov.au%7C12588202e325471632eb08db6d4bce52%7Cd96cb3371a8744cfb69b3cec334a4c1f%7C0%7C0%7C638223944579221224%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=Qne96wbyx7aXb3j4%2BHutTKITZImjZBvvh2G4lDjdKEc%3D&reserved=0). *British Journal of Sociology of Education*, *25*(2), (pp. 123–142).

Leahy, D. (2014). [Assembling a health[y] subject: risky and shameful pedagogies in health education](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1080%2F09581596.2013.871504&data=05%7C01%7CErin.Wilson%40education.vic.gov.au%7C12588202e325471632eb08db6d4bce52%7Cd96cb3371a8744cfb69b3cec334a4c1f%7C0%7C0%7C638223944579221224%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=AfI6p1vGK0xgI13PfnuzofCCA96VG%2BuIn4AE9Q3Ehdo%3D&reserved=0). *Critical Public Health*, *24*(2), (pp. 171–181).

Leahy, D. (2009). [Disgusting pedagogies](https://aus01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.4324%2F9780203882061-17&data=05%7C01%7CErin.Wilson%40education.vic.gov.au%7C12588202e325471632eb08db6d4bce52%7Cd96cb3371a8744cfb69b3cec334a4c1f%7C0%7C0%7C638223944579221224%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=jYIMUYCko1PVR2rq%2FzXQb9NhRKIR0zLCZK%2B4ZcdQmvA%3D&reserved=0). *Biopolitics and the ‘Obesity Epidemic’*, (pp. 180–190). Routledge.

Musolino, C., Warin, M., Wade, T. & Gilchrist, P., (2015). ‘Healthy anorexia’: The complexity of care in disordered eating. *Social Science & Medicine*, *139*, (pp. 18–25).

Welch, R. & Leahy, D. (2018). Beyond the pyramid or plate: contemporary approaches to Food and Nutrition education. *ACHPER Active and Healthy Magazine*, *25*(2/3), (pp. 22–31).

Unit 3

Do students need to apply the ‘lock-and-key’ model to explain neural transmission?

No. Students are not expected to use the ‘lock-and-key’ model to explain neural transmission; however, teachers may choose to use this analogy to support students' understanding of the importance of shape and structure on neural transmission. Students should understand the importance of molecular shape on the ability of a neurochemical (neurotransmitter or neuromodulator) to temporarily bind to a specific receptor site and understand that the shape of the receptor site must be complementary to the shape of the neurochemical. Students should understand that while neuromodulators act on a widespread brain region or brain tissue, like neurotransmitters, they still require a specifically shaped receptor site to temporarily bind to.

Are students expected to name the parts of a neuron?

Yes, students should be able to name and label the components of the neuron involved in the transmission of neural information across a neural synapse, namely the axon terminals (stemming from the axon), synaptic vesicles, dendrites and receptors sites. Students should understand that neurons are the basic structural (cellular) component of the central and peripheral nervous systems and that neural transmission across a synapse requires the release of neurotransmitters from the axon terminal of a pre-synaptic neuron which then binds to the receptors on dendrites of a post-synaptic neuron; the same occurs with neuromodulators on a larger scale. The synaptic and structural changes that occur during synaptic plasticity also require an understanding of the function, and therefore changes to the axon terminals and dendrites. Knowledge of the soma, nucleus and myelin sheath is not required; however, teachers may choose to teach or revise these concepts to support students’ understanding of neural transmission. The mechanisms of action potentials and the role of ion-channels in neural transmission are beyond the scope of the study design.

To what depth do students need to understand the role of neuromodulators on brain activity?

Students should understand, at a basic level, that neuromodulators increase or decrease the excitability/responsiveness of neurons to neurotransmitter signals across a widespread brain region or brain tissue. They should also understand that a neuromodulator can have a widespread effect on a group of neurons (cellular) or a group of synapses (synaptic) which in turn alters the neurotransmission occurring at those locations. Dopamine and serotonin are the two examples that teachers should use to demonstrate the effects that neuromodulators have on brain activity. Students are not required to understand the specific brain areas that each neuromodulator is produced in or has an effect on; however, they should be able to make links between the effects of dopamine and serotonin with other areas of study; for example, the gut-brain axis (given that 90% of serotonin is found in the gut), learning and memory (such as conditioning and the work of neuromodulators on synaptic plasticity) and the sleep-wake cycle. Students should also be able to apply their understanding of neuromodulators to unfamiliar research, situations and contexts. Neuromodulation therapy and the role of dopamine in Parkinson’s disease are beyond the scope of the study design.

Do students need to explain LTP and LTD from both a synaptic and structural perspective?

Yes, students should explore synaptic plasticity through both perspectives. Students should understand that long-term potentiation (LTP) and long-term depression (LTD) can be considered and defined through a synaptic perspective; experience-dependent, long-lasting changes to the strength in neuronal connections where LTP results from repeated high-intensity stimulation and LTD from repeated low-intensity stimulation. Students should also understand how these two processes work together to enable learning and memory formation. The teaching of sprouting, rerouting and pruning should be considered at a structural level, including the roles of axon terminals (excluding filigree appendages) and dendrites. Students should be able to relate sprouting (LTP), rerouting (LTP and LTD) and pruning (LTD) to synaptic plasticity and their role in learning and memory formation. Students should be able to apply their knowledge of synaptic plasticity to a wide range of unfamiliar learning and memory scenarios and contexts. The research work of Hebb is beyond the scope of the study design.

Are students expected to explain the role of the sympathetic and parasympathetic nervous system in the fight-or-flight-or-freeze response?

Yes, students should be able to relate the actions of the autonomic nervous system to the fight-or-flight-or-freeze response to acute stress. Students should understand that both the sympathetic and parasympathetic nervous systems are activated when considering the ‘fight-or-flight-or-freeze response’ as an initial unitary response. Students should then understand that the sympathetic nervous system becomes dominant during fight-or-flight, while the parasympathetic nervous system becomes dominant during freeze. In addition to the physiological responses associated with sympathetic and parasympathetic dominance, students should also understand that the freeze response involves a state of immobility, high arousal, alertness and tension. The concept of ‘tonic immobility’ is beyond the scope of the study design and should not be considered synonymous with the ‘freeze’ response.

To what depth do students need to explain the gut-brain axis and the interaction of gut microbiota with stress and the nervous system?

Students should understand the gut-brain axis (GBA) consists of the brain, the spinal cord, the autonomic nervous system (sympathetic, parasympathetic and enteric) and the hypothalamic-pituitary-adrenal (HPA) axis. They should explore the gut-brain axis as a bidirectional communication network between the brain and parts of the gastrointestinal tract. Students should understand that the vagus nerve is responsible for connecting cognitive and emotional regions of the brain to the intestinal tract via a collection of sensory and motor neurons. They should recognise that communication between the enteric nervous system and the central nervous system occurs specifically via the vagus nerve and that 90% of the information is travelling in the direction of the brain (afferent). Students should recognise that the enteric nervous system controls the gastrointestinal tract; however, it is not necessary for students to understand specific roles of the enteric nervous system such as its involvement in the immune response, detecting nutrients, and blood circulation. The role of the HPA axis is also beyond the scope of the study design.

In terms of the interaction of gut microbiota with stress and the nervous system, students should understand that there is evidence to indicate that communication between the gut microbiota and the brain occurs via the vagus nerve. They should recognise that gut microbiota are a collection of millions of microorganisms that assist in the digestion of food and that gut microbiota (mainly bacteria) are also known to produce and release several neurotransmitters such as GABA, serotonin and dopamine. Knowledge of specific gut microbiota (bacteria) types is not required. Students should appreciate that the last decade has seen a prolific rise in the understanding of a bidirectional relationship between gut microbiota and psychological processes and behaviour, including that chronic stress and cortisol levels can have an impact on healthy gut microbiota. They should also understand that there is evidence to suggest that the type and variety of microbiota in our gut can influence our responsiveness to stress as well as cognitive responses such as memory.

Do students need to know specific examples of emerging research into the gut-brain axis?

No, students will not be expected to demonstrate knowledge of specific research that has been conducted in relation to the gut-brain axis. Students should, however, be able to apply their understanding of the gut-brain-axis and knowledge of the interaction of gut microbiota with the gut-brain axis to unfamiliar research, situations and contexts. Teachers are encouraged across the course of the study design, to seek out emerging research, such as controlled experiments involving germ-free mice, vagotomized mice and the use of probiotics and antibiotics, to demonstrate emerging areas of research in this field of Psychology. Further, the rapidly changing nature of this area means that the current understanding of the gut-brain axis will likely be modified and/or updated over the next decade. This presents teachers with an opportunity to showcase the range of scientific investigation types that researchers undertake and how concepts of validity, reproducibility and repeatability are also considered and applied.

What is meant by ‘explanatory power’?

‘Explanatory power’ is the ability of a theory/model to explain subject matter effectively. A model or theory can be considered to have more (or less) explanatory power than another to explain a certain situation or outcome. Students should be able to evaluate the explanatory power of Selye’s General Adaptation Syndrome (GAS), Lazarus and Folkman’s Transactional Model of Stress and Coping and Atkinson-Shiffrin’s multi-store model of memory as included in the study design. Teachers may consider the following ideas for a model with high explanatory power:

* More observations can be accounted for
* Makes fewer assumptions
* More falsifiable
* More details of cause-and-effect relationships are provided

A quantitative analysis of explanatory power is beyond the scope of this study design.

Are students expected to know about emotion-focused and problem-focused coping within the Transactional Model of Stress and Coping?

No, emotion-focused and problem-focused coping are beyond the scope of the study design as the two methods of coping occur after primary and secondary appraisal. The concept of reappraisal is also beyond the scope of the study design. Students should understand that secondary appraisal involves an evaluation of coping resources available for a stressful event. Students should be able to classify or suggest coping strategies that are approach or avoidance in nature and consider the context-specific effectiveness for such strategies.

To what depth do students need to explain behaviourist and social-cognitive approaches to learning?

Students should understand that learning can be considered and explored from a range of different approaches to learning and that the 2023–2027 VCE Psychology Study Design considers three approaches to learning, illustrated through the consideration of classical conditioning and operant conditioning, observational learning and Aboriginal and Torres Strait Islander ways of knowing. Students should understand that a behaviourist approach to learning involves an interaction between an individual and stimuli in the environment through conditioning, and that a social-cognitive approach to learning involves an understanding of the role of social context and cognitive processes in learning. Students do not need to demonstrate specific knowledge of the work of researchers such as Pavlov, Watson, Rayner, Skinner, Thorndike or Bandura; however, teachers may choose to use these seminal researchers to teach these approaches to learning. Students should be able to apply their understanding of each approach to learning to explain how learning is occurring in particular situations and also apply their understanding to unfamiliar research, situations and contexts.

Are students required to know about stimulus generalisation, stimulus discrimination, extinction and spontaneous recovery in terms of conditioning?

No, students do not need to demonstrate understanding of these elements of classical and operant conditioning. When considering classical conditioning as an example of a behaviourist approach to learning, they should be able to identify and describe which phases of classical conditioning involve the unconditioned stimulus (UCS), unconditioned response (UCR), neutral stimulus (NS), conditioned stimulus (CS) and conditioned response (CR). Students should also understand additional factors that influence the success of each type of conditioning, such as timing, order, and nature of stimulus, response or consequence. Students should also be able to apply their understanding of the three-phase processes of classical and operant conditioning to unfamiliar research, situations and contexts.

Do students need to demonstrate knowledge of specific examples of Aboriginal and Torres Strait Islander ways of knowing?

No. Students should understand that Aboriginal and Torres Strait Islander knowledge systems represent the oldest and longest continuing forms of learning in Australia. They should recognise that Aboriginal and Torres Strait Islander peoples’ ways of knowing are unique, complex and sophisticated systems that are different to Western concepts of learning. Students should also recognise that Aboriginal and Torres Strait Islander peoples’ ways of knowing are diverse across language and cultural groups. Teachers may choose which examples of Aboriginal and Torres Strait Islander ways of knowing they use to illustrate the concepts contained within the key knowledge. Further advice for teachers regarding how to deliver Aboriginal and Torres Strait Islander perspectives can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Are students required to know about the history of Aboriginal and Torres Strait Islander peoples as context for links to learning, memory and mental wellbeing?

Throughout the Victorian Curriculum F–10, students engage in a range of learning experiences that consider the history, cultures and perspectives of Aboriginal and Torres Strait Islander peoples. As part of the Victorian Curriculum F–10, students explore the diversity of Aboriginal and Torres Strait Islander peoples and develop their understanding of the meaning of Country and kinship, and of the impact colonisation has had on Aboriginal and Torres Strait Islander peoples. Teachers may choose to revise concepts included within the Victorian Curriculum F–10 to support students’ understanding of key knowledge relating to Aboriginal and Torres Strait Islander knowledge, cultures and history included in the 2023–2027 VCE Psychology Study Design. Further advice for teachers regarding how to deliver Aboriginal and Torres Strait Islander perspectives can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Do students need to know the function, capacity and duration of sensory, short-term and long-term memory stores?

Yes, the function, capacity and duration of the three memory stores should be considered as part of the Atkinson-Shiffrin multi-store model of memory. Students should understand that sensory memory, as described by Atkinson-Shiffrin, is comprised of iconic and echoic memory. Students should also understand the numerical capacity and/or duration of each memory store and should recognise that rehearsal (in a broad sense) can be used to extend the duration of short-term memory (STM) and chunking can be used to expand the capacity of short-term memory. Students should also be able to demonstrate knowledge of the function of each memory store and how the processes of encoding, storage and retrieval relate to each memory store. Students should understand that retrieval, broadly, is the process of recovering information from long-term memory (LTM) into short-term memory (STM).

Do students need to know about specific types of retrieval, such as recall, recognition and relearning?

No, specific types of retrieval, and the relative sensitivity of different retrieval types, are beyond the scope of the study design. Students may be presented with unfamiliar investigation scenarios where researchers have used specific methods of retrieval as part of the investigation method; however, sufficient information should be provided to ensure students understand the type of retrieval being studied or used. Similarly, specific knowledge of maintenance and elaborative rehearsal and context- and state-dependent cues is outside the scope of this study design.

To what depth do students need to explain the role of brain regions in long-term implicit and explicit memories?

Students should understand that the role of the brain in memory and learning is an area of continual research and investigation. While there are known roles and known relationships, memory is a complex and interactive system that is not yet fully understood. When considering the roles and relative involvement of the hippocampus, amygdala, neocortex, basal ganglia and cerebellum in long-term memory, students should understand that these brain regions interact through complex neural networks in order to successfully encode, store and retrieve both implicit and explicit long-term memories.

Students should understand that within these complex neural networks, the hippocampus interacts with the amygdala when encoding explicit long-term memories, such as those involving emotional responses, and that the hippocampus also interacts with the neocortex when storing and retrieving long-term memories, such as those associated with semantic and episodic memories. They should also understand that the cerebellum interacts with the basal ganglia and motor programming areas of the neocortex to encode, store and retrieve implicit long-term memories, such as those associated with habit formation, fine motor movements and simple reflexes. Students should also be able to apply their understanding of the role of brain areas involved in memory to unfamiliar research, situations and contexts. Teachers may use selected case studies that investigate the role of these brain regions as a result of brain damage or disease. Teachers may also use selected research studies to provide students with the opportunity to consider how different types of scientific investigations can contribute to our understanding of the selected key knowledge. Teachers may also relate evidence from brain imaging and post-mortem studies of people with Alzheimer’s disease to demonstrate the role of some of these brain regions. Where appropriate, teachers should also link the role of these brain regions to other areas of the study design, such as nervous system functioning and approaches to understanding learning, to support students to develop an understanding of the connections across different areas of study.

Students should use the terminology that is included in the study design, that being implicit and explicit memory, i.e. these terms can be considered synonymous with terminology such as non-declarative and declarative memory. It is beyond the scope of study design for students to understand the psychological constructs in which these terms may be applied as having different meanings.

Do students need to know about the role of implicit memory in retrieving autobiographical events?

No. Students are required to understand how explicit memory (episodic and semantic) is involved in the retrieval of autobiographical events. Students should consider how both semantic autobiographical knowledge and episodic autobiographical knowledge contribute to the retrieval of autobiographical events. They should also understand the role of autobiographical events in constructing possible imagined futures. Knowledge of ‘semantic scaffolding theory’, ‘semantic networks’ or ‘schema’ when describing the role of explicit memory is beyond the scope of this study design.

What is meant by ‘imagined futures’?

Possible imagined futures can also be termed ‘episodic future thinking’. It involves mentally experiencing an event that might occur in your personal future by projecting yourself forward in time and involves semantic autobiographical knowledge and episodic autobiographical knowledge to create the ‘world’ in which the future thinking occurs. Students should be able to provide examples of possible imagined futures, explain how autobiographical events and imagined futures influence each other, and discuss differences and similarities between people with Alzheimer’s disease and aphantasia in being able to undergo episodic future thinking.

To what depth do students need to understand Alzheimer’s disease?

Students should understand that brain imaging and post-mortem lesion studies of Alzheimer’s patients are important ways that researchers have been able to learn about the role of episodic and semantic memory in retrieving autobiographical events. Students should also understand the underlying biological features of Alzheimer’s disease and its impact on cognition and that, as a neurodegenerative disorder, Alzheimer’s disease involves widespread neural damage in specific brain areas that impacts on an individual’s episodic and semantic memory. The existence of amyloid plaques (around neurons) and neurofibrillary tangles (within neurons) throughout these brain regions that are accompanied by neuronal death are required parts of this understanding. Students should understand the progression of the disease throughout areas of the brain (hippocampus, neocortex, cerebellum) and that Alzheimer’s patients have a reduced ability to retrieve long-term memories of autobiographical events as well as an impeded ability to undergo episodic future thinking (constructing possible imagined futures). Students do not need to understand or use the terms ‘retrograde amnesia’ and ‘anterograde amnesia’ to describe the symptoms of Alzheimer’s disease.

Are students required to know about methods of brain imaging?

Students should broadly understand brain imaging (and post-mortem lesion studies) as a type of a data collection method that allows researchers to study the impacts of Alzheimer’s disease. Teachers are encouraged to introduce students to a range of brain imaging techniques as a context through which to discuss the role of brain regions and the pathology of Alzheimer’s disease. Research and scenarios may include imaging techniques such as CT, PET, MRI and fMRI scans. Students do not need to describe the function or operation of these imaging technique, nor do they need to identify or recognise which type of brain imaging technique is being used or suggest a specific brain imaging technique for a particular function. Students may be provided with unfamiliar research and scenarios where researchers have used specific brain imaging techniques; however, sufficient information should be provided that allows students to understand what information is being shown in the images provided.

To what depth do students need to explain aphantasia?

Students should understand that mental imagery is the perception-like experience in our conscious thought in the absence of external sensory stimuli. Students should recognise that there are individual differences in the way people experience mental imagery and that aphantasia is the absence of voluntary visual imagery. Students should understand that research involving people with aphantasia has highlighted the role visual imagery plays in both the retrieval of long-term explicit memories and when undergoing episodic future thinking. Students do not need to consider the biological causes of aphantasia as the condition is not yet widely understood.

Do acronyms need to be pronounceable words?

Yes, students should understand that acronyms compromise the initial letters (and sometimes syllables) of the words in a term and are pronounced as a word. The [Australian Government Style Manual](https://www.stylemanual.gov.au/grammar-punctuation-and-conventions/shortened-words-and-phrases/acronyms-and-initialisms) provides further information regarding acronyms. Initialisms are beyond the scope of the study design; however, teachers may want to teach what initialisms are to support student understanding of what acronyms are.

Are Aboriginal peoples’ use of songlines the only example of sung narrative used by oral cultures that students need to explain?

Aboriginal peoples use of songlines is the specific example that teachers should use to illustrate and explore how oral cultures use sung narrative to encode, store and retrieve information. Students should also understand that sung narratives are used across the world by different oral cultures to encode information and teachers may choose their own examples to illustrate this aspect of the key knowledge. Teachers should note that this is the only part of the course that references Aboriginal peoples without Torres Strait Islander peoples and it should also be noted that the word ‘songlines’ is a Western idea that has been used to conceptualise what each Aboriginal language group has different words to describe. It is also important to recognise that colonisation has had a severe impact on Aboriginal cultures and caused disruption to the use of songlines for particular Aboriginal language groups. Students should be able to link their understanding of how the use of songlines can enhance encoding, storage and retrieval of information to the role of appropriate brain regions (hippocampus, neocortex and amygdala). Teachers should note that this key knowledge links strongly to the key knowledge that explores Aboriginal and Torres Islander peoples’ ways of knowing and teachers are encouraged to use examples of songlines to enhance student’s understanding about Aboriginal peoples’ ways of knowing. For further information, teachers should refer to the [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) available on the Psychology study page.

Unit 4

Are students expected to understand the difference between normal waking consciousness and altered states of consciousness?

Yes, an understanding of sleep as a naturally altered state of consciousness is based on students understanding why this is a different concept to normal waking consciousness. Students do not need to compare the two states of consciousness using any specific psychological characteristics and may use a broad set of ideas such as brain wave patterns, levels of awareness, perceptual abilities, and time orientation to illustrate why sleep is considered to be an altered state of consciousness.

Are students expected to distinguish between naturally occurring and induced altered states of consciousness?

No. Induced altered states of consciousness are beyond the scope of the study design. Teachers may select to use examples of sleep studies that use methods to induce sleep, but students do not need to understand these mechanisms or the differences between induced and naturally occurring sleep.

Are students expected to use terms such as ‘beta’, ‘theta’, ‘alpha’ and ‘delta’ to describe brain waves on an EEG scan?

No. Students should broadly understand the brain wave patterns associated with REM and NREM 1-3 sleep in terms of the patterns and changes (increase and decrease) in amplitude and frequency of brain waves that are present in each stage of sleep. They should also be able to link their understanding of brain wave patterns for each stage of sleep to the ultradian rhythms of REM and NREM Stages 1-3, as well as changes in typical patterns of sleep across the life span.

Can students still refer to Stage 4 NREM sleep?

No, the study design has been updated to reflect the change in terminology around NREM sleep stages. What was formerly Stages 3 and 4 are now combined to represent NREM Stage 3, or slow-wave sleep.

To what depth do students need to explain the role of the suprachiasmatic nucleus and melatonin in the regulation of sleep-wake patterns?

Students should understand that the suprachiasmatic nucleus (SCN) is part of the hypothalamus, and in terms of the sleep-wake cycle (a circadian rhythm), the SCN communicates with the nearby pineal gland to release the hormone melatonin. Students should recognise that the suprachiasmatic nucleus can operate independently on an approximately 24-hour cycle but is also influenced by zeitgebers (environmental cues). They should understand that daylight is the main naturally occurring zeitgeber that influences the functioning of the suprachiasmatic nucleus and that daylight allows the SCN to reset every 24 hours. Students should understand that daylight acts by stimulating light sensitive neurons in the eyes (retina) which then sends neural messages to the suprachiasmatic nucleus. When light is detected, the suprachiasmatic nucleus sends inhibitory messages to the pineal gland, whereas when no light is detected, the suprachiasmatic nucleus sends excitatory neural messages to the pineal gland. Students should then understand that when the pineal gland receives excitatory neural messages from the SCN, the pineal gland produces and releases melatonin through the bloodstream and, as a consequence, induces drowsiness/sleepiness and decreases alertness. They should also recognise that there is a negative feedback loop that allows the levels of melatonin in the blood to be monitored by the suprachiasmatic nucleus (specific details of the negative feedback loop including the stimulus, receptor, effector and response are not required) Students should be able to explain the positive and negative impacts of light on the regulation of the sleep-wake cycle and describe typical melatonin levels throughout a 24-hour cycle. Students should also be able to relate the other zeitgebers listed in the study design (temperature and eating and drinking patterns) to the role of the suprachiasmatic nucleus in regulating the sleep-wake cycle.

Do students need to know about different theories concerning the purpose of sleep to explain the differences in the demands for sleep across the life span?

The study design refers to explanations for the differences in the demands for sleep across the life span. As part of this knowledge, students should be able to describe the purpose of sleep to account for these differences between age groups. Students do not need to name or reference any particular theories of sleep such as ‘restorative’ or ‘evolutionary’; however, students should be able to identify the general benefits of certain sleep stages (REM and NREM) on survival, physical recovery and mental recovery in order to explain why there is a difference in the sleep demand or sleep pattern across the life span.

To what depth do students need to explain the role of blue light on sleep-wake patterns?

Students should understand that blue light is a zeitgeber that can influence the regulation of the sleep-wake cycle and that blue light is produced from man-made artificial sources of light that have become a staple in modern society through digital technology. They should recognise that similar to daylight, blue light has an effect through its interaction with the light-sensitive neurons in the eye, suprachiasmatic nucleus and the release of melatonin from the pineal gland. Students should be able to identify when blue light is impacting sleep quality and quantity and how it may be used to improve sleep hygiene, sleep timing and mental wellbeing.

Can the term ‘mental wellbeing’ be considered synonymous with the term ‘mental health’?

No. The 2023–2027 VCE Psychology Study Design focuses on defining ‘mental wellbeing’ rather than ‘mental health’ (as in the previous study design) to recognise that there are different (epistemological) ways of considering health and wellbeing across cultures. The change in terminology is designed to include both Western ways of considering mental health (and wellbeing) as well as Aboriginal and Torres Strait Islander multidimensional and holistic ways of considering wellbeing.

To what depth do students need to explain social and emotional wellbeing (SEWB) for Aboriginal and Torres Strait Islander peoples?

Students should recognise that Aboriginal and Torres Strait Islander peoples have held a holistic view of health and wellbeing for tens of thousands of years and should understand that SEWB as a framework is unique to Aboriginal and Torres Strait Islander peoples. They should understand that definitions of SEWB will vary across Aboriginal and Torres Strait Islander language groups, and that SEWB will also change through a life span. Students should recognise that SEWB places the individual (self) within a network of relationships called ‘domains’ (or elements of being) and the quality of an individual’s connections (experiences and expressions) to these domains is what influences their social and emotional wellbeing. It is important to understand in the framework, self is inseparable from each domain and to understand each domain also requires an understanding of their interconnectedness. Students should understand that while the domain of ‘mind and emotions’ is most closely related to a Western understanding of mental wellbeing, this domain as part of the SEWB framework extends beyond conventional Western understandings of mental health and mental wellbeing. When considering the four determinants of health (political, social, historical and cultural), focus should be placed on cultural determinants of health, as these have found to be amongst the strongest protective factors for Aboriginal and Torres Strait Islander peoples social and emotional wellbeing, and are considered in greater detail when exploring the maintenance of mental wellbeing. Knowledge of the nine guiding principles for the SEWB framework from the Ways Forward report are beyond the scope of this study design; however, teachers may wish to discuss these guiding principles with students to support their understanding of SEWB. Further advice and guidance for teachers in delivering SEWB can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Are students expected to identify specific protective and risk factors associated with Aboriginal and Torres Strait Islander peoples social and emotional wellbeing?

No. Being able to describe the broader ecological context of the SEWB model, such as determinants of health and the domains impacting the social and emotional wellbeing of Aboriginal and Torres Strait Islander peoples is an integral part of this key knowledge; however, students do not need to be able to identify specific positive/protective or challenge/risk factors for individuals or communities as part of this understanding. Teachers may choose to discuss particular factors with their students to support their understanding of SEWB however if teachers choose to do so, this must be done in a culturally safe and responsive way. Further advice and guidance for teachers in delivering SEWB can be found under [Supplementary materials](https://www.vcaa.vic.edu.au/curriculum/vce/vce-study-designs/Psychology/Pages/Planning.aspx#Supplementary) on the VCE Psychology study page.

Are students expected to apply their knowledge of cognitive behavioural therapy (CBT) to other contexts?

No, students are not required to apply CBT to contexts other than its use as a psychological intervention for specific phobia. Students are no longer required to apply CBT to the treatment of sleep disorders. Cognitive behavioural strategies, however, as a psychological protective factor to maintain mental wellbeing could be applied to different contexts and scenarios relating to mental health.

To what depth do students need to understand mindfulness meditation?

The American Psychological Association defines mindfulness meditation as a type of meditation in which a person focuses attention on (their) breathing and thoughts, feelings and sensations are experienced freely as they arise. Students should be able to explain how mindfulness meditation can act as a psychological protective factor for mental wellbeing and should demonstrate understanding of the attention and acceptance components of this technique. Students should focus their learning on the psychological benefits of this meditation rather than the biological mechanisms of the brain. Knowledge of structured mindfulness meditation approaches such as body scan, sitting and walking are not required knowledge; however, teachers may choose to introduce these examples as part of class activities and practical work.

What is meant by ‘support from family, friends and community that is authentic and energising’?

This key knowledge focuses on the positive attributes that should accompany social support – support that is authentic (genuine, down-to-earth, real) and energising (provides vitality, enthusiasm). The community aspect of this key knowledge can come from community groups that a person engages with, such as a sports club, music group or local community group, or more formal support that comes from the community settings, such as Headspace and Beyond Blue and other support organisations. Students should understand the reasons why this type of support can act as a social protective factor that can maintain mental wellbeing.