

MAPPING VCE PSYCHOLOGY AND APS PSYCHOLOGICAL SCIENCES

The following three tables show a mapping of the content of the VCE 2016-2021 Psychology study design against the content of the APS Psychological Sciences curriculum (the latter document being modelled on the ACARA senior science curricula, particularly that of *Earth and Environmental Science*).

The 2016-2021 VCE Psychology study design can be accessed

at: <http://www.vcaa.vic.edu.au/Documents/vce/psychology/PsychologySD-2016.pdf>

The APS Psychological Sciences curriculum can be accessed at:

<http://www.psychology.org.au/academic/teaching/>

Table 1 **Mapping of conceptual understanding**

VCE Psychology			APS Psychological Sciences comparison
Section	Area of Study	Key knowledge headers	
Unit 1: How are behaviour and mental processes shaped?	<i>Area of Study 1:</i> How does the brain function?	<ul style="list-style-type: none"> • Role of the brain in mental processes and behavior • Brain plasticity and brain damage 	<ul style="list-style-type: none"> • Brain anatomy covered in APS Unit 4 and equivalent to “role of the brain...behaviour” • VCE has a focus on brain plasticity whilst APS psychobiological interventions specified for general optimisation of brain-behaviour relationships (environmental enrichment) and neurodegenerative disease and brain injury (medication or neural grafting)
	<i>Area of Study 2:</i> What influences psychological development?	<ul style="list-style-type: none"> • The complexity of psychological development • Atypical psychological development 	<ul style="list-style-type: none"> • VCE takes a biopsychosocial approach in the study of psychological development by specifying attachment, the work of Harlow & Ainsworth, Piaget and Erikson, followed by a study of mental health and mental disorder, including schizophrenia in terms of the ‘two hit’ hypothesis for its development • APS introduces the biopsychosocial model illustrated through a study of learning theory including classical conditioning, operant conditioning, reinforcement and punishment, social learning and lifespan changes
	<i>Area of Study 3:</i> Student-directed research investigation	Students communicate a substantiated response to a selected question related to one of six topics: biopsychology; brain and the use of technology; cognition; psychological development;	Not included in APS curriculum

VCE Psychology			APS Psychological Sciences comparison
Section	Area of Study	Key knowledge headers	
		mental health and disorder; and changing thoughts, feelings and behaviour	
Unit 2: How do external factors influence behaviour and mental processes?	<i>Area of Study 1:</i> What influences a person's perception of the world?	<ul style="list-style-type: none"> Sensation and perception Distortions of perception 	<ul style="list-style-type: none"> APS includes "Sensation and perception" in Unit 3, and specifies concepts of 'threshold' and 'adaptation' Both VCE and APS primarily focus on vision and include distortions of perception, but VCE also focuses on taste as a comparative sensory system whilst APS includes a focus on pain
	<i>Area of Study 2:</i> How are people influenced to behave in particular ways?	<ul style="list-style-type: none"> Social cognition Social influences on behaviour 	<p>High degree of alignment that includes group behaviour, attitudes, stereotypes, prejudice, media influences, discrimination and pro- and anti-social behaviours, with following differences:</p> <ul style="list-style-type: none"> VCE specifies person perception, the tri-component model of attitudes and bullying (including cyberbullying) APS specifies cognitive dissonance, attraction, aggression, the emergence of conflict and a biopsychosocial approach to studying minority and disempowered groups
	<i>Area of Study 3:</i> Student-directed practical investigation	Students design and undertake a practical investigation related to external influences on behaviour	APS stand-alone Unit 1 section on "research methods in psychological science", including deduction/induction; scientific method; coincidence/correlation; experimental sources of error (including demand characteristics); reliability and validity; ethics
Unit 3: How does experience affect behaviour and mental processes?	<i>Area of Study 1:</i> How does the nervous system enable psychological functioning?	<ul style="list-style-type: none"> Nervous system functioning Stress as an example of a psychobiological process 	<ul style="list-style-type: none"> VCE covers this area in Units 1 and 3 whilst APS introduces this at Unit 4 High degree of alignment, with major differences that VCE includes focus on brain plasticity whilst APS includes focus on drug effects
	<i>Area of Study 2:</i> How do people learn and remember?	<ul style="list-style-type: none"> Neural basis of learning and memory Models to explain learning Process of memory Reliability of memory 	<p>High degree of alignment, with following differences:</p> <ul style="list-style-type: none"> Models to explain memory is covered In Unit 1 in the APS curriculum VCE includes neural plasticity and specifies neurodegenerative and brain trauma effects: brain trauma, anterograde amnesia and Alzheimer's disease APS includes generic reference to disorders of cognitive systems, selective attention, the cocktail party

VCE Psychology			APS Psychological Sciences comparison
Section	Area of Study	Key knowledge headers	
			phenomenon, cultural influences and hypnosis
Unit 4: How is wellbeing developed and maintained?	<i>Area of Study 1:</i> How do levels of consciousness affect mental processes and behaviour?	<ul style="list-style-type: none"> Nature of consciousness Importance of sleep Effects of sleep disturbances and possible treatments 	High degree of alignment, with following differences: <ul style="list-style-type: none"> VCE includes purpose of sleep; distinction between dysomnias and parasomnias; comparisons of sleep deprivation with effects of blood-alcohol concentrations; and circadian phase disorders including sleep-wake shifts in adolescence, shift work and jet lag APS includes theories to explain dreaming; specification of Yerkes-Dodson Law
	<i>Area of Study 2:</i> What influences mental wellbeing?	<ul style="list-style-type: none"> Defining mental health Factors that contribute to the development and progression of mental health disorders Application of a biopsychosocial approach, as a scientific model, to explain specific phobia Maintenance of mental health 	<ul style="list-style-type: none"> VCE includes in-depth study of specific phobia, whilst students have choice of mental disorders to study in Unit 1 Definitions and categories of mental disorder included in Unit 1 (VCE) compared with Unit 4 (APS) Major content differences: <ol style="list-style-type: none"> VCE – includes ‘two-hit’ hypothesis to explain development of schizophrenia, study of specific phobia through a biopsychosocial approach; risk and protective factors in the development and management of mental disorder; cumulative risk; transtheoretical model of behaviour change APS – includes cultural perspectives in defining mental disorder; PERMA
Unit 3 and/or 4 <i>Area of Study 3: Practical investigation</i>		Students design and undertake a practical investigation related to mental processes and psychological functioning	Not included in APS curriculum

Further topics/areas of studies included in APS Psychological Sciences but not in VCE Psychology:

- Personality (Unit 2): enduring traits versus socio-cultural construct; genetic influences; measurement
- Intelligence (Unit 2): psychological construct that considers genetic and socio-cultural factors; use and misuse; multiple intelligences; measurement
- Emotion (Unit 3): emotional states; sociocultural cues; biopsychosocial perspectives; motivation (Arousal theory, Maslow’s hierarchy of needs, self-determination theory); disorders of emotional and motivational systems

Table 2 Mapping of science skills

VCE Psychology key science skills (developed across Units 1-4)	APS Psychological Sciences comparison
<p>Develop aims and questions, formulate hypotheses and make predictions</p> <ul style="list-style-type: none"> determine aims, research hypotheses, questions and predictions that can be tested identify and operationalise independent and dependent variables 	<p>Units 1-4: Using theoretically based evidence, identify, research and construct questions for investigation; propose hypotheses; and predict possible outcomes</p>
<p>Plan and undertake investigations</p> <ul style="list-style-type: none"> determine appropriate type of investigation: experiments (including use of control and experimental groups); case studies; observational studies; self-reports; questionnaires; interviews; rating scales; access to secondary data, including data sourced through the internet that would otherwise be difficult to source as raw or primary data through fieldwork, a laboratory or a classroom use an appropriate experimental research design including independent groups, matched participants, repeated measures and cross-sectional studies select and use equipment, materials and procedures appropriate to the investigation minimise confounding and extraneous variables by considering type of sampling procedures, type of experiment, counterbalancing, single and double blind procedures, placebos, and standardised instructions and procedures select appropriate sampling procedures for selection and allocation of participants including random sampling, stratified sampling, convenience sampling and random allocation of participants to groups 	<p>Units 1-4: Design investigations, including the procedure/s to be followed, the information required and the type and amount of primary and/or secondary data to be collected; conduct risk assessments; and consider research ethics, including animal (and human) ethics</p>
<p>Comply with safety and ethical guidelines</p> <ul style="list-style-type: none"> understand the role of ethics committees in approving research apply ethical principles when undertaking and reporting investigations, including consideration of the role of the experimenter, protection and security of participants' information, confidentiality, voluntary participation, withdrawal rights, informed consent procedures, use of deception in research, debriefing and use of animals in research apply relevant occupational health and safety guidelines while undertaking practical investigations 	
<p>Conduct investigations to collect and record data</p> <ul style="list-style-type: none"> work independently and collaboratively as appropriate and within identified research constraints systematically generate, collect, record and summarise both qualitative and quantitative data 	<p>Units 1-4: Conduct investigations safely, competently and methodically for the collection of valid and reliable data</p>
<p>Analyse and evaluate data, methods and scientific models</p> <ul style="list-style-type: none"> process quantitative data using appropriate mathematical relationship[s] and units organise, present and interpret data using tables, bar charts, line graphs, percentages, calculations of mean as a measure of central tendency and understanding of standard deviation 	<p>Units 1&2: Represent data in meaningful and useful ways; organise and analyse data to identify trends, patterns and relationships; qualitatively describe sources of measurement error, uncertainty, and limitations in data; and select, synthesise, and use evidence to make and justify conclusions</p>

VCE Psychology key science skills (developed across Units 1-4)	APS Psychological Sciences comparison
<p>as a measure of variation around the mean</p> <ul style="list-style-type: none"> • recognise the difference between statistics that describe a specific sample and the use of statistics to make inferences about the population from which the data were drawn • use basic principles of reliability and validity in evaluating research investigations undertaken • explain the merit of replicating procedures and the effects of sample sizes in obtaining reliable data • evaluate investigative procedures and possible sources of bias, and suggest improvements, with reference to identification of potential extraneous and confounding variables including individual participant differences, non-standardised instructions and procedures, order effects, experimenter effect and placebo effects • explain how models are used to organise and understand observed phenomena and concepts related to psychology, identifying limitations of the models • distinguish between scientific and non-scientific ideas 	<p>Units 3&4: Represent data in meaningful and useful ways; organise and analyse data to identify trends, patterns and relationships; discuss the ways in which measurement error and instrumental accuracy, the nature of the procedure and the sample size may influence uncertainty and limitations in data; and select, synthesise, and use evidence to make and justify conclusions</p>
<p>Draw evidence-based conclusions</p> <ul style="list-style-type: none"> • determine to what extent evidence from an investigation supports the purpose of the investigation, and make recommendations, as appropriate, for modifying or extending the investigation • draw conclusions consistent with evidence and relevant to the question under investigation • identify, describe and explain the limitations of conclusions, including identification of further evidence required • critically evaluate various types of information related to psychology from journal articles, mass media and opinions presented in the public domain • discuss the implications of research findings and proposals 	<p>Units 1&2: Interpret a range of scientific and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence; use reasoning to construct scientific arguments</p> <p>Units 3&4: Interpret a range of scientific and media texts, and evaluate processes, claims and conclusions by considering the quality of available evidence, including interpreting confidence intervals in secondary data; use reasoning to construct scientific arguments</p>
<p>Communicate and explain scientific ideas</p> <ul style="list-style-type: none"> • use appropriate psychological terminology, representations and conventions for reporting research, including standard abbreviations, graphing conventions and the components of a scientific report with reference to inclusion of an abstract, an introduction and sections for method, results and discussion • discuss relevant psychological information, ideas concepts, theories and models and the connections between them • identify and explain formal psychological terminology about investigations and concepts • use clear, coherent and concise expression • acknowledge sources of information and use standard scientific referencing conventions 	<p>Units 1-4: Select, construct and use appropriate representations to communicate conceptual understanding, solve problems and make predictions</p> <p>Units 1-4: Communicate to specific audiences and for specific purposes using appropriate language, genres and modes, including research reports</p>

Table 3 Mapping of ‘Science as a Human Endeavour’

Notes:

- The VCE Psychology study design does not include a specific section related to “Science as a Human Endeavour”.
- Elements of this strand of the APS Psychological Sciences have been incorporated into the VCE Psychology study design ‘key knowledge’ and ‘key science skills’ sections as appropriate, articulated in the table below.

APS Psychological Sciences	VCE Psychology commentary
<i>Content</i>	
<p>Year 11: Science is a global enterprise that relies on clear communication, international conventions, peer review, and reproducibility</p>	<p>The VCE Psychology study design provides opportunities across Units 1 to 4 for students to develop knowledge and skills related to communication, scientific writing conventions and the importance of reproducibility.</p> <p>Relevant key science skills include:</p> <ul style="list-style-type: none"> • the nature of evidence and information: ... validity and reliability of data, including sources of possible errors or bias • explain the merit of replicating procedures and the effects of sample sizes in obtaining reliable data <p>Relevant key knowledge includes:</p> <ul style="list-style-type: none"> • the characteristics of effective science communication: accuracy of psychological information; clarity of explanation of psychological concepts, ideas and models; contextual clarity in terms of importance and implications of findings, appropriateness for purpose and audience; conciseness and coherence; and appropriateness for purpose and audience • the conventions of scientific report writing, including psychological terminology and representations and standard abbreviations
<ul style="list-style-type: none"> • Year 11: Development of complex models and/or theories often requires a wide range of evidence from multiple individuals and across disciplines • Year 12: Models and theories are contested and refined or replaced when new evidence challenges them, or when a new model or theory has greater explanatory power 	<p>Included in key science skills related to analysis and evaluation of scientific models:</p> <ul style="list-style-type: none"> • explain how models are used to organise and understand observed phenomena and concepts related to psychology, identifying limitations of the models <p>Students use models throughout Units 1 to 4 to explain psychological concepts and to understand that models are current best explanations of scientific phenomena, for example:</p> <ul style="list-style-type: none"> • Unit 1: the ‘two hit’ hypothesis as an explanation for the development of particular psychological disorders • Unit 2: models for taste and vision as two examples of human sensory systems • Unit 2: the tri-component model of attitudes • Unit 3: Selye’s General Adaptation Syndrome as a model of stress as a biological process, contrasted with the Lazarus & Folkman Transactional Model of Stress and Coping as a model of stress as a psychological process • Unit 3: models to explain learning, specifically classical and operant conditioning, and the Atkinson-Shiffrin multi-store model of memory • Unit 4: application of a biopsychosocial approach, as a scientific model, to explain specific phobia • Unit 4: models of behaviour change with reference to the transtheoretical model
<p>Year 11: Advances in science understanding in one field can influence other areas of science, engineering and technology</p>	<p>Specific examples are included across Units 1 to 4, for example:</p> <ul style="list-style-type: none"> • Unit 1 – <i>technology</i>: use of neuroimaging technologies in understanding brain structure and function • Units 1 and 4 – <i>psychiatry</i> – mental disorder • Unit 2 – <i>biology</i>: human sensory systems - taste and vision

APS Psychological Sciences	VCE Psychology commentary
<i>Content</i>	
	<ul style="list-style-type: none"> Unit 3 – <i>chemistry</i> – neurotransmitter excitatory and inhibitory effects across the synapse Unit 4 – <i>technology</i> – sleep patterns
<ul style="list-style-type: none"> Year 11: The use of scientific knowledge is influenced by social, economic, cultural and ethical considerations Year 12: The acceptance of scientific knowledge can be influenced by the social, economic and cultural context in which it is considered 	<p>Key knowledge in student-directed research investigation requires that students identify:</p> <ul style="list-style-type: none"> the influence of social, economic, cultural and ethical factors relevant to the selected psychological investigation
<p>Year 11: The use of scientific knowledge may have beneficial and/or harmful and/or unintended consequences</p>	<p>There is scope for inclusion of this aspect of human endeavour through the key science skill related to drawing evidence-based conclusions:</p> <ul style="list-style-type: none"> discuss the implications of research findings and proposals
<p>Year 11: Scientific knowledge can enable scientists to offer valid explanations and make reliable predictions</p>	<p>In VCE Psychology, students will make predictions about investigation outcomes and will draw evidence-based conclusions.</p> <p>Relevant key skills include:</p> <ul style="list-style-type: none"> determine aims, research hypotheses, questions and predictions that can be tested determine to what extent evidence from an investigation supports the purpose of the investigation, and make recommendations, as appropriate, for modifying or extending the investigation draw conclusions consistent with evidence and relevant to the question under investigation identify, describe and explain the limitations of conclusions, including identification of further evidence required
<p>Year 11: Scientific knowledge can be used to develop and evaluate projected economic, social, and environmental impacts and to design action for sustainability</p>	<p>Covered in other subjects/areas of the Victorian curriculum</p>
<p>Year 12: ICT and other technologies have dramatically increased the size, accuracy and geographic and temporal scope of data sets with which scientists work</p>	<p>Covered in other subjects/areas of the Victorian curriculum</p>
<p>Year 12: People can use scientific knowledge to inform the monitoring, assessment and evaluation of risk</p>	<p>“Risk” is treated in different ways, for example:</p> <ul style="list-style-type: none"> Management of risk in performing investigations, considered through key science skills, under the heading “Comply with safety and ethical guidelines” Consideration of “risk factors” in the development and progression of mental health disorders, specifying (Unit 4, Area of Study 2) predisposing, precipitating, perpetuating and protective risk factors, and the maintenance of mental health through studying of resilience as a positive adaption to adversity as well as studying models of behaviour change.
<p>Year 12: Science can be limited in its</p>	<p>Key VCE science skills specified for VCE Psychology:</p>

APS Psychological Sciences	VCE Psychology commentary
Content	
<p>ability to provide definitive answers to public debate; there may be insufficient reliable data available, or interpretation of the data may be open to question</p>	<ul style="list-style-type: none"> • critically evaluate various types of information related to psychology from journal articles, mass media and opinions presented in the public domain <p>Key knowledge in student-directed research investigation requires that students identify:</p> <ul style="list-style-type: none"> • the nature of evidence and information: distinction between weak and strong evidence, and scientific and non-scientific ideas; and validity and reliability of data, including sources of possible errors or bias • the influence of social, economic, cultural and ethical factors relevant to the selected psychological investigation
<p>Year 12: International collaboration is often required when investing in large-scale science projects or addressing international issues</p>	<p>Covered in other subjects/areas of the Victorian curriculum</p>