

Victorian Certificate of Education

EXTENDED INVESTIGATION

STUDY DESIGN



www.vcaa.vic.edu.au

Authorised and published by the Victorian Curriculum and Assessment Authority
Level 7, 2 Lonsdale Street, Melbourne VIC 3000

Accredited by the Victorian Registration and Qualifications Authority
Level 4, 2 Lonsdale Street, Melbourne VIC 3000

ISBN: 978-1-925676-28-0

© Victorian Curriculum and Assessment Authority 2017

No part of this publication may be reproduced except as specified under the *Copyright Act 1968* or by permission from the VCAA. Excepting third-party elements, schools may use this resource in accordance with the [VCAA Educational Allowance](#). For more information go to: www.vcaa.vic.edu.au/Footer/Pages/Copyright.aspx.

The VCAA provides the only official, up-to-date versions of VCAA publications. Details of updates can be found on the VCAA website: www.vcaa.vic.edu.au.

This publication may contain copyright material belonging to a third party. Every effort has been made to contact all copyright owners. If you believe that material in this publication is an infringement of your copyright, please email the Copyright Officer: vcaa.copyright@edumail.vic.gov.au.

Copyright in materials appearing at any sites linked to this document rests with the copyright owner/s of those materials, subject to the *Copyright Act*. The VCAA recommends you refer to copyright statements at linked sites before using such materials.

The VCAA logo is a registered trademark of the Victorian Curriculum and Assessment Authority.

Contents

Important information	4
Introduction	5
Scope of study	5
Rationale	5
Aims	5
Structure	5
Entry	6
Duration	6
Changes to the study design	6
Monitoring for quality	6
Safety and wellbeing	6
Ethical conduct of investigations	6
Employability skills	7
Legislative compliance	7
Assessment and reporting	8
Satisfactory completion	8
Levels of achievement	8
Authentication	8
Characteristics of the study	10
Unit 3: Designing an extended investigation	13
Area of Study 1	13
Area of Study 2	14
Area of Study 3	15
School-based assessment	16
External assessment	17
Unit 4: Presenting an extended investigation	19
Area of Study 1	19
Area of Study 2	20
School-based assessment	20
External assessment	21
Assessment criteria and performance descriptors	23
Unit 3: Designing an extended investigation	24
Unit 4: Presenting an extended investigation	25

Important information

Accreditation period

Units 3 and 4: 1 January 2019 – 31 December 2024

Implementation of this study commences in 2019.

Other sources of information

The [VCAA Bulletin](#) is the only official source of changes to regulations and accredited studies. The Bulletin also regularly includes advice on VCE studies. It is the responsibility of each VCE teacher to refer to each issue of the Bulletin. The Bulletin is available as an e-newsletter via free subscription on the VCAA's website at: www.vcaa.vic.edu.au

To assist teachers in developing courses, the VCAA publishes online the *Advice for teachers*, which includes teaching and learning activities for Units 3 and 4, and advice on assessment tasks for School-assessed Coursework in Unit 3.

The current [VCE and VCAL Administrative Handbook](#) contains essential information on assessment processes and other procedures.

VCE providers

Throughout this study design the term 'school' is intended to include both schools and other VCE providers.

Copyright

VCE schools may reproduce parts of this study design for use by teachers. The full VCAA Copyright Policy is available at: www.vcaa.vic.edu.au/Footer/Pages/Copyright.aspx.

Introduction

Scope of study

The VCE Extended Investigation enables students to develop, refine and extend knowledge and skills in independent research and carry out an investigation that focuses on a rigorous research question. The investigation may be an extension of an area of curriculum already undertaken by the student or it may be completely independent of any other study in the student's VCE program.

Through this study, students develop their capacity to explore, justify and defend their research findings in both oral and written forms to an educated non-specialist audience.

Rationale

The VCE Extended Investigation develops students' understanding of what constitutes a good research question. They develop an ethical, robust, disciplined and rational approach to gathering, interpreting and evaluating evidence in order to answer the research question.

In this study, students consider how research questions are developed and refined to enable the researcher to address the key issues proposed by the research within the limits that time and resources impose. Students conduct a review of relevant literature, develop research project management knowledge and skills, and develop ways of effectively presenting and communicating research findings.

Students are introduced to a broad range of research methods and explore their comparative suitability for the investigation of particular questions.

The skills that students develop in this study are transferable to any higher education course or vocational education and training program.

Aims

This study enables students to:

- develop and construct a rigorous research question
- understand and apply research methods
- explore a chosen area of investigation in depth
- develop as independent, critical and reflective learners
- develop research project management knowledge and skills
- analyse and evaluate findings and results
- develop skills in written and oral presentation of research findings.

Structure

The study is comprised of a Unit 3 and 4 sequence:

Unit 3: Designing an extended investigation

Unit 4: Presenting an extended investigation

Each unit deals with specific content contained in areas of study and is designed to enable students to achieve a set of outcomes for that unit. Each outcome is described in terms of key knowledge and key skills.

Entry

There are no prerequisites for entry to Unit 3. Students must undertake Unit 3 and Unit 4 as a sequence. Units 3 and 4 are designed to a standard equivalent to the final year of secondary education. Accordingly, the standards of research expected of students undertaking this study are at a level consistent with the final year of secondary education. All VCE studies are benchmarked against comparable national and international curriculum.

Duration

Units 3 and 4 each involve at least 50 hours of scheduled supervised instruction combined with independent study monitored by the supervising teacher. It is expected that students will commit out of school time to undertake research and that schools will monitor this aspect of the study.

Changes to the study design

During its period of accreditation minor changes to the study will be announced in the [VCAA Bulletin](#). The Bulletin is the only source of changes to regulations and accredited studies. It is the responsibility of each VCE teacher to monitor changes or advice about VCE studies published in the Bulletin.

Monitoring for quality

As part of ongoing monitoring and quality assurance, the VCAA will periodically undertake an audit of VCE Extended Investigation to ensure the study is being taught and assessed as accredited. The details of the audit procedures and requirements are published annually in the [VCE and VCAL Administrative Handbook](#). Schools will be notified if they are required to submit material to be audited.

Safety and wellbeing

It is the responsibility of the school to ensure that duty of care is exercised in relation to the health and safety of all students undertaking the study.

Ethical conduct of investigations

As part of this study, supervising teachers and students may be involved in teaching and learning activities that include investigations using human subjects. Teachers and schools have a legal and moral responsibility to ensure that students follow ethical principles at all times when undertaking such investigations. Teachers should refer to the following documents and websites for detailed advice.

- Australian Code for the Responsible Conduct of Research (2007, updated 2018), issued by National Health and Medical Research Council (NHMRC), Australian Research Council and Universities Australia: www.nhmrc.gov.au
- National Statement on Ethical Conduct in Human Research (2007, updated July 2018), issued by the National Health and Medical Research Council (NHMRC) in accordance with the *National Health and Medical Research Council Act 1992* (Cwlth): www.nhmrc.gov.au
- Australian Privacy Principles in the *Privacy Amendment (Enhancing Privacy Protection) Act 2012* (Cwlth): www.oaic.gov.au

Schools are strongly advised that research activities involving animals are to be avoided. Schools are referred to the Department of Environment and Primary Industries (DEPI) <<http://agriculture.vic.gov.au/agriculture/animal-health-and-welfare/animals-used-in-research-and-teaching/licensing/schools>> for information regarding legislation and licensing requirements that restrict the use of animals in research.

Schools must comply with the appropriate sectoral policy and advice regarding students conducting research within their own or neighbouring schools.

Employability skills

This study offers a number of opportunities for students to develop employability skills. The *Advice for teachers* companion document provides specific examples of how students can develop employability skills during learning activities and assessment tasks.

Legislative compliance

When collecting and using information, the provisions of privacy and copyright legislation, such as the Victorian *Privacy and Data Protection Act 2014* and *Health Records Act 2001*, and the federal *Privacy Act 1988* and *Copyright Act 1968*, must be met.

Assessment and reporting

Satisfactory completion

The award of satisfactory completion for a unit is based on the teacher's decision that the student has demonstrated achievement of the set of outcomes specified for the unit. Demonstration of achievement of outcomes and satisfactory completion of a unit are determined by evidence gained through the assessment of a range of learning activities and tasks.

Teachers must develop courses that provide appropriate opportunities for students to demonstrate satisfactory achievement of outcomes.

The decision about satisfactory completion of a unit is distinct from the assessment of levels of achievement. Schools will report a student's result for each unit to the VCAA as S (Satisfactory) or N (Not Satisfactory).

Levels of achievement

Units 3 and 4

The VCAA specifies the assessment procedures for students undertaking scored assessment in Units 3 and 4. Designated assessment tasks are provided in the details for each unit in the VCE study designs.

The student's level of achievement in Units 3 and 4 will be determined by School-assessed Coursework (SAC), a Critical Thinking Test and an Externally-assessed Task as specified in the VCE study design.

The VCAA will report the student's level of achievement on each assessment component as a grade from A+ to E or UG (ungraded). To receive a study score the student must achieve two or more graded assessments and receive S for both Units 3 and 4. The study score is reported on a scale of 0–50; it is a measure of how well the student performed in relation to all others who took the study. Teachers should refer to the current [VCE and VCAL Administrative Handbook](#) for details on graded assessment and calculation of the study score. Percentage contributions to the study score in VCE Extended Investigation are as follows:

- Unit 3 School-assessed Coursework: 30 per cent
- Unit 3 Critical Thinking Test: 10 per cent
- Unit 4 Externally-assessed Task: 60 per cent.

Details of the assessment program are described in the sections on Units 3 and 4 in this study design. Assessment criteria for the outcomes in Unit 3 and Unit 4 are mandated for this study. These criteria are provided on pages 24 and 25.

Authentication

Work related to the outcomes of each unit will be accepted only if the teacher can attest that, to the best of their knowledge, all unacknowledged work is the student's own. Teachers need to refer to the current [VCE and VCAL Administrative Handbook](#) for authentication procedures. Additional advice regarding authentication procedures for VCE Extended Investigation is available on the VCE Extended Investigation study page: www.vcaa.vic.edu.au/Documents/vce/extendedinvestigation/ExtendedInvestigation-Authentication-UndueAssistance.pdf

Student research activities within VCE Extended Investigation must be the student's individual work. As a result of the unique structure of the Extended Investigation study, parameters for critical feedback and the requirements

for feedback are specific to this study. Students may discuss aspects of their investigation with others and receive critical feedback. However, the development of the research question, design of the investigation, data collection and the writing of the report must be the student's own work. While some students may choose areas of investigation similar in direction and using similar research methods, it is a clear requirement of VCE Extended Investigation that research undertaken and activities completed will be the work of an individual student. All assessment submitted by the student must be completed on an individual basis.

Due to the nature of the study, a significant volume of work may be completed without the classroom teacher's direct supervision. Teachers will need to attest to the best of their knowledge that the work submitted is the student's own. It is important that such work is monitored and authenticated through the Extended Investigation Journal.

Characteristics of the study

Audience

Students are required to present the findings of their investigation to an educated non-specialist audience. The language of both the written report and the oral presentation used to explain the nature and significance of the investigation must be accessible to this audience. In the context of this study, 'educated' is defined as having achieved a tertiary-level qualification. 'Non-specialist' indicates that the audience may not necessarily have specialist knowledge in the student's area of investigation. The presentation of information to an educated non-specialist audience should be a constant consideration in the planning, design and reporting of the student's investigation.

Critical thinking as a foundation of the study

The skill of critical thinking is central to VCE Extended Investigation. Aspects of critical thinking such as analysing, evaluating and synthesising information and reasoning logically are integral to the process of formulating and developing an investigation. As well as critiquing the strengths and the weaknesses of the arguments and conclusions of other researchers, students also need to apply critical thinking to their research question, choice of methods and research findings in order to arrive at a viable project and an individual and defensible outcome. Critical thinking is essential to the development of effective argumentation, which is needed to support reasoned judgments and effective exploration of the investigation to an educated non-specialist audience. This skill underpins all aspects of VCE Extended Investigation.

Investigation: scope and definition

The conduct and design of an investigation is central to the student's work in VCE Extended Investigation. The investigation conducted by each student must be centred on responding to a primary research question. The investigation must enable the student to design a systematic and in-depth research process using sound research methodology. Students need to analyse and synthesise their data to draw conclusions in response to their research question.

The outcome of each investigation will be a response to the research question, presented in detail in a written report and an oral presentation.

Criteria for research questions

The framing of a suitable research question is fundamental to the development of a sound investigation.

Teachers and students must use the following criteria in the development of the proposed research question:

- The question is substantial and significant.
- The question is practical, realistic and manageable within the limits that time and resources impose.
- The question aims for critical distance and an objective or detached stance.
- The question can be addressed by systematic and sound research methods.
- The student can gain access to appropriate and relevant primary and secondary sources.
- The question and the research methods are likely to produce a useful result.
- The question is clearly and precisely worded.
- The scope of the question is contained and focused.
- The question and method/s comply with responsible and ethical research guidelines.

- The question sustains student inquiry over the duration of the study.
- The question enables the student to meet all outcomes in the study.

The student must develop their own research question. Teachers and mentors cannot provide the research question nor can it be replicated across a class.

Formal lodgment of research question

To guard against possible duplication of content with existing VCE studies and to ensure rigour in the study, the student's selected research question is formally lodged with the VCAA in Term 1. The lodgment date is published annually.

Where the VCAA identifies duplication with another current VCE study the school will be notified and it is the school's responsibility to guide the student in the refinement of the question. For any research question, refined or otherwise, ongoing monitoring for possible duplication should continue to be undertaken by the teacher as the research develops.

A number of VCE studies now include research projects. Teachers of VCE Extended Investigation need to ensure that all work is authenticated throughout the course and that students are not submitting the same work for assessment in more than one study..

The role of the Extended Investigation Journal

The Extended Investigation Journal is a mandatory component of the study that supports the authentication of student work and student achievement of the outcomes throughout Unit 3 and Unit 4. It is a formal record maintained over the duration of the study that provides students and supervising teachers with documentation to authenticate student work.

The Extended Investigation Journal is an important mechanism for students to track, review and refine the focus of their investigation and to record their research and background readings. On a regular basis they review their proposed investigation in light of their growing awareness of the purpose and nature of research and the elements of research design.

The Extended Investigation Journal can be maintained in either print or in digital form. All items in the Extended Investigation Journal must be dated and clearly documented. To maintain the Extended Investigation Journal, students should include the development of their research question and understanding of their research area, design of research tools and data collection mechanisms within their investigation, notes on academic literature and summaries of information, critical thinking exercises, project management tools including timelines and key milestones, and a record of discussions with teachers and mentors throughout the investigation.

The Extended Investigation Journal is submitted as a requirement of satisfactory completion in both Unit 3 and Unit 4. The supervising teachers must regularly sight and monitor the use of the student's Extended Investigation Journal and authenticate the developing body of work.

Authentication and support throughout an extended investigation

It is essential that plagiarism and re-presenting previous student work be avoided. This is best dealt with by the supervising teacher through a class discussion of what constitutes plagiarism and close monitoring of student work in Unit 3.

The student may discuss their research with their supervising teacher, fellow students, mentors and others, such as relatives. Such discussions should only assist the student to analyse and reflect critically on their research, their research project management and their problem-solving strategies should issues arise.

Research areas and research questions must be selected and developed by the student.

Supervising teachers may read parts of the student's developing written report and provide general feedback to assist the student to reflect critically on their own work. This is part of the teacher's role in monitoring each student's development of work. The [Extended Investigation Externally-assessed Task Authentication form](#) should be downloaded from the VCE Extended Investigation study page on the VCAA website and it, or an equivalent thereof, be used as a record of any incidences of such feedback. The record should be retained as part of the Extended Investigation Journal.

The Extended Investigation Journal will assist with authentication as a mechanism to monitor the progressive development of the student's investigation. If the VCAA requires additional evidence to establish the authenticity of a student's written report during assessment, the student's Extended Investigation Journal may be requested.

Unit 3: Designing an extended investigation

In this unit students develop skills in question construction and design, explore the nature and purpose of research and various research methodologies, critically review research literature and identify a specific research question. Students undertake initial research and document their progress in their Extended Investigation Journal. They use their Journal to record the progressive refinement of a selected area of interest and the distillation of an individual research question.

The research question is formally lodged with the VCAA during Term 1 on a date published annually.

Underpinning the student's preparatory work for their investigation is the development and application of critical thinking skills. While the critical thinking component of this study is located in Area of Study 3, it is assumed and expected that students will develop and utilise these skills throughout Unit 3 in the context of developing their individual investigation and continue to exercise them in Unit 4.

Area of Study 1

Designing a research question

In this area of study students devise a research question that is of significance and requires a detailed inquiry. They set the parameters for their research and examine a range of research methods. Students also explore the purpose and ethics of undertaking research, the importance of protecting the subjects of research from any harm, and the relationship between ethical research and potential benefit.

Teachers and students must use the criteria on pages 10 and 11 to guide the development of the research question.

Students begin to develop their skills of critical thinking. They apply these in the analysis and evaluation of their area of investigation, research methodologies and possible research questions.

Students conduct a literature review to learn more about the background of their area of investigation, to identify previous research that has occurred in this area, and to locate literature, data and other resources that they can use to inform their investigation. A critical consideration of these various materials can provide evidence to support explanations about the significance of the investigation.

Students develop an understanding of the importance of framing robust questions. They are introduced to the conventions of academic report writing including the use of standard referencing systems.

Students are introduced to the Extended Investigation Journal and its purpose for documenting their work in progress. The preparation in this area of study culminates in the detailed research proposal.

Outcome 1

On completion of this unit the student should be able to design and justify a research question.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

- purpose and role of research
- characteristics of a range of research methods including qualitative and quantitative data
- characteristics of a good research question and rationale
- ways of defining and refining research questions and evaluating their significance

- relevant literature, and other resources where available, which contextualises research
- ways of summarising readings and research materials
- ethics and issues of research including
 - protection against individual and collective harm
 - consent
 - plagiarism
 - confidentiality and privacy
 - unsubstantiated claims
 - influence of cognitive biases
- methods of organising and critically analysing ideas, information and arguments.

Key skills

- use key research concepts and terms
- identify scope of research
- critically compare research methods
- identify and address issues of cognitive bias
- identify the characteristics of a good research question
- identify and assemble literature, and other resources where available, to inform an investigation
- organise and critically analyse ideas, information and arguments
- formulate, refine and justify a research question
- consider and address ethical issues relevant to the research question.

Area of Study 2

Planning and commencing the investigation

In this area of study students learn about the practical components of planning and undertaking research, methods of research and their application, establishing timelines and milestones and the general principles of research project management.

Students develop their research plan, select appropriate research methods and focus their research on the selected area of investigation. They learn to apply the conventions of academic report writing, including citations and bibliographic referencing of sources.

Students continue to develop their skills of critical thinking. They apply these in the analysis and evaluation of key arguments and evidence.

Students develop their research plan, outlining how they intend to conduct their research and the influences of background reading and other sources of information.

Students explain their investigation through an oral report. They detail the types of evidence explored in their research to date, articulate the central issue of their investigation and make predictions about the outcomes of their investigation. They draw on relevant documents derived from their literature review and explain their selections in the context of their research question.

Students document their work in progress in their Extended Investigation Journal.

Outcome 2

On completion of this unit the student should be able to write a research plan, begin research and present an oral report to an educated non-specialist audience that explains the investigation and justifies the selected research method/s.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

- key findings of relevant research
- methods of organising and critically analysing ideas, information and arguments
- the ways evidence is used to support ideas and points of view in various documents
- methods of evaluating evidence
- strengths and weaknesses of a range of research methods
- principles of research project management including milestones and time management
- ethical considerations relevant to the selected research
- conventions of academic report writing including citations and bibliographic referencing of sources.

Key skills

- use key research concepts and terms
- synthesise evidence and arguments in research reading
- select and evaluate literature, and other resources where available, to inform an investigation
- apply principles of research project management
- organise and critically analyse ideas and information
- explain and justify selected research methods
- consider ethical issues relevant to the research question
- use conventions of academic report writing.

Area of Study 3

Critical thinking

Critical thinking underpins all stages of student research and is an explicit part of work throughout both Units 3 and 4.

This area of study focuses on the key aspects of the process of critical thinking. Students consider and practise the cognitive skills essential to critical thinking.

Students consider how arguments are constructed through the use of premises, reasons and evidence and conclusions. They develop their understanding of the quality of evidence by examining the differences between opinion, belief, anecdote and substantiated views. They consider how various cognitive biases can influence thinking and limit logical reasoning.

Students develop skills in assessing the strengths and the weaknesses of an argument, a view or a proposition through an examination of a range of materials, and the evidence used to support them.

Students learn about techniques and methods that assist critical thinking. They complete practical exercises in the development of critical thinking skills and include them in their Extended Investigation Journal.

Outcome 3

On completion of this unit the student should be able to develop and apply the skills of critical thinking.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 3.

Key knowledge

- terminology of cognitive skills associated with critical thinking including analysis, inference, deduction, categorisation, generalisation, evaluation, justification and synthesis
- elements of arguments including propositions, premises, contentions, reasons, evidence, and conclusions
- strengths and weaknesses of evidence types
- influence of cognitive biases on reasoning and on investigation
- characteristics of strong and of weak reasoning
- the distinction between inductive and deductive reasoning
- techniques to construct arguments and techniques to analyse and evaluate the strength and validity of arguments
- methods for organising and analysing ideas and information.

Key skills

- apply the cognitive skills associated with critical thinking to research and other material
- critically construct and deconstruct arguments
- critically apply understanding of the influence of cognitive biases on reasoning and on investigation
- compare, analyse and evaluate the strengths and the weaknesses of the elements of arguments
- apply organisational methods to organise and critique propositions and arguments.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks to provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study and key knowledge and key skills listed for the outcomes should be used for course design and the development of learning activities and assessment tasks.

Students must submit their Extended Investigation Journal for authentication purposes to satisfactorily complete Unit 3.

To demonstrate satisfactory completion of Unit 3 Outcome 3, students must complete practical exercises in critical thinking in their Extended Investigation Journal that address the key knowledge and skills.

Outcome 3

Develop and apply the skills of critical thinking.

Practical exercises in critical thinking.

Assessment of levels of achievement

The student's level of achievement in Unit 3 will be determined by School-assessed Coursework and by the externally-assessed Critical Thinking Test. School-assessed Coursework tasks must be a part of the regular teaching and learning program and must not unduly add to the workload associated with that program. They must be completed mainly in class and within a limited timeframe.

The types and range of forms of School-assessed Coursework for the outcomes are prescribed within the study design. The VCAA publishes *Advice for teachers* for this study, which includes advice on approaches in designing assessment tasks.

Teachers will provide to the VCAA a numerical score representing an assessment of the student's level of achievement. The score must be based on the teacher's assessment of the performance of each student on the tasks set out in the following table, using the assessment criteria on page 24. The performance descriptors for these criteria are published by the VCAA and available on the VCE Extended Investigation study page.

Conditions of assessment of oral report

- oral reports must be recorded
- an educated non-specialist panel must comprise at least two members including the supervising teacher
- students present individually to the panel
- no audience should be present apart from the panel
- all panel members are involved in the question and answer segment of the oral report
- each assessor on the panel will mark individually and after conferring agree on a single mark.

Contribution to final assessment

School-assessed Coursework for Unit 3 will contribute 30 per cent to the study score.

Outcomes	Marks allocated	Assessment tasks
Outcome 1 Design and justify a research question.	20	Written rationale (800 words).
Outcome 2 Write a research plan, begin research and present an oral report to an educated non-specialist audience that explains the investigation and justifies the selected research method/s.	30	Written research plan (1000 words) and
	30	Oral report (12–16 minutes, 6–8 minutes for presentation, 6–8 minutes for question and answer segment).
Total marks	80	

External assessment

The level of achievement for Unit 3 is also assessed by a Critical Thinking Test, which will contribute 10 per cent to the study score.

The Critical Thinking Test will be an online test consisting of short-answer and extended response items.

Conditions of the Critical Thinking Test

- The test will be undertaken on a date published annually by the VCAA.
- VCAA examination rules will apply. Details of these rules are published annually in the [VCE and VCAL Administrative Handbook](#).
- The Critical Thinking Test will be assessed by assessors appointed by the VCAA.

Further advice

The VCAA publishes specifications for all VCE examinations on the VCAA website. Examination specifications include details about the sections of the examination, their weighting, the question format/s and any other essential information. The specifications are published in the first year of implementation of the revised Unit 3 and 4 sequence together with any sample material.

Unit 4: Presenting an extended investigation

This unit is comprised of two parts that together constitute the student's completion of their investigation. The results of the investigation are presented in a final written report and in an oral presentation incorporating a defence to an educated non-specialist audience.

While undertaking Unit 4, students are supported and monitored to maintain the dimensions and scope of their investigation and to meet the milestones established in Unit 3. The Extended Investigation Journal is used to record the progress of their investigation and the assistance they receive from supervising teachers, mentors and others.

Area of Study 1

Presenting the final research report

In this area of study students complete their investigation and write the final report that provides their response to the research question. They analyse and evaluate argument and evidence used in their investigation.

The Extended Investigation Journal is used to record and monitor the development of the written report.

Outcome 1

On completion of this unit the student should be able to complete a written report for an educated non-specialist audience that presents and evaluates the results of the extended investigation.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 1.

Key knowledge

- the body of relevant content specific to the area of investigation
- methods for the synthesis and evaluation of research material and research findings
- methods for analysing and evaluating data, and reporting research findings
- conventions of academic writing and report structures
- adaptations of language and key ideas to suit an educated non-specialist audience
- methods of monitoring and recording progress
- evidence and argument within both existing research literature and their own research
- relevant literature and/or data to support analysis and findings.

Key skills

- apply skills of research project management
- use key research concepts and terms
- use and analyse relevant literature and/or data to support analysis and to draw conclusions
- analyse and evaluate evidence and argument within existing research literature
- apply skills of data analysis to generate research findings
- organise, synthesise and evaluate research findings
- use conventions of academic writing and report structures
- adapt language and key ideas for an educated non-specialist audience.

Area of Study 2

Defending research findings

In this area of study students shape their research and findings into a presentation format. They present their investigation to an educated non-specialist audience and respond to questions and challenges. They reflect critically on the existing research literature in their field, their own research findings and the research methods they used in this investigation.

Outcome 2

On completion of this unit the student should be able to explain the investigation, critically evaluate their research process, and defend research findings in a presentation to an educated non-specialist audience.

To achieve this outcome the student will draw on key knowledge and key skills outlined in Area of Study 2.

Key knowledge

- the body of relevant content specific to the area of investigation
- ways to select and critically shape written materials into an oral presentation format
- methods of evaluation of research findings
- ways to structure and organise an oral presentation
- adaptations of language and key ideas to suit an educated non-specialist audience
- techniques for the defence and justification of research choices and findings.

Key skills

- adapt language and key ideas for an educated non-specialist audience
- organise and analyse ideas, data and findings to explain conclusions
- communicate and explain research in the context of the existing body of relevant content
- defend and justify research design and outcomes
- evaluate research methods
- critically evaluate and reflect on outcomes of the investigation.

School-based assessment

Satisfactory completion

The award of satisfactory completion for a unit is based on whether the student has demonstrated the set of outcomes specified for the unit. Teachers should use a variety of learning activities and assessment tasks to provide a range of opportunities for students to demonstrate the key knowledge and key skills in the outcomes.

The areas of study and key knowledge and key skills listed for the outcomes should be used for course design and the development of learning activities and assessment tasks.

To achieve an S for each outcome students submit or present the following at a school level:

- the written report
- an oral presentation to an educated non-specialist audience comprising at least two members including the supervising teacher
- the Extended Investigation Journal.

External assessment

The student's level of achievement in Unit 4 will be determined by an Externally-assessed Task that consists of two parts – a final written report and an oral presentation incorporating a defence before an external panel.

Assessment of levels of achievement

The Externally-assessed Task in Unit 4 will contribute 60 per cent to the study score.

Outcomes	Marks allocated	Assessment tasks
<p>Outcome 1</p> <p>Complete a written report for an educated non-specialist audience that presents and evaluates the results of the extended investigation.</p>	60	Written report including evaluation (4000 words).
<p>Outcome 2</p> <p>Explain the investigation, critically evaluate their research process, and defend research findings in a presentation to an educated non-specialist audience.</p>	40	Oral presentation including response to panel questions (15–20 minutes).
Total marks	100	

Description

The Externally-assessed Task is assessed using the criteria on page 25. The performance descriptors for these criteria are published by the VCAA and available on the [VCE Extended Investigation study page](#).

Written report

The written report (4000 words) must include the following:

- a word count declaration
- the research question
- an abstract of 250–300 words
- research literature review, methods and findings
- an evaluation and a conclusion
- a reference list using a standard referencing system
- appendices (if applicable).

Further specifications for the word count of the written report are published in the [VCE Extended Investigation \(2019–2023\) Externally-assessed Task: Written Report Specifications](#).

Oral presentation

- 15–20 minutes

Students may use presentation software and/or poster/s. Speaker notes are permitted.

It should be noted that there is no assessment criteria assessing the use of presentation aids. The following rules apply:

- no additional electronic media (for example, sound and video files) are permitted
- no additional props (for example, laboratory equipment, costumes, scientific models or simulations) are permitted.

Conditions

The Externally-assessed Task will be undertaken and submitted under the following conditions:

- Date: end-of-year, on a date to be published annually by the VCAA.
- VCAA examination rules will apply to the oral presentation component. Details of these rules are published annually in the [VCE and VCAL Administrative Handbook](#). VCAA school-based assessment authentication requirements will apply to the written component. Further conditions and other specifications for the written report are published in the [VCE Extended Investigation \(2019–2023\) Externally-assessed Task: Written Report Specifications](#).
- The written report and the oral presentation will be marked by assessors appointed by the VCAA.

Further advice

The VCAA publishes specifications for all VCE Externally-assessed Tasks on the VCAA website. These specifications include details about the sections of the task, their weighting, and any other essential information. The specifications are published in the first year of implementation of the revised Unit 3 and 4 sequence together with any sample material.

Assessment criteria and performance descriptors

Unit 3

The assessment tasks for Outcome 1 and Outcome 2 in Unit 3 will be assessed using the criteria on page 24.

Performance descriptors elaborating on the criteria for each outcome are published by the VCAA and available on the VCE Extended Investigation study page. They will be used by teachers to award marks for School-based Coursework in Unit 3.

Outcome 3 in Unit 3 will be externally assessed by a Critical Thinking Test.

Unit 4

The assessment tasks for Outcome 1 and Outcome 2 in Unit 4 will be assessed using the criteria on page 25.

The performance descriptors for these criteria are published by the VCAA and available on the VCE Extended Investigation study page.

Both Outcome 1 and Outcome 2 in Unit 4 will be externally assessed.

Unit 3: Designing an extended investigation

Criteria for Outcome 1

Design and justify a research question.

The extent to which the written rationale demonstrates the following:

1. Clarity of research question and justification of its significance
2. Exploration of research methods and scoping and planning

Criteria for Outcome 2

Write a research plan, begin research and present an oral report to an educated non-specialist audience that explains the investigation and justifies the selected research method/s.

The extent to which the written research plan demonstrates the following:

1. Analysis and evaluation of ideas, information and arguments in the selected area of investigation
2. Methods of collecting, organising and analysing evidence and/or data
3. Application of research project management knowledge and skills

The extent to which the oral report demonstrates the following:

1. Exposition of the research question and explanation of its significance
2. Explanation and justification of research method/s
3. Responses to questions and/or challenges

Unit 4: Presenting an extended investigation

Criteria for Outcome 1

Complete a written report for an educated non-specialist audience that presents and evaluates the results of the extended investigation.

The extent to which the written report demonstrates the following:

1. Knowledge and understanding of the research area
2. Analysis and evaluation of argument and evidence
3. Response to the research question
4. Synthesis of findings and evaluation of the investigation
5. Clarity and effectiveness of writing
6. Observance of report writing conventions including citations and bibliographic referencing of sources

Criteria for Outcome 2

Explain the investigation, critically evaluate their research process, and defend research findings in a presentation to an educated non-specialist audience.

The extent to which the oral presentation demonstrates the following:

1. Knowledge and understanding of the research area
2. Defence of research findings and understanding of audience
3. Responses to questions and challenges
4. Reflection and evaluation