

# VCE Data Analytics

## School-assessed Task 2024

### Video 2

### Unit 3 Outcome 2

### SAT Criteria 1–5

# Acknowledgement of Country

The VCAA respectfully acknowledges the Traditional Owners of Country throughout Victoria and pays respect to the ongoing living cultures of First Peoples.



# VCE Data Analytics

## School-assessed Task 2024

### Video 2

### Unit 3 Outcome 2

### SAT Criteria 1–5

Phil Feain

Digital Technologies Curriculum Manager

VCAA



# Outline of presentation

- Nature of task
- SAT Criteria 1–5
- Authentication
- Assessment
- Issues identified after marking Unit 3 Outcome 2

# Nature of task

# Unit 3 Outcome 2

Propose a research question, formulate a project plan, collect and analyse data, generate alternative design ideas and represent the preferred design for creating infographics or dynamic data visualisations.

# Nature of task

A project plan (Gantt chart) indicating tasks, times, milestones, dependencies and critical path

**And**

A collection of complex data sets that has been referenced

**And**

An analysis that defines the requirements, constraints and scope of infographics or dynamic data visualisations

**And**

A folio of alternative design ideas and detailed design specifications of the preferred design.

# **Unpacking the criteria**

## **Criteria 1–5**

**Scope of task**



# Development of a research question

Criterion 1 assesses students' skills in developing a research question. Students will document a research question as an information problem. Further details regarding the process of developing a research question is in the *Advice for teachers*.

Teachers should have discussions with their students regarding their research question and have a process for approving the research question before students commence their project plan. Students are encouraged to document their ideas to convince their teacher that they will be able to develop the infographics or dynamic data visualisations.

Students will document evidence of their critical and creative thinking to identify, clarify and critically analyse data and the sources of data to be collected as part of the Analysis Stage in Criterion 1. Refer to the Skills underpinning the Analysis Stage in the Units 1 to 4: Problem-solving methodology specifications on page 13 of the study design.

The evidence from this task is observed through Observation 1 and assessed through Criterion 1.

# Criterion 1

## VCE Data Analytics: School-assessed Task 2024

Assessment Criteria	Levels of Performance										
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)				
<b>Unit 3 Outcome 2</b>  <b>1. Skills in developing a research question.</b> <ul style="list-style-type: none"> <li>Documents a research question as an information problem.</li> <li>Documents evidence of critical and creative thinking to identify, clarify and critically analyse data and the sources of data to be collected.</li> </ul>	Insufficient evidence	Lists some information as part of a research question.	Outlines some information as part of a research question.	Documents a sound research question as part of an information problem.	Documents a detailed research question as an information problem.	Documents a comprehensive research question as an information problem.					
Lists some evidence of critical and creative thinking through the identification of the data to be collected.		Outlines some evidence of critical and creative thinking through the identification and analysis of the data to be collected.	Documents some evidence of critical and creative thinking through the identification and analysis of the sources and the data to be collected.	Documents detailed evidence of critical and creative thinking through the identification, clarification and analysis of the sources and the data to be collected.	Documents comprehensively evidence of critical and creative thinking through the identification, clarification and the critical analysis of the sources and the data to be collected.						
	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	10 <input type="checkbox"/>

# An approach to developing a research question

## Considerations:

- How do you want students to identify an appropriate research question? Some schools do this formally. How should they document this for you? Are you convinced they can actually develop the infographics or dynamic data visualisations and meet the criteria? How will you support struggling students?
- How much time will students need to do this? Get them thinking early in Term 1.
- What software functions and tools will they use? Refer to the **Software tools and functions** document on the study page.

# An approach to developing a research question

Teachers should encourage students to adopt the best possible approach when creating their research question.

The question should be researchable within the timeframe available and allow for an analytical response rather than a descriptive one.

A helpful guide is provided on the Monash University website via the *Advice for teachers*.

From the *Advice for teachers*

# Preparation of a project plan

Criterion 2 assesses students' skills in project management. Students will prepare a Gantt chart using software that documents all the stages and the activities of the problem-solving methodology for Unit 3 Outcome 2 and Unit 4 Outcome 1 (both parts of the SAT).

Students will need to document all the relevant tasks, sequencing, time allocations, milestones, dependencies and critical path.

The evidence from this task is observed through Observation 2 and assessed through Criterion 2.

# Criterion 2

## VCE Data Analytics: School-assessed Task 2024

Assessment Criteria	Levels of Performance									
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)			
<b>Unit 3 Outcome 2</b>  <b>2. Skills in project management.</b> <ul style="list-style-type: none"> <li>Prepares a Gantt chart using software that documents all stages and activities of the problem-solving methodology for U3 O2 and U4 O1.</li> <li>Documents all the relevant tasks, sequencing, time allocations, milestones, dependencies and critical path.</li> </ul>	Insufficient evidence		Prepares a plan using software that documents some of the stages and/or activities of the problem-solving methodology.	Prepares a plan or Gantt chart using software that documents most stages and some activities of the problem-solving methodology for U3 O2 and U4 O1.	Prepares a Gantt chart using software that documents all the stages and some activities of the problem-solving methodology for U3 O2 and U4 O1.	Prepares a Gantt chart using software that documents in detail all the stages and most of the activities of the problem-solving methodology for U3 O2 and U4 O1.	Prepares a Gantt chart using software that comprehensively documents all the stages and activities of the problem-solving methodology for U3 O2 and U4 O1.			
0 <input type="checkbox"/>		1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

# An approach for preparing a project plan

Students will produce a project plan (Gantt chart) that outlines the tasks, sequencing, time allocation, dependencies, milestones and the critical path.

They will follow the project plan to develop their infographics or dynamic data visualisations for their research question.

The project plan takes into consideration all stages and activities of the problem-solving methodology covered in Unit 3 Outcome 2 and Unit 4 Outcome 1.

Once the project plan has been developed it will be monitored and modified throughout the entire project.

Students do not have to use dedicated project-management software in the development of their project plan.

*From the Advice for teachers*

# Documentation of analysis

Criterion 3 assesses students' skills in documenting an analysis. Students will document the data they have used to support the research question and document the functional and non-functional requirements, constraints and scope. An example of an outline for developing a research question around the requirements, constraints and scope is in the *Advice for teachers*.

Students will document evidence of their critical and creative thinking through questions and strategies to critically analyse solution requirements as part of the Analysis Stage in Criterion 3. Refer to the Skills underpinning the Analysis Stage in the Units 1 to 4: Problem-solving methodology specifications on page 13 of the study design.

The evidence from this task is observed through Observation 3 and assessed through Criterion 3.



# Criterion 3

VCE Data Analytics: School-assessed Task 2024							
Assessment Criteria	Levels of Performance						
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)
<b>Unit 3 Outcome 2</b>  <b>3. Skills in documenting analysis.</b> <ul style="list-style-type: none"> <li>Documents the data used to support the research question.</li> <li>Documents the functional and non-functional requirements, constraints and scope.</li> <li>Documents evidence of critical and creative thinking through questions and strategies to critically analyse the data and solution requirements.</li> </ul>	Insufficient evidence	Identifies limited data to support the research question.	Outlines some data to support the research question.	Documents a range of data to support the research question.	Documents in detail the data used to support the research question.	Documents comprehensively all the data used to support the research question.	
Lists a limited set of appropriate solution requirements.		Outlines some appropriate solution requirements and constraints.	Documents an appropriate range of functional requirements, constraints and scope.	Documents detailed functional and non-functional solution requirements, constraints and scope.	Documents comprehensively all the functional and non-functional solution requirements, constraints and scope.		
		Lists some evidence of critical and creative thinking through the use of questions to identify solution requirements.	Outlines some evidence of critical and creative thinking through the use of questions to analyse solution requirements.	Documents evidence of critical and creative thinking through the use of questions and strategies to analyse solution requirements.	Documents detailed evidence of critical and creative thinking through the use of questions and strategies to critically analyse the data and solution requirements.	Documents comprehensively evidence of critical and creative thinking through the use of effective questions and strategies to critically analyse the data and solution requirements.	
		0 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/>	3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/> 6 <input type="checkbox"/>	7 <input type="checkbox"/> 8 <input type="checkbox"/>	9 <input type="checkbox"/> 10 <input type="checkbox"/>

# An approach to documenting the analysis

Students document their analysis to clearly outline the use of data to support the research question for the proposed infographics or dynamic data visualisations.

They should include a statement of functional and non-functional requirements, constraints and scope.

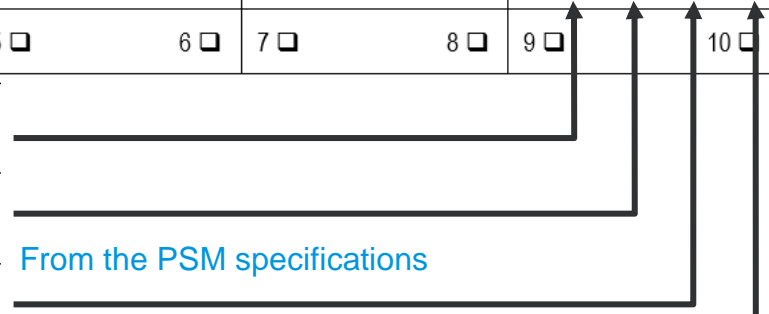
*From the Advice for teachers*

# An approach to documenting critical and creative thinking

From Criterion 3

<ul style="list-style-type: none"> <li>Documents evidence of critical and creative thinking through questions and strategies to critically analyse the data and solution requirements.</li> </ul>	Insuf	Lists some evidence of critical and creative thinking through the use of questions to identify solution requirements.	Outlines some evidence of critical and creative thinking through the use of questions to analyse solution requirements.	Documents evidence of critical and creative thinking through the use of questions and strategies to analyse solution requirements.	Documents detailed evidence of critical and creative thinking through the use of questions and strategies to critically analyse the data and solution requirements.	Documents comprehensively evidence of critical and creative thinking through the use of effective questions and strategies to critically analyse the data and solution requirements.				
	0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Skills underpinning the Analysis Stage	Identify and clarify the data and information that needs to be collected and from what sources it will be collected.
	Critically analyse the sources of data and information to determine the reliability of it.
	Draft and evaluate questions to critically analyse requirements, needs or opportunities.
	Develop strategies for asking follow-up questions to further clarify the data and information collected.



# Acquisition and preparation of data

Criterion 4 assesses students' skills in data collection. Students will acquire data sets from primary and secondary sources using appropriate data acquisition methods, prepare the data for manipulation using data types and data structures and reference the primary and secondary data sources using the APA referencing system.

The evidence from this task is observed through Observation 4 and assessed through Criterion 4.

# Criterion 4

VCE Data Analytics: School-assessed Task 2024							
Assessment Criteria	Levels of Performance						
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)
<b>Unit 3 Outcome 2</b>  <b>4. Skills in data collection.</b> <ul style="list-style-type: none"> <li>Acquires data sets from primary and secondary data sources.</li> <li>Prepares data for manipulation and uses data types and data structures.</li> <li>References primary and secondary data using the APA referencing system.</li> </ul>	Insufficient evidence	Acquires a limited data set from a secondary data source.	Acquires some data sets from secondary data sources using limited data acquisition methods.	Acquires a range of data sets from both primary and secondary data sources using some appropriate data acquisition methods.	Acquires multiple data sets from both primary and secondary data sources using a variety of appropriate data acquisition methods.	Acquires a comprehensive collection of data sets from both primary and secondary data sources using a variety of appropriate data acquisition methods.	
Prepares limited data for manipulation.		Prepares some data for manipulation including some correct data types.	Prepares a range of data for manipulation including data types and data structures.	Detailed preparation of data for manipulation including data types and data structures.	Comprehensive preparation of all data for manipulation including data types and data structures.		
		0 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/>	3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/> 6 <input type="checkbox"/>	7 <input type="checkbox"/> 8 <input type="checkbox"/>	9 <input type="checkbox"/> 10 <input type="checkbox"/>

# An approach to acquiring and preparing data

Students are required to collect data that will inform the analysis of their research question.

Data collection should include a range of methods and techniques, including interviews, observation, querying of data stored in large repositories and surveys.

Data needs to be from both primary and secondary sources.

*From the Advice for teachers*

# Design folio

Criterion 5 assesses students' skills in designing the database and/or spreadsheet solutions and the infographics or dynamic data visualisations. Students will generate two or three alternative design ideas, develop evaluation criteria, with reference to their design ideas and infographics or dynamic data visualisations, and then produce their preferred designs for the infographics or dynamic data visualisations. An example of the process for developing detailed designs is in the *Advice for teachers*.

Students will document evidence of their critical and creative thinking through design ideas, solution requirements and the justification of preferred designs as part of the Design Stage in Criterion 5. Refer to the Skills underpinning the Solution design activity in the Units 1 to 4: Problem-solving methodology specifications on page 14 of the study design.

The evidence from this task is observed through Observation 5 and assessed through Criterion 5.

# Criterion 5

VCE Data Analytics: School-assessed Task 2024							
Assessment Criteria	Levels of Performance						
	Indicators	Not shown	1–2 (very low)	3–4 (low)	5–6 (medium)	7–8 (high)	9–10 (very high)
Unit 3 Outcome 2  5. Skills in designing the database and/or spreadsheet solutions and the infographics or dynamic data visualisations.	<ul style="list-style-type: none"> <li>Generates alternative design ideas.</li> <li>Develops evaluation criteria with reference to design ideas and infographics or dynamic data visualisations.</li> <li>Produces preferred design using limited or dynamic data visualisations.</li> <li>Documents evidence of critical and creative thinking through design ideas, solution requirements and justification of preferred designs.</li> </ul>	Insufficient evidence	<p>Generates two design ideas with limited differences in appearance or functionality.</p> <p>Lists some criteria for evaluating design ideas and the infographics or dynamic data visualisations.</p> <p>Produces the preferred design using limited and incomplete methods.</p> <p>Lists some evidence of critical and creative thinking through the development of connections between ideas and solution requirements.</p>	<p>Generates two design ideas with some modifications in appearance and functionality.</p> <p>Outlines some criteria for evaluating design ideas and the infographics or dynamic data visualisations.</p> <p>Produces the preferred design using some appropriate methods and limited reference to the evaluation criteria.</p> <p>Outlines some evidence of critical and creative thinking through the development of connections between design ideas and solution requirements.</p>	<p>Generates two or three design ideas that represent sound alternatives to appearance and functionality.</p> <p>Develops a range of criteria for evaluating alternative design ideas and the effectiveness of the infographics or dynamic data visualisations.</p> <p>Produces the preferred design using a range of appropriate methods and design principles with reference to some evaluation criteria.</p> <p>Documents evidence of critical and creative thinking through the connection of connections between design ideas and solution requirements and the justification of the preferred designs.</p>	<p>Generates two or three design ideas that are feasible alternatives and clearly differ in appearance and functionality.</p> <p>Develops a detailed set of criteria for evaluating alternative design ideas and the efficiency and effectiveness of the infographics or dynamic data visualisations.</p> <p>Produces the preferred design in detail using appropriate methods and design principles with reference to most evaluation criteria.</p> <p>Documents detailed evidence of critical and creative thinking through the connection of ideas, design ideas, solution requirements and the justification of the preferred designs.</p>	<p>Generates two or three distinctive design ideas that are feasible and original representations of appearance and functionality.</p> <p>Develops a comprehensive set of criteria for evaluating alternative design ideas and the efficiency and effectiveness of the infographics or dynamic data visualisations.</p> <p>Produces the preferred design comprehensively using appropriate methods and design principles with detailed reference to all evaluation criteria.</p> <p>Documents comprehensively evidence of critical and creative thinking through the connection of ideas, the generation of design ideas, solution requirements and the justification of preferred designs.</p>
		0 <input type="checkbox"/>	1 <input type="checkbox"/> 2 <input type="checkbox"/>	3 <input type="checkbox"/> 4 <input type="checkbox"/>	5 <input type="checkbox"/> 6 <input type="checkbox"/>	7 <input type="checkbox"/> 8 <input type="checkbox"/>	9 <input type="checkbox"/> 10 <input type="checkbox"/>



# Authentication

# Authentication

## Authentication record form: VCE Applied Computing: Unit 3 Data Analytics SAT 2024

This form must be completed by the class teacher. It provides a record of the monitoring of the student's work in progress for authentication purposes. This form is to be retained by the school and filed. It may be collected by the VCAA as part of the School-based Assessment Audit.

Student name .....

Student No

--	--	--	--	--	--	--	--	--	--

School .....

Teacher: .....

Component of School-assessed Task	Date observed/ submitted	Authentication comments	Teacher's initials	Student's initials
<b>Observation 1: Development of a research question (Criterion 1)</b> The student is developing/has developed a research question that enables findings to be presented as infographics or dynamic data visualisations. The teacher has approved or not approved the research question.	Observed	Observation of development of research question		
	Submitted	Submission of research question		
<b>Observation 2: Preparation of project plan (Criterion 2)</b> The student is preparing/has prepared a Gantt chart for both parts of the SAT (Unit 3 Outcome 2 and Unit 4 Outcome 1).	Observed	Observation of the preparation of the project plan		
	Submitted	Submission of project plan		
<b>Observation 3: Documentation of analysis (Criterion 3)</b> The student is documenting/has documented the analysis of data, requirements, constraints and scope.	Observed	Observation of the documentation of the analysis		
	Submitted	Submission of the analysis		
<b>Observation 4: Acquisition and preparation of data (Criterion 4)</b> The student is identifying and manipulating data/has identified and manipulated data.	Observed	Observation of the identifying and manipulating of data		
	Submitted	Submission of identified and manipulated data		
<b>Observation 5: Design folio (Criterion 5)</b> The student is developing/has developed a folio of design ideas, evaluation criteria and preferred detailed design.	Observed	Observation of the development of designs		
	Submitted	Submission of design folio		

I declare that all resource materials and assistance used have been acknowledged and that all unacknowledged work is my own.

Student signature ..... Date .....

# Assessment

# Assessment

## 2024

### Victorian Certificate of Education Applied Computing: Data Analytics Assessment Sheet School-assessed Task

STUDENT NAME

This assessment sheet will assist teachers to determine their score for each student. Teachers need to make judgments on the student's performance for each criterion. Teachers will be required to choose one number from 0–10 to indicate how the student performed on each criterion with comments, as appropriate. Teachers then add the subtotals to determine the total score.

STUDENT NUMBER

ASSESSING SCHOOL NUMBER

Criteria for the award of grades	Not Shown (0)	Very Low (1–2)	Low (3–4)	Med (5–6)	High (7–8)	Very High (9–10)	Performance on Criteria: Teacher's Comments You may wish to comment on aspects of the student's work that led to your assessment.
<b>The extent to which the student demonstrates:</b>							
1 skills in developing a research question	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 skills in project management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 skills in documenting analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 skills in data collection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 skills in designing the database and/or spreadsheet solutions and the infographics or dynamic data visualisations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 skills in using database and/or spreadsheet software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 skills in using data visualisation software	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 skills in managing files	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 skills in evaluating the solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10 skills in assessing the project plan.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

If a student does not submit the School-assessed Task at all, N/A should be entered in the total score box.

SUBTOTALS

TOTAL SCORE

# Issues identified after marking Unit 3 Outcome 2

At the completion of Unit 3 Outcome 2 students may experience issues that will have a negative effect on the development of their infographics or dynamic data visualisations in Unit 4 Outcome 1.

Teachers can provide feedback on the quality of the designs, however, the adjustments must be initiated by the student and not directed by the teacher.

While students can make changes to their designs, they will not be reassessed and their original score will stand.

# Contact

- **Phil Feain – Digital Technologies Curriculum Manager (VCAA)**
- **Ph: (03) 9059 5146**
- **Philip.Feain@education.vic.gov.au**

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