

YEAR 10 PROJECT

NAME: _____

INQUIRY QUESTION: _____

TASK

You will need to design, conduct, analyse and present your own practical investigation. You are required to conduct your own research into your topic to inform your investigation and hypothesis. A scaffold will be provided to help you develop your ideas. You will need to use your information from the scaffold provided to write up a scientific report. You will need to submit the completed scaffold and the written report at the same time. **This must be a quantitative investigation which means you must collect measurements, not observations.**

PLAN

Identify the aim of this investigation.

Identify an appropriate hypothesis for this investigation.

Identify the variables in this investigation:

Independent – _____

Dependent – _____

Controlled (at least three) – _____

Complete the table for the risk assessment.

Risk	Strategy to reduce the risk

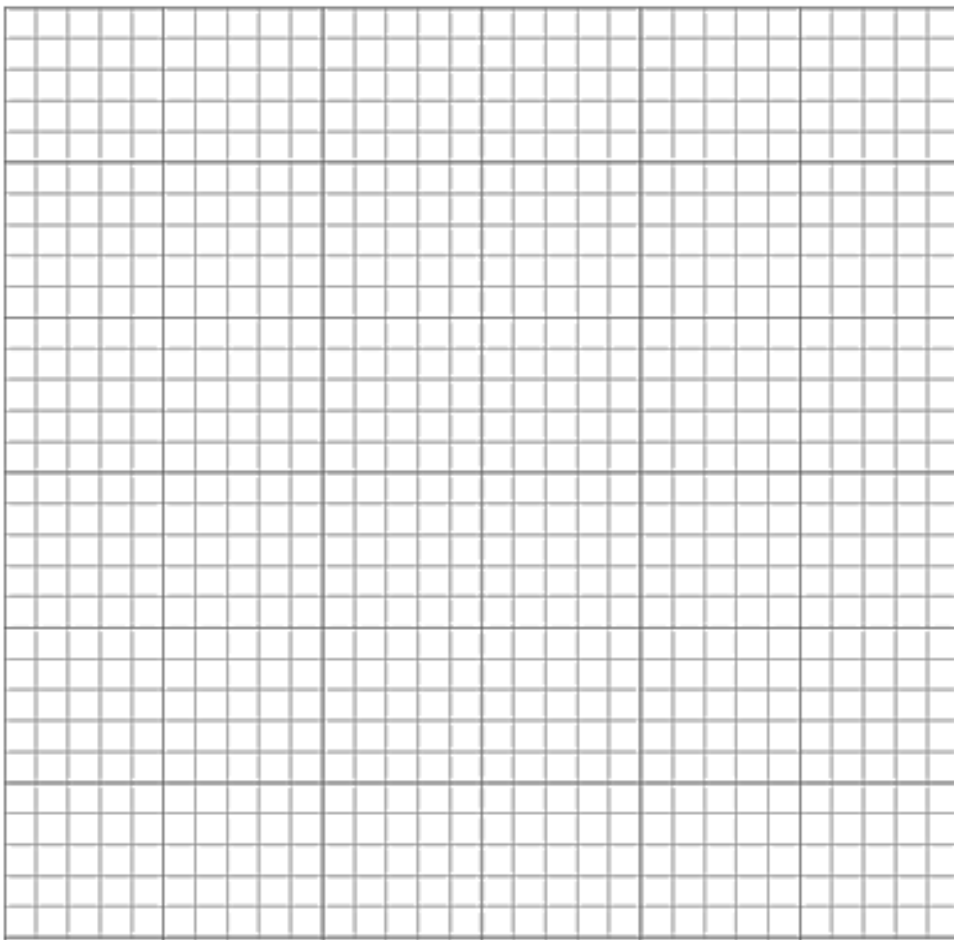
RESULTS

In the space below, draw an appropriate table for your data and enter your results

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GRAPH

Use your data to plot a graph of the independent variable against the dependent variable.



DISCUSSION

What was the main trend from the data you collected?

Explain why that trend may have occurred. You should support it with evidence from your research.

Describe how you would improve the ACCURACY of the investigation. Describe how you would improve the RELIABILITY of the investigation.

Identify a new question or aim created by the data that you collected.

CONCLUSION

Describe how the information you gathered supports or opposes your aim and your hypothesis.

REPORT

You need to write up your information as a formal scientific report. Some parts of the information can be directly copied across while other parts will need to be re-written into the appropriate format.

Your report should have the following structure:

Title

- The title should relate to your inquiry question

Introduction

- Use the information from your research to write a few paragraphs that explain the scientific concepts involved and how they work in your experiment.
- You should include a diagram to assist in explaining your ideas.
- Include your aim and hypothesis at the end of your introduction.

Method

- Use the procedure from the scaffold which you used to complete the investigation.
- You will need to re-write the paragraph so that it is past tense and is impersonal (not “I” or “we”)
- The method needs to be written as a paragraph.
- Include your equipment in your method e.g. 50mL of water was poured into a 250mL beaker

Results

- Copy the results table you created into your report.
- Make sure each column is correctly labelled and has units at the top
- Copy the graph you created into your report.
- Make sure that it has a title, both axes are labelled with units and each axes is correctly scaled.
- Make sure that you are using the correct type of graph for your data.

Discussion

- Use your responses from the questions to explain:
 - The trends or patterns in your results
 - Why those trends or patterns may have occurred
 - How you would improve the investigation
- Write your conclusion as a paragraph using your response from the conclusion section

Reference list

- You will need to include a reference list.
- You should use multiple sources of information.
- All references must be referenced appropriately. We suggest using referencing sites such as citethisforme.com

MARKING CRITERIA

SCAFFOLD

Criteria	Mark
The aim is appropriate for the investigation	0 – 1
The hypothesis is appropriate for the investigation	0 – 1
Correct independent variable	0 – 1
Correct dependent variable	0 – 1
Three correct controlled variables	0 – 1 – 2
Identifies two appropriate risks in the investigation	0 – 1
Identifies one appropriate strategy for each risk	0 – 1 – 2
PLAN	/9
Identifies their topic	0 – 1
Describes the scientific concepts involved	0 – 1 – 2
Explains how the scientific concepts work	0 – 1 – 2 – 3
Describes the relevance of the investigation	0 – 1 – 2
RESEARCH	/8
Results are entered neatly	0 – 1
Results are entered correctly	0 – 1
Evidence of multiple tests included	0 – 1
Average calculated correctly	0 – 1
Both axes of the graph are labelled and have units	0 – 1 – 2
Independent variable on x-axis and dependent variable on y-axis	0 – 1
Both axes of the graph are appropriately scaled	0 – 1 – 2
Graph is the correct type of graph	0 – 1
Points are plotted correctly	0 – 1
RESULTS	/11
Identifies the main trend in the data	0 – 1
Explains why that trend occurred	0 – 1 – 2 – 3
Provides a correct description of how to make the method more accurate	0 – 1 – 2
Provides a correct description of how to make the method more reliable	0 – 1 – 2
Identifies an appropriate follow up question or investigation	0 – 1
The conclusion describes the results in terms of aim	0 – 1
The conclusion describes the results in terms of hypothesis	0 – 1
ANALYSIS	/11
SUB-TOTAL	/39

REPORT

Criteria	Mark
Title is relevant	0 – 1
Introduction is written with sentences and paragraphs and is written in impersonal third person (no “I” or “me” or “we”)	0 – 1 – 2
Introduction clearly explains the scientific concepts involved	0 – 1 – 2 – 3
Introduction includes the aim and the hypothesis	0 – 1
The method is written in past tense and is impersonal	0 – 1
The method contains all the necessary steps	0 – 1
The equipment is included in the method with all the necessary equipment and quantities	0 – 1
The results table is correctly presented	0 – 1 – 2
The graph is correctly presented (title, scale, labels, units, axes correct way, type) <i>(1 – 2 mistakes = 2 marks, 3 – 4 mistakes = 1 mark, 5 – 6 mistakes = 0 marks)</i>	0 – 1 – 2 – 3
The main trend is identified	0 – 1
The proposed reason for the trend is explained in terms of cause and effect	0 – 1 – 2
An improvement to the investigation is explained	0 – 1 – 2 – 3
The conclusion addresses the aim and hypothesis	0 – 1 – 2
Reference list included with correct referencing	0 – 1 – 2
Appropriate terminology and language are used for the purpose and audience of the presentation.	0 – 1 – 2
SUB-TOTAL	/26

BREAKDOWN	MARKS
Scaffold	/39
Report	/26
TOTAL	/65

LIMITED	BASIC	SOUND	HIGH	OUTSTANDING
0 – 16	17 – 32	33 – 48	49 – 58	59 – 65

Feedback:

Richmond River High School Library Referencing Guide

Referencing

A reference list is a list of texts quoted from or referred to in to in an assignment. A bibliography is similar but contains additional works relating to the topic that have not been cited in the assignment.

There are several ways to compile a reference list. The following method, based on the Harvard System, is widely used. Pay close attention to the setting out and punctuation as shown below. Check with your teacher for their specific requirements. You may be penalised if you do not follow their preferred format.

- **Arrange references in alphabetical order by author.**
- **If there is no author, the title of the book or article replaces it.**
- **Double space entries and indent the second and any subsequent lines of a reference.**
- **Underlining may replace italics if italicising is not possible.**

A book with one author

Name & initials of author	Year	<i>Name of book in italics</i>	Edition (if not 1 st)	Publisher	Place of Publication
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eg. Dixon, J. 1993, *How to be a successful student*, Penguin Books, Ringwood.

A book with more than one author (authors' names are listed in the order in which they appear on the title page)

All authors' names & initials	Year	<i>Name of book in italics</i>	Edition (if not 1 st)	Publisher	Place of publication
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eg. Liberti, A. M. & Bourbon, F. 1996, *Splendours of the Roman World*, Thames & Hudson, London.

A book with no author

<i>Name of book in italics</i>	Year	Edition (if not 1 st)	Publisher	Place of Publication
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eg. *Who's Who in Australia*, 1998, 34th edn, Information Australia Group, Melbourne.

A book with an editor

Name & initials of editor(s)	(ed.) or (eds.)	Year	<i>Name of book in italics</i>	Edition (if not 1 st)	Publisher	Place of Publication
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eg. Harvey, J. (ed.) 2002, *Water pollution*, 3rd edn, Penguin Books, Ringwood.

Chapter or story by named author in an edited book or anthology (note lower case lettering for chapter title)

Author of chapter Name first then initials	Year	Chapter title in '' marks	In	<i>Name of book in italics</i>	Editor(s) Initials then name	Publisher	Place of Publication	Page nos
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eg. Alexander, I. 2000, 'The post-war city', in *The Australian Metropolis: A Planning History*, eds S. Hammnett & R. Freestone, Allen & Unwin, St Leonards, pp 98-112.

Journal/Magazine/Newspaper articles with no named author (note lower case lettering for title of article)

Title of article in '' marks	Year	<i>Journal/Newspaper in italics</i>	Vol. no.	Issue no. or Date	Page nos
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'Voters lose their trust in politicians' 2000, *Weekend Australian*, 11-12 November, p.20.

Journal/Magazine/Newspaper articles by named author (note lower case lettering for title of article)

Name & initials of author(s)	Year	Title of article in '' marks	<i>Title of publication in italics</i>	Vol. no.	Issue no. or Date	Page nos
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eg. Burns, S. 1989, 'There's more than one way to learn', *Australian Wellbeing*, Vol 6, No 33, October, pp 42-44.

Encyclopedia articles

Title of article in '' marks	Year	in	<i>Title of encyclopaedia in italics</i>	Edition	Vol. no.	Publisher	Place of Publication	Page nos
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eg. 'Flatworms: phylum platyhelminthes' 1992, in *The New Encyclopedia Britannica: Macropaedia*, 15th edn, vol. 19, Encyclopedia Britannica International, Chicago, pp. 295-30.

Film/Video/Television program

<i>Title of recording in italics</i>	motion picture/video recording in () brackets	Year	Publisher	Place of publication
	Note: TV programs are identified as video recordings	For TV program give date and transmission details		

eg. *South American wetland* (video recording) 2000, ABC, Sydney.

Article on CD-Rom

Title of article in '' marks	Year	<i>Title of CD-ROM in italics</i>	[CD-ROM] in square brackets	Publisher	Place of Publication
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eg. 'Snakes', 1994, *Habitats of reptiles* [CD-ROM], Crunch Media, New York.

Interviews

Name of person being interviewed & initials	Month & year of interview	<i>Title of interview in italics</i>	Interviewed by	Interviewer's name	Type of interview in square brackets e.g. tape recording, transcript, video recording	Place of interview
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eg. Berger, P. August 2002, *Teaching in L.A.*, Interviewed by J. Seccombe [Transcript of interview], Melbourne Conference Centre.

E-mail

Author's name & initials	Year	email	Day and month of email	E-mail address
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Saville, A. 2007, email, 24 April, <asaville@rockets.com.au>

World Wide Web--complete document or web site (note: n.d. indicates there is no publication date given)

Author(s)/Editor(s) or body primarily responsible for work	Date published or last updated.	<i>Title in italics</i>	[online] in square brackets	Publisher or organization responsible for site	Available: <URL>	[Date accessed] in square brackets
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eg. Longmore, R. n.d., *Frogs of the Garden* [online], Australian National Botanic Gardens. Available: <<http://155.187.10.12/projects/frogs/anbg-frogs.html>> [Accessed 7 August, 2007].

World Wide Web—document, article or page which form part of a larger document or web site

Author(s)/Editor(s) or body primarily responsible for work	Date published or last updated.	Article/Section in '' marks	<i>Title of complete works in italics</i>	[online]	Publisher or organization responsible for site	Available: <URL>	[Date accessed]
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eg. Department for Environment and Heritage 27 July 2000, 'Catchment management', *Water* [online], Government of South Australia. Available: <<http://www.environment.sa.gov.au/water/trading.html>> [Accessed 19 November 2007].