Gorokan High School

Assessment Task Notification

RESPECT | RESPONSIBILITY | PERSONAL BEST

Faculty: Science	Course: Student Research Project	Time allowed: 5 weeks
Teacher: Fliedner		Email:
Task number: 1	Title: Student Research Project	
Year: 8	Due date: Week 10	Weighting: 35%

Syllabus outcomes assessed:

WS5, WS7, WS9.

21st Century and employment related skills:

■	Communication	■	Use of technology
■	Critical Thinking	☐	Self-reflection and refinement
☐	Creativity	■	Problem Solving
☐	Collaboration	☐	Initiative and Enterprise
■	Planning and Organising	☐	Cross-Cultural Understanding

Task description:

Design a fair and controlled experiment to solve a problem, perform the experiment and submit a written scientific report following the scientific model.

Assessment criteria:

You will be assessed on your ability to: see the attached marking criteria.

Method of task submission:

Marking guidelines:

Grade	Descriptor	Mark
A		
B		
C		
D		
E		
N (Stages 5 and 6)		

Gorokan High School

Title: Year 8 - Student Research Project (Scientific Investigation)	**Task Number:** 1
Date Set: Week 5	**Date Due:** Week 10
	Teachers Name:

Syllabus Outcomes:

WS5: collaboratively and individually produces a plan to investigate questions and problem

WS7: processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions

WS9: presents science ideas, finding and information to a given audience using appropriate scientific language, text types and representations

Assessment Task:

You have been conducting fair and controlled experiments in class and practising writing up scientific reports and using graphs and tables. You are now going to do this at home, independently. In this task you must design, perform and submit a written scientific report on a scientific investigation (experiment) that has been completed by you. Your teacher can assist you at any stage of the assessment. You will have 4 weeks to complete your experiment. (suggested to start right away)

The task has been set to see how well you can:-

- Design an experiment to solve a problem;
- Formulate an aim and a hypothesis;
- Include a control in your experiment;
- Make your experiment fair by controlling variables & identify the dependent and independent variables;
- Write a clear procedure (including all materials) that allows others to follow;
- Carry out an experiment and organise your results using table and/graphs; and
- Communicate your ideas and information clearly in a written report.

NOTE: not permitted: experiments using animals; explosive and/or flammable materials.

Criteria For Marking:

You will be assessed on:

- Meeting all marking criteria as outlined by the attached marking guidelines.

Further Information:

- **This assessment task will be addressing the above 3 outcomes which will be used in your half yearly reports.**
- **This is a compulsory assessment task mandated by the NESA.**

On the back of this page are some suggested investigations.

Suggestions for Scientific Investigation:

These are suggestions only, you may choose one of these from the list below or think of your own. Remember that your teacher is there to help. **Ask!**

- The presence of more leaves on a flower stalk causes it to lose water faster from a vase
- Soapy waste water from the bath or washing machine is as effective as tap water for plant growth
- Crystals dissolve faster in hot water
- A golf ball will bounce higher than a tennis ball
- The size of a balloon rocket will determine how fast it goes
- Warm water freezes faster than cold water
- Cotton thread is stronger than polyester thread
- Sorbent toilet tissue is stronger than Kleenex toilet paper
- Growth of plants is affected by the amount of water.
- Sorbent paper towels hold more water than a cheaper brand paper towel.
- Shorter wingspan on a paper airplane slows the speed of a plane.
- A triangular structure is the strongest type of bridge.
- Which coffee cup material keeps your coffee hot for longer?

Year 8 Student Research Project - Scientific Investigation
Marking Criteria

OUTCOME	CRITERIA		MARK
9WS	Report typed & neatly presented (2mark)		
	Report Title (1 mark)		
	Grammar and Spelling	No mistakes. (2)	
		5 or less mistakes. (1)	
		More than 5 mistakes. (0)	
	Clearly stated aim	Describes the relationship between 2 variables to be tested. (2)	
		Simple question describing what is being tested. (1)	
		No aim. (0 marks)	
			Outcome for 9WS = /7
5WS	Clearly stated hypothesis	Statement of the relationship between two variables. (2)	
		Statement of an educated guess of what they think will happen. (1)	
		No hypothesis. (0)	
	List of materials/equipment	All required materials/equipment listed and specific quantities and size of equipment included. (3)	
		Most required materials listed and most specific quantities and size of equipment included. (2)	
		Some required materials listed and some specific quantities and size of equipment included. (1)	
		No materials/equipment listed. (0)	
	Method Variables	Variable tested and all other variables controlled. (3)	
		Variable tested and some variables controlled. (2)	
		An attempt to control variables is made (1)	
		No evidence of variables being controlled. (0)	
	Method Logical procedure	Method is written with all required steps, sequenced, all starting with a verb and including any safety requirements. (4)	
		Method is written with one of the above criteria not included. (3)	
		Method is written with 2 of the above not included and/or is confusing (2)	
		Method attempted with one of the above and/or is confusing (1)	
		Method unclear and/or not attempted (0)	
			Outcome for 5WS = /12
7WS	Results - Table	Table has heading, labels with units, Fully enclosed with ruled lines and appropriate values (4)	
		Table present but 1 of the above criteria is absent (3)	
		Table present but 2 of the above criteria is absent (2)	
		Attempt at table made (1)	
		Table not present (0)	
	Results - Graph	Suitable Graph with title, axis labels with units, appropriate scale and heading and neat (5)	
		Suitable Graph, however missing one of the above criteria (4)	
		Suitable Graph, however missing 2 of the above criteria (3)	
		Graph is not suitable and missing any of the above criteria (2)	
		A graph has been poorly attempted (1)	
		No Graph attempted or included (0)	
			Outcome for 7WS = /9
9WS	Conclusion	Conclusion clearly stated and relates back the aim and hypothesis (2)	
		Present but does not relate clearly to both the aim and hypothesis. (1)	
		Conclusion not included (0)	
			Outcome for 9WS = /2

Totals 9WS = /9 + 7WS = /9 + 5WS = /12	**Final mark:** **/30**

Teacher Comment :

Title -

Aim - What is the question you will investigate?

To ...

Hypothesis - What do you think will happen? What will you discover?

That ...

Planning - What factors will affect your investigation?

From the above list, choose:

What will you change? (The Independent Variable)	What will you measure? (The Dependent Variable)

And remember to keep everything else the same

Equipment – (Be specific with sizes and quantities)

Method – Step by step instructions on how will you conduct your experiment?

Success Criteria:

- ☐ Can anyone follow your procedure exactly?
- ☐ Have you clearly expressed the independent, dependent and controlled variables?
- ☐ Have you repeated the experiment?

Risk Assessment -

What hazards are there?	How will you manage these risks?
Physical: Chemical: Environmental:	

Results – use a table to record your data

(Independent Variable)	(Dependent Variable)							Ave.
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	

Find patterns in your results

When I changed _____ what happened to _____

Graph your results

Title -

What I measured – dependant variable

What I changed – Independent variable

Discussion

Summarise the results – provide examples and data to support the summary –

Link your findings to other sources of information that support the research –

How did you ensure valid and reliable results?

What difficulties did you have conducting the investigation?

What improvements could be made?

Conclusion

The results showed that ....

This supports/refutes the hypothesis which stated that ...