



Name: .....

Class: .....

Teacher: .....

Section 1 “Proposal” Due Date:

.....

## **Science Stage 5** **Assessment Task 1A**

(PROPOSAL is worth 10% of the yearly grade)

2017

### **Section 1 Proposal for the Student Research Project**

- Outcome being assessed is 5WS

*The purpose of doing an SRP Proposal is to make sure that experiment that you intend to do and the Hypothesis you want to test is feasible and safe for you to do. You need to choose your topic carefully and have it approved by your teacher before you start Section 2. The feedback provided by the marker will allow you to correct errors and achieve better outcomes overall.*

***Late assignments will lose 20% per day late and require a note from home explaining lateness.***

Complete all sections below:

#### **1.1 Background Information: (Literature Research)**

*10 Marks*

- Locate background information by reading & “researching” information about the topic you have chosen to study for your SRP. Outline areas of research and collect information, which other people have already done on this topic and also use the knowledge you may already have. Summarise this research in your own words and provide a succinct A4 summary of your findings.
- This summary can be as simple as definitions and facts about the topic, or actual research from Science Journals. It can be written as a formal explanation, a dot point summary or a “why paragraph”. Include information about how something works (eg detergents, friction, Gravity, Energy changes, cosmetics, insulation, growth, colour or light, sound etc). or sometimes a survey is suitable. General information about; the properties, the materials you are testing, conductivity, pressure, temperature of substances under certain conditions, flexibility, colour, growth rate etc is widely available on the internet.





### **1.2 Proposed Aim:**

State the purpose of your investigation; that is, EXPLAIN clearly what you are trying to find out in doing this investigation. What is the purpose of this experiment?

.....  
.....  
.....  
.....

*2 marks*

### **1.3 Proposed Hypothesis:**

Using the knowledge you already have and what you have found out, in Question 1, make an educated guess about what you will find out by doing the investigation. This is a cause and effect statement involving the independent and dependant variable. In class you would have learnt how to write a Hypothesis.

.....  
.....  
.....  
.....

*2 marks*

### **1.4 Proposed Materials and Equipment:**

List the materials (including equipment and amounts) that you need in performing and collecting measurements in the experiment. Make sure you use equipment that is appropriate to the data you want to collect.

Name of Equipment	Why is it used?

*4 Marks*

### **1.5 Risk Assessment and Ethics:**

Identify any hazards with the materials you may be using. What special safety precautions are needed?

Ethics deals with moral issues and a sense of right and wrong. You *might need* to consider ethical issues when studying people or animals.

- Outline both these issues and discuss all concerns with your teacher first!

.....  
.....  
.....  
.....

*4 Marks*

**1.6 Identify the Variables:** Read the example below and then fill out the variables in the spaces provided below.

There are **three categories of variables**; 1. Dependent, 2. Independent and 3. Controlled.

*For example: Aim: To determine if the “Type of Board blank” used to make surfboards affects the buoyancy and or Volume/ Literage of surfboards? Test this under controlled conditions.*

This idea could can be tested using small “model” board blanks, a large vessel of water (mL) and some other equipment. In this example the three variables are:

**Dependent:** This is what is to be measured. This measurement will be determined by the experiment itself. (What is being measured in order to achieve the aim/ or purpose?)

How much the board floats? Will it displace more water? How will this be measured?

**Independent:** is what is varied during the experiment; it is what the investigator thinks will affect the dependant variable. (-ie- what you are testing? Different foams, epoxy, esp, Styrofoam ??)

EG *Types of Foam in board blank*

**Controlled:** These variables are held constant. Since the investigator wants to study the effect of one particular independent variable, the possibility that other factor affecting the outcome must be eliminated. (-ie- everything that needs to be kept the same)

*E: Size of board, temperature conditions, etc.*

Dependent:.....  
.....  
..... **2 marks**

Independent: .....  
.....  
..... **2 marks**

Controlled Variables:  
.....  
.....  
..... **4 marks**

**1.7 Log Book: (Used throughout both, Section 1 and Section 2 of Task) 3 Marks**

- Part of the assessment of your SRP is for the final report, and part for your planning and the work you complete along the way. To help your planning and work throughout the research project you will need to keep a journal. This is a book in which you record a brief summary of what you do each time you work on your SRP.
- A logbook records regularly all the steps you take to complete a project. It does not need to be excessively neat. It is a record of what you did and what you were thinking, who you spoke to and all the thoughts that pop into your head. It should show how your own thinking changes throughout the process of carrying out a research project.
- Record every piece of work you do (eg library visits, interviews, telephone calls) – it is your way of showing your teacher that you have taken the SRP seriously and worked consistently. The logbook also records where things go wrong and what you did to overcome any unexpected results. It is a journal that keeps all your work honest as well.
- Use a slim exercise book and draw up a week by week plan/ timeline of all the planning you do.
- A personal design. There are heaps of templates on the internet.
- Keep a record of all books you use so that the bibliography is easier at the end

**Section 1. Feedback**

- **Proposal Approved**                      **Yes / No**
- **Teacher's Signature** \_\_\_\_\_                      **Date:** \_\_\_\_\_
- **Parent Signature** \_\_\_\_\_                      **Date:** \_\_\_\_\_



Name: .....

Class: .....

Teacher: .....

Section 2: Final SRP Due Date:

.....

## Science Stage 5 Assessment Task 1B

- Outcome being assessed is 6WS

(Worth 15% of Yearly Grade)

### **Section 2: Conducting the Scientific Investigation (SRP)**

*This research project gives you the opportunity to make Science more relevant to your life. Completing this project is a requirement of the syllabus and will make up 15% of the yearly assessment. You are expected to research a topic independently and carry out an experiment using a scientific format. The project can be on any area that is suitable for you. The work that you perform will require you to use many scientific skills such as planning, conducting investigations, solving problems and communicating ideas. This project requires you to demonstrate your skills while working individually in your own time.*

- **Your task is to conduct an experiment and write a full report of the results.**
- A Scientific report is a formal Report that describes in detail how the experiment is done. It is written in a particular format, is clearly written, step-by-step (procedural text), so that someone else can understand and repeat the experiment(s). Included in the report is, the procedure, data and results, graphs, discussion and labelled diagrams or photographs of the equipment used.
- **Remember:** do not use words like “I” “we” or “them” and “us” when writing the Procedure. The use of 3<sup>rd</sup> person **not** 1<sup>st</sup> person such as, “add 10 mL of salt to each test tube” NOT “we added 10 mL of salt to the test tube”. Ask your teacher to remind you again as to how it should be done.
- Have somebody read over your draft experimental report so that it makes sense, BEFORE you submit the final report, a parent carer or friend.
  
- Include all the sections listed below and be sure to check the marking criteria for each section and the marks allocated. The marking matrix /criteria is at the back of this Task Description.

## **WRITING THE SCIENCE REPORT**

**2.1 Aim:** Rewrite this from the Proposal in Section 1.1 *2 Marks*

**2.2 Hypothesis:** Rewritten from the proposal in Section 1.2 *2 Marks*

**2.3 Materials:** Include all materials and equipment used. *4 Marks*

**2.4 Method / Procedure:** *17 Marks*

The method must be written using the correct text type and will show that you understand how to; control variables, use repetition and sampling techniques to minimise error and outline the experimental design and data that will be collected. A brief method should have been outlined in section 1.1 of the “Proposal” and can be improved further in this section of the full report.

**2.5 Results:** *15 marks*

All Observations and measurements (data) are presented here. Present data in table form so that the data is easy to read. Graphs can be used to help you and the reader, interpret data. Each table or graph should have a title. Make sure you select the most appropriate type of graph (pie, line, histogram etc).

- Tabulation of Data (Quantitative or Qualitative)
- An appropriate Graph of the data and statistical information
- Graphs will show the trends in the results.
- A correctly drawn graph will help to visually show what the results mean.
- 2D Scientific diagram(s), Images or photos of you doing the investigation is always encouraged.

**2.6 Discussion:** *12 Marks*

Discuss your results in this part. Begin with a statement of what your results indicate about the answer to your Aim.

- Was the Aim achieved? Did you solve the problem? Why or why not?
- What do the results of the investigation suggest? What are the trends?
- Explain how your results might be useful to people or groups or society?
- Any weakness in your design or difficulties in measuring could be outlined here. What worked well or didn't work well?
- Explain how you could have improved your experiment.
- What further experiments could be carried out to deepen your knowledge in this area of Science?

**2.7 Conclusion:** *5 Marks*

This is a brief statement of what you found out and may link with the final paragraph of your discussion. It is a good idea to read your “Aim” again before you write your conclusion. Your conclusion should state whether your hypothesis was supported and if the Aim was achieved or not. Don't be disappointed if your Hypothesis is not supported. Some scientist deliberately set out to reject hypotheses. Simply, a wrap up of the investigation.



## 2.8 Bibliography:

7 Marks

Make a list all resources used in doing the SRP; books, other printed materials, journals, newspaper articles, audio-visual or Internet sites. Marks will be allocated for using the correct format.

The list should include enough information to be easily found by the reader. Arrange the sources in alphabetical order.

For each source, list the following information in the order shown.

- author(s) (if known)
- title of book or article (underlined if hand written or bold if typed)
- publisher or name of journal/magazine
- place of publication (if given)
- date of publication
- chapter or pages used

An example below:

### Reference Book:

Breidahl H. Australia's Southern Shores, Lothian, Melbourne 1997, Chapter 2

World Book Encyclopaedia 1991 Volume 4, 234-236

“The Battle of the Bathroom”, Choice, Sydney, November 1990, pp. 34- 37

### Web-Sites:

Author's surname, initials. The Year. Title (use italics). Internet -Place of City or town. Publishers name. Available at: URL.

## 2.9 Final Log Book (continued from the Proposal in Section 1)

7 Marks

**Remember...** a logbook contains all draft records, ideas and all the steps you took to complete the SRP project. It does not need to be excessively neat nor rewritten. It is a record of what you did and what you were thinking, who you spoke to and all the thoughts that pop into your head. It should show how your own thinking changed throughout the process of carrying out the research project.

**Hand in your SRP on the Due date. This will be discussed by your teacher.  
Late projects require an explanation from Parents or Guardians**

**Marking Sheet****Student Name:** \_\_\_\_\_**Class:** \_\_\_\_\_

<b>Section 1 Proposal</b>			
<b>Question</b>	<b>Section 1</b>	<b>Marking Criteria</b>	<b>Marks Allocated</b>
<b>1.1</b>	<b>An overview of Investigation.</b>	Explain what the experiment about? What will be measured, how, what equipment? Steps or a basic method is identified.	0 1 2 3 4 5
		Depth and quality of the researched information. Concepts explained, definitions, research is relevant to topic.	0 1 2 3 4 5
<b>1.7</b>	<b>Log Book</b> (ongoing)	Evidence of dated entries	0 1 2 3
		<i>Relevant</i> information about topic and <i>reflective</i> thoughts are evident in the initial log	0 1 2
<b>1.2</b>	<b>Aim</b>	A well stated Aim. The purpose?	0 1 2
<b>1.3</b>	<b>Hypothesis</b>	A well stated Hypothesis makes a statement about the relationship between two variables.	0 1 2
<b>1.4</b>	<b>Materials</b>	Comprehensive List	0 1 2 3 4
<b>1.5</b>	<b>Risk Assessment and or ethics</b>	Identifies a potential hazard and <b>how</b> it could be reduced. If no particular hazard, <i>explain</i> why not.	0 1 2 3 4
<b>1.6</b>	<b>Variables</b>	Identify <i>Dependent</i> variable.(what is being measured and what with?)	0 1 2
		Identify <i>Independent Variable</i>	0 1 2
		Identify <i>Controlled</i> Variables	0 1 2 3 4
<b>1.8</b>	<b>Approval and Feedback by Teacher</b>		Yes / No
			<b>TOTAL /35</b>

**Feedback and comments:**

SECTION 2. FIRST HAND INVESTIGATION				
Question	Section 2	Criteria	Marks Allocated	Your Mark
2.1	Aim	Correctly written Aim rewritten or improved from Section 1	0 1 2	/2
2.2	Hypothesis	Correctly written Hypothesis	0 1 2	/2
2.3	Materials and Equipment	A Comprehensive list	0 1 2 4	/4
2.4	Method and Procedure	<ul style="list-style-type: none"> <li>Written in third person</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li>Steps are numbered/ dot points</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li><i>Logical</i> sequence and makes sense, easy to follow</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li><i>The dependant variable</i> (effect) or factor being measured is clear</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li>+ units are also given</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li><i>Controlled</i> variables identified</li> </ul>	0 1 2 3 4	
		<ul style="list-style-type: none"> <li><i>The Independent Variable</i> is clearly identified.</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li><i>Repetition</i> of experiment trials to ensure reliability, fairness</li> </ul>	0 1 2	
2.5	Results and data collection	<ul style="list-style-type: none"> <li><b>Table of Data</b> (Title, columns labelled, units, neat/straight lines, the table “works”)</li> </ul>	0 1 2 3 4 5 (1for each component)	
		<ul style="list-style-type: none"> <li>Averages are calculated from repeated data sets</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>Data is accurate and relevant to the experiment</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li><b>Graph</b> (Title/heading, correct use of scale, units, labels, accuracy,)</li> </ul>	0 1 2 3 4 5 (1for each, max 5)	
		<ul style="list-style-type: none"> <li><b>Correct type of graph</b> used for data</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li>Did your experiment solve the problem?</li> </ul>		

<b>2.6</b>	<b>Discussion</b>	How? Why? Why not?	0 1 2	
		<ul style="list-style-type: none"> <li>Explanation of usefulness of the experiment to people or society?</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>Any Weakness (s)</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>Improvements are suggested and or Further options for future experiments mentioned ..</li> </ul>	0 1 2	
<b>2.7</b>	<b>Conclusion</b>	<ul style="list-style-type: none"> <li>Well stated conclusion relating to hypothesis.</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>Was the hypothesis supported or not? and</li> </ul>	0 1	
		<ul style="list-style-type: none"> <li>Why, Why not? Reasons given by linking the trends in results into the conclusion.</li> </ul>	0 1 2	
<b>2.8</b>	<b>Bibliography + Referencing</b>	<ul style="list-style-type: none"> <li>Correctly written format used, or some attempt is obvious.</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>Variety of <b>different</b> sources or media types</li> </ul>	0 1 2 3	
		<ul style="list-style-type: none"> <li>No. of Sources used (1-2 =1M, 3-4=2M, 5-6=3M, 7+ =4)</li> </ul>	0 1 2 3 4	
<b>2.9</b>	<b>Final Log Book</b>	<ul style="list-style-type: none"> <li>Quality -Log book entries are authentic and indicate evidence of student's own work, hand written and not tidied up...</li> </ul>	0 1 2 3 4	
		<ul style="list-style-type: none"> <li>Evidence of data sets, improvements made, thoughts &amp; procedures used</li> </ul>	0 1 2	
		<ul style="list-style-type: none"> <li>dated entries / time line</li> </ul>	0 1	
<b>2.10</b>	<b>Overall Project Quality</b>	<ul style="list-style-type: none"> <li>Depth and quality of the investigation (teacher judgement; Excellent, sound, basic, non-serious attp / poor)</li> </ul>	0 1 2 3 4	

**Teacher Comments and feedback:**

	Marks
Part 1	
Part 2	
Total	
%	

# PROJECT LOG

NAME: \_\_\_\_\_

\*This page may be removed and used to complete the log component of your Independent Research Assignment  
*or a similar version may be created.* Additional pages may be added...

<b>Date</b>	<b>Description of project work completed</b>