SCIENCE ASSESSMENT TASK

Student's name: _____ Class Teacher: _____

Assessment Task Title: Student Research Project

This project will give students an opportunity to extend their understanding of the nature of science and how scientific ideas, explanations and concepts develop through the processes of scientific inquiry. Students will identify problems to be scientifically investigated and test ideas, gather data/information, and seek evidence to support their explanations, arguments and solutions to problems.

Date Issued: _____ Date Due: _____

- All assignments should be submitted to your classroom teacher during class time on the due date given.
- Late assignments will be penalized by 20% each day for five days. After five days a zero mark will be awarded.
- If you are absent on the due date of the assignment due to illness you must submit the task on your first day back at school (even if you do not have a lesson on that day) accompanied by a note from your parents explaining your absence.
- If you are absent on the due date of the assignment due to a sporting commitment or excursion you need to make prior arrangements with your teacher regarding the submission of the task.
- Application for an extension must be discussed with the classroom teacher BEFORE the due date.

Chifley College Dunheved Campus
Learn Discover Inspire

ASSIGNMENT RECEIPT

THIS RECEIPT MUST BE RETAINED BY THE STUDENTS UNTIL THE ASSIGNMENT IS RETURNED.

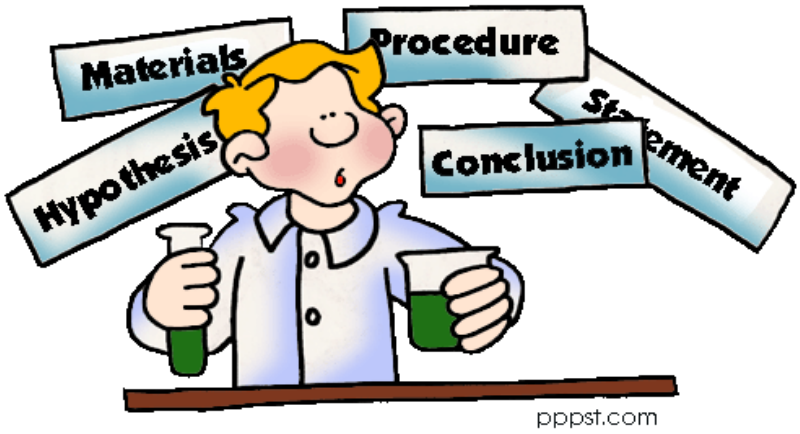
Student's Name: _____ Class:_____

Assessment Task Title: *Student Research Project*

Date Due: _____

Received by: _____ (Teacher's Signature) Date Received: _____

2018
Year 10
Student Research Project



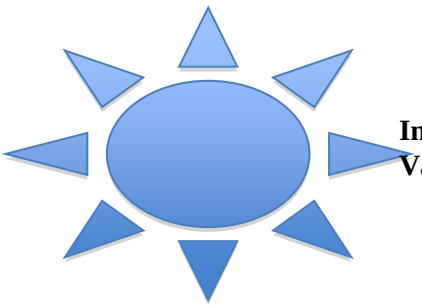
OUTCOMES ASSESSED:

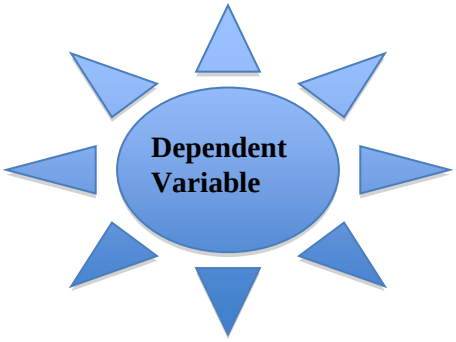
- **4WS** develops questions or hypotheses to be investigated scientifically.
- **5WS** produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively.
- **6WS** undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively.
- **7WS** processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions.
- **8WS** applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems.
- **9WS** presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations.

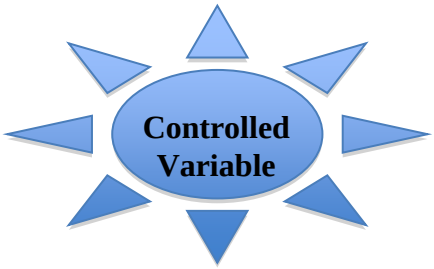
Assessment Weight: 35%
Total: 35 marks

Pre Planning:

Define these important ideas







Step 1: Identify the main purpose of the investigation.

Is this an open-ended investigation?

- ❒ What problem needs to be solved?
- ❒ What equipment and resources will you need?
- ❒ What is the procedure you will use for the investigation?
- ❒ What might be possible answers for the problem?
- ❒ What might be the expected answers for this problem?

What is the area of science you are investigating?

Generate focus questions for investigation.

Write down questions about your topic

1._____
2. _____
3. _____
4. _____
5. _____
6. _____

Choose the best one for you to investigate.

The aim of my experiment is:

The hypothesis of my experiment is:

- □ ***Make sure it is a testable statement (not a question)***
- □ ***Will it compare two or more variables?***
- □ ***Does it say what you will expect to find out?***

Introduction – background information of my project is:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

PLAN THE PROJECT

The equipment I will need:

- **List of equipment/materials**

How will I carry out my experiment?

Method: List the steps you will complete to conduct the science research project

1.
2.
3.
4.
5.

Draw the experiment

List the variables:

Controlled Variable	
Independent Variable	
Dependent Variable	

Timeline for the project:

Date	Actions
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

RISK ASSESSMENT:

Assess the dangers that may be involved in the experiment and describe how you are going to overcome them.

If you need additional space, attach another piece of paper.

Identify the hazards *(List the materials that you will use to conduct your investigation)*	Assess the risk *(List the possible hazards with using a particular material)*	Control the risk *(identify how you will ensure safety while using the particular material)*

CONDUCT THE INVESTIGATION

Results for the experiment:

My observations:

- **tables and/or graphs**

labelled diagrams

Discussion

Analyse your result.

- **What do your results tell you?**

- **Look for any trends or patterns.**

- **Did anything go wrong during the experiment?**

- **Suggest improvements for future experiments.**

DO THE RESEARCH

Primary and secondary data sources I can use to explain what I found

List the data sources you can use

Primary data sources	Secondary data sources
❒ other people's research ❒ your own practical work ❒ fieldwork ❒ surveys ❒ models ❒ maps ❒ other …….	❒ books ❒ magazines ❒ journals ❒ websites ❒ newspaper articles ❒ pamphlets ❒ booklets ❒ documentaries ❒ other…

List the places that you can find secondary data in our school

1. **Internet**
2. **Library**
3. **Other teachers**
4. **_____**

Collect the secondary data sources. Record the details on the draft bibliography. Use the given example below as your format for bibliography.

Example: Source 1

Author:
Title:
Date of publication:
Place of publication:
(List at least 4-5 sources in your final report)

REVIEWING THE PROJECT

Conclusion

The conclusion answers the aim. It is a summary of what occurred in the experiment. You must decide if the hypothesis has been supported by the experiment.

Now write up your report using the scaffold below

Experimental Report scaffold

Title page
Name _____

Teacher _____
Student research project

Page 2
Aim:
Hypothesis:

Page 3
Brief introduction
- Experimental design and background information

Page 4
Materials
Method

Page 5
Risk assessment - Identify dangers and safety measures taken to avoid risks.

Page 6
Variables - Dependent variable
- Independent variable
- Controlled variables

Page 7
Results - Tables, graphs, diagrams

Page 8
Discussion:
- analysis of result
- experimental errors
- suggestions to improve validity and reliability of the experiment

Page 9
Conclusion

Page 10
Bibliography
- resources used

Marking Criteria

Outcome	Report Sub Heading	Description	Marks	Marks Awarded
4WS develops questions or hypotheses to be investigated scientifically.	Title Aim Hypothesis	Appropriate Aim Hypothesis stated	1 with teacher guidance 2 with some support 3 independent	
WS5.3a Identifying appropriate equipment and materials	Materials	Complete equipment list Drawing of equipment/practical task	1 with teacher guidance 2 with some support 3 independent	
WS5.2 b. Describing a logical procedure for understanding a range of investigation types. c. Designing controlled experiments to collect valid first-hand data. d. Specifying the dependent and independent variables for controlled experiments.	Method and variables	Complete use of all variables Independent, dependent and controlled variables Steps in numbered point form and sequenced More than 2 trials	1 with teacher guidance 2 with some support 3 independent	
WS5.3 d Assessing risks and addressing ethical issues associated with these methods.	Risk Assessment	Safety considerations identified and addressed	1 with teacher guidance 2 with some support 3 independent	
6WS undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively. WS9b Selecting and using an appropriate table, diagram, graphs to present information and show relationship clearly.	Results – table and or graphs	Correct table format Units of measurement depicted correctly Trial data depicted correctly Average calculated correctly Appropriate graph Title, axis labelled correctly, axis scaled correctly, units, points plotted correctly Diagram, pictures	1 with teacher guidance 2-3 with some support 5 independent	

8WS Applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems.	Discussion	Includes: • analysis of data • identification of trends • the importance of repetition • comparison of conclusion to hypothesis • problems encountered during the investigation • solutions to the problems.	1-3 with teacher guidance 4-6 with some support 8-10 independent	
5WS Produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively. 7WS Processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions.	Overall Presentation - planning - sources - research - accurate scientific report layout	• -Uses effective vocabulary to convey deep knowledge and understanding (introduction). • -Efficiently revises, edits and proofreads texts to enhance accuracy and quality. • -Cites references (4-5 sources) using conventions appropriate for purpose. • -Uses appropriate and relevant terminology when discussing issues, ideas, opinions. • Accurate scientific report layout	1-2 with teacher guidance 3-5 with some support 6-8 independent	
Total marks				**/35**

Grades A 35 - 31 B 30 – 28 C 27 – 16 D 15 – 10 E 9 – 0

Teacher Comment

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