



Condobolin High School

Notification of an Assessment Task



Name and Type of Task: Student Research Project

Subject: Year 10 Science

Task Number: 2

**Date Issued: Term 3 Week 4.
Monday, 12th August 2024.**

**Date Due: Term 3 Week 9.
Thursday, 19th September 2024.**

Total Marks: 40

Weighting: 35%

**Class Teacher/s: Adam Quinn,
Ken Aveling-Rowe.**

Head Teacher: Judith Davis

Submission Instructions: Students are to submit their research reports to their teacher at the start of their Science class **Period 4** on **Thursday, 19th September 2024**

Task Context:

In this course, you have learned how to apply the scientific method to a range of real-world situations, learning how to design and conduct experiments, collect and analyse data and link your knowledge of science to findings.

In this task, you will apply your knowledge of the scientific method to explore a question of your choice. You will identify variables, design and conduct an investigation, collect and analyse data and, discuss and evaluate the implications of your findings in the form of a scientific report.

Course Outcomes:

SC5-4WS	develops questions or hypotheses to be investigated scientifically
SC5-5WS	produces a plan to investigate identified questions, hypotheses or problems, individually and collaboratively
SC5-6WS	undertakes first-hand investigations to collect valid and reliable data and information, individually and collaboratively
SC5-7WS	processes, analyses and evaluates data from first-hand investigations and secondary sources to develop evidence-based arguments and conclusions
SC5-8WS	applies scientific understanding and critical thinking skills to suggest possible solutions to identified problems
SC5-9WS	presents science ideas and evidence for a particular purpose and to a specific audience, using appropriate scientific language, conventions and representations

Task Description:

Total Marks: 40

In this task, you will apply the scientific method to investigate a research question of your choice and submit a final report to showcase your experimental design and findings.

Your task is to:

- Choose an inquiry question for investigation, either from the suggested investigations below or in collaboration with your teacher.
- Identify, using scientific reasoning, an aim, hypothesis, method and risk assessment for the chosen inquiry question.
- Design and conduct a practical investigation and collect data relevant to the chosen inquiry question, clearly stating all processes you used to collect data.
- Collect data in the form of tables and analyse it using graphs and
- Discuss and evaluate your results to describe trends, patterns and relationships.
- Make conclusions based on the analysis of the data collected with reference to the aim and hypothesis of the investigation and explain the investigation's limitations.

Suggested Investigations:

1. **Strength of Thread:** Which threads are the strongest? Is a thread twice as thick, twice as strong?
2. **Reflexes:** Does the speed of reflexes change with age? Is there any variation in reflexes between boys and girls, or sporting people and sedentary people? Do students who play computer games have faster reflexes? Are your reflexes faster when you are tired?
3. **Strength of Fishing Line:** Does fishing line exhibit the same breaking strength that they are rated to? Does the type of fishing knot used change the strength of the line?
4. **Stained Clothing:** Are food stains removed most easily by soaking in salty water, fresh water or soapy water?
5. **Potatoes:** Does the amount of starch vary between raw, boiled and fried potatoes?
6. **Corrosion:** How can the process of corrosion in iron nails be slowed down?
7. **Gravity and Friction:** What shape rolls down an incline faster? Which surface provides the greatest friction?
8. **Flower Health:** What can you add to water to make cut flowers last longer?
9. **Choice of Investigation:** You may choose to do an investigation of your own choice. You must discuss this with your teacher first. If you would like to choose your own investigation, it is recommended you use the internet to assist you. Here are some places to start looking:

A scaffold is included to assist you with the completion of this task.

Criteria for Assessing Learning:

You will be assessed on your ability to:

- Identify and explain predictions about a testable question
- Design and conduct a valid first-hand investigation to test your hypothesis.
- Analyse data from a first-hand investigation.
- Describe and explain trends, patterns and relationships in collected data.
- Apply scientific understanding to suggest reasons for identified findings.
- Communicate scientific ideas using appropriate scientific terminology and accurate report structures.

Key Verbs:

Analyse

Identify components and the relationship between them; Draw out and relate implications.

Apply

to make use of something or use it for a practical purpose.

Collect

gather together or be gathered together

Communicate

share or exchange information, news, or ideas.

Conduct

Organise and direct a particular activity.

Describe

Provide characteristics and features.

Design

to create, fashion, execute, or construct according to plan.

Explain

Relate cause and effect; make the relationships between things evident; provide why and/or how.

Evaluate

Make a judgement based on criteria; Determine the value of.

Identify

Recognise and name.

Description	Grade
<ul style="list-style-type: none"> ● Clearly identifies a suitable aim and thoroughly explains predictions for a testable question. ● Designs and conducts a rigorously prepared and valid first-hand investigation. ● Extensively analyses data using clear tables and detailed graphs to describe trends, patterns, and relationships in collected data with an extensive application of scientific understanding to suggest well-reasoned explanations for their findings. ● Communicates scientific ideas using precise scientific terminology and all required report structures. 	<p style="text-align: center;">A</p> <p style="text-align: center;">36-40</p>
<ul style="list-style-type: none"> ● Identifies a suitable aim and explains predictions for a testable question. ● Designs and conducts a valid and methodologically sound first-hand investigation. ● Comprehensively analyses data using clear tables and graphs to describe trends, patterns, and relationships in collected data with a solid application of scientific understanding to suggest reasonable explanations for their findings. ● Communicates scientific ideas using mostly appropriate scientific terminology and accurate report structures. 	<p style="text-align: center;">B</p> <p style="text-align: center;">28-35</p>
<ul style="list-style-type: none"> ● Identifies a suitable aim and describes predictions for a testable question. ● Designs and conducts a valid first-hand investigation. ● Analyses data adequately using tables and graphs to identify trends, patterns, and relationships in collected data with a basic application of scientific understanding to suggest plausible explanations for their findings. ● Communicates scientific ideas using some appropriate scientific terminology and report structures. 	<p style="text-align: center;">C</p> <p style="text-align: center;">16-27</p>
<ul style="list-style-type: none"> ● Identifies a basic aim and prediction for a testable question with guidance. ● Designs and conducts a basic first-hand investigation with assistance. ● Analyses data with some assistance using basic tables and graphs to identify some trends, patterns, and relationships in collected data with a basic application of scientific understanding to suggest simple explanations for their findings. ● Communicates scientific ideas using basic scientific terminology and simple report structures. 	<p style="text-align: center;">D</p> <p style="text-align: center;">8-15</p>
<ul style="list-style-type: none"> ● Identifies a basic aim or prediction for a testable question with significant assistance. ● Participates in designing and conducting a first-hand investigation with assistance. ● Analyses minimal data from the investigation, with assistance, using basic tables or graphs to identify limited trends, patterns, and relationships in collected data with minimal application of scientific understanding to suggest basic explanations for their findings. ● Communicates scientific ideas using limited scientific terminology and minimal report structures. 	<p style="text-align: center;">E</p> <p style="text-align: center;">0-7</p>