Gymea Technology High School
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Year 9 Science

Depth Study 1- Controlling the Spread of Disease

Due Date: March 25th (Wednesday Week 9) 2026, by 3PM.

Task Distributed: Thursday 19th February 2026

Unit: Disease

Task Type: Student Research Project

Task Weighting: 20%

Outcomes:

- explains how an understanding of the causes of disease can be used to prevent and manage the spread of disease **SC5-DIS-01**
- follows a planned procedure to undertake safe, ethical, valid and reliable investigations **SC5-WS-04**
- selects and uses a range of tools to process and represent data **SC5-WS-05**
- analyses data from investigations to identify trends, patterns and relationships, and draws conclusions **SC5-WS-06**
- communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms **SC5-WS-08**

Task Description

Background

The work of scientists involves planning and carrying out investigations and then communicating their findings and conclusions. This investigation will allow you the opportunity to practice working scientifically.

Imagine you are working for Gymeacare™, a company that makes surface cleaning products that can be applied to an area to kill any pathogens. You will need to perform an experiment which tests how well three of your products kill bacteria and analyse the results of that experiment. Finally, you will need to explain everything to the company's chief scientist in a formal scientific report.

What you need to do:

In class and at home you will need to complete a written report containing the following:

- **Background Research (Presented as the Introduction section of your report)**
  - What are bacteria and what makes them different from other pathogens?
  - What chemicals/ agents kill bacteria and how do they work?
  - Why is bacterial contamination of surfaces a problem?
- **Aim (**the aim of your primary study – the experiment you will do in class on the antiseptic properties of Gymeacare's chemical agents**)**
- **Hypothesis (**your prediction about the relationship between the independent and dependant variables of the experiment.**)**
- **Equipment (**be specific – include volumes and weights where appropriate, and make sure you include everything you use!)
- **Procedure (**method – numbered, brief steps in correct order, each starting with a verb**)**
- **Safety (**risk assessment – what were the hazards and how did you manage or minimise them**)**
- **Results (**the raw data you and the rest of your class collected presented as a table, your graph of the class data including a legend and images of your plates**)**
- **Discussion (**what your results show, the reliability and validity of the experiment, as well as how the experiment could be improved if it were to be repeated**)**

- **Conclusion (**a brief summary of your findings from both the background research and your primary investigation and what the results prove**)**
- **Bibliography (**Following Harvard Referencing format for both the background research and the rest of the scientific report**).**

Harvard referencing is a citation style used by students, writers and researchers to legally incorporate other people's quotes, findings and ideas into their own work to validate their conclusions. It includes formatting rules for in-text citations and listing different types of sources in a reference list. The web addresses below will help generate your references in the correct format.

https://www.citethisforme.com/citation-generator/harvard
https://www.mybib.com/tools/harvard-referencing-generator

NESA Glossary of Key Words

Understand the verb associated with the task. These verbs will provide an understanding of the detail needed to successfully answer the question.

- ☐ DISCUSS: Identify issues and provide points for and/or against
- ☐ EXPLAIN: Relate cause and effect; make the relationships between things evident; provide why and/or how.
- ☐ INVESTIGATE: Plan, inquire into and draw conclusions about
- ☐ https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/hsc/hsc-student-guide/glossary-keywords

Details of Submission

While you will be completing the experiment and results gathering as a group, all submitted work should be done as an individual. This includes background research, tables, graphs and discussion of results.

You must submit your final scientific report in its entirety on **Google Classroom**.

Your final report should be **a Google Doc**, approximately **4 to 5 pages** (including ***tables***, ***graphs*** and ***images, bibliography not counted***). If it is shorter, you should check very carefully that the required depth to score well is there.

Teacher Feedback

- The task will typically be returned to students within 4 weeks of the due date.
- At this time feedback including information on how to improve will be provided through mechanisms such as marking criteria, and/or written comments.
- Students can clarify or seek further feedback by the speaker with their teacher or the assessment marker.
- You will also receive feedback on your literacy performance based on the criteria in the school's literacy marking rubric. The marks achieved for literacy will account for between 10% – 20% of the maximum task value.

Assessment Procedures

All students should be fully aware of the School Assessment Procedures for their year group. These were provided at the beginning of the school year and are available on the school website under the Learning Tab for each year group.

MARKING CRITERIA:

OUTCOME	INDICATOR	EXPERIENCING DIFFICULTY	DEVELOPING	COMPETENT	OUTSTANDING
explains how an understanding of the causes of disease can be used to prevent and manage the spread of disease **SC5-DIS-01**	**Overall Quality of Communication (all parts of report)**	Components of the report do not contain relevant scientific language. The report is not presented coherently and does not provide evidence to support arguments.	Demonstrates a basic understanding of disease cause and prevention. Scientific ideas are communicated using some scientific language and terminology.	Demonstrates a sound understanding of disease cause and prevention. Scientific ideas are communicated coherently, using appropriate scientific language and terminology, with some evidence and reasoning provided to support arguments.	Demonstrates a thorough understanding of disease cause and prevention. Arguments are communicated succinctly and coherently, using correct scientific language, terminology and evidence as appropriate to the identified audience.
		0	1	2	3
	Introduction (background research)	Introduction section of report missing or very unclear/ irrelevant to report.	Introduction section of report present but limited exploration or unclear links to aim of report.	Introduction section of report present with significant exploration of background and clear links to aim.	Introduction section of report presents extensive exploration of background and shows consistently clear links to aim and procedure of experiment.
		0	1	2	3
follows a planned procedure to undertake safe, ethical, valid and reliable investigations **SC5-WS-04** communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms **SC5-WS-08**	**Aim**	Research purpose not stated or The stated purpose of the investigation is irrelevant.	The purpose of the investigation is identified but is stated in a somewhat unclear manner.	The purpose of the investigation is clearly identified and stated.	
		0	1	2	
	Hypothesis	Fails to propose hypothesis	Proposes a hypothesis that is not valid/relevant or is missing one of the variables	Proposes a valid hypothesis which includes both independent and dependant variables.	
		0	1	2	
	Equipment	No equipment list	Equipment list incomplete	Complete, detailed list of appropriate materials	
		0	1	2	
	Describes a logical procedure	Procedure does not accurately list the steps of the experiment	Procedure is listed but is not in a logical order/ difficult to follow/ incorrect.	Procedure is detailed and is listed in clear, logical and coherent steps.	
		0	1	2	
	Identifies and controls safety risks	Fails to appropriately identify and control safety risks	Includes only critical safety concerns or fails to list management strategies	Addresses most safety concerns and includes plans to minimise safety risks	Comprehensive assessment that includes all relevant and predictable risks and management strategies
		0	1	2	3
	Results: Plate Images	Report uses no images or diagrams	Report uses relevant images but no or unclear labels.	Report uses relevant images or diagrams with appropriate labels.	
		0	1	2	

selects and uses a range of tools to process and represent data **SC5-WS-05** analyses data from investigations to identify trends, patterns and relationships, and draws conclusions **SC5-WS-06** communicates scientific arguments with evidence, using scientific language and terminology in a range of communication forms **SC5-WS-08**	**Results: Table**	Raw data is not presented in a table/ not present	Data is displayed in a table. The mean has not been used to summarise data. Key information might be missing, such as descriptive headings and units.	Clear and descriptive title. Data is displayed in an organised table with correct headings. Units might be missing in column headings and placed in the body of the table. The table includes all relevant data and might include unnecessary information (for example, units are entered in data cells). The mean is correctly calculated for each treatment.	Clear, descriptive and concise title that accurately reflects the content. The table is well-organised (for example, borders) and easy to read. All columns and rows are clearly labelled with appropriate units. Data is accurate and correctly entered. The table includes all relevant data and excludes unnecessary information. The mean is correctly calculated for each treatment.
		0	1	2	3
	Results: Graph	A graph has not been included, or the graph might contain significant omissions or errors, such as incorrect plotting of data or scale.	The results are presented in a graph; however, some major components might be missing, such as an axis scale or key, making it difficult to interpret the results	The results are presented in an appropriate graph; however, some minor components might be missing, such as the axis label and heading.	The results are accurately presented in an appropriate graph that is easy to understand. The graph has correctly labelled axes, headings, units and a key if relevant.
		0	1	2	3
	Results: Graph Legend	A graph legend has not been included or might contain significant omissions or errors.	A graph legend has been included but contains some omissions or errors regarding what the graph represents.	A graph legend has been included stating what kind of data the graph represents but may be unclear or have one notable omission.	A graph legend has been included stating what kind of data the graph represents and how that data was gathered and analysed.
		0	1	2	3
	Discussion: analysis of results	Results are repeated in the discussion. Ideas are not clearly expressed, or an incorrect interpretation of the results is provided.	A basic interpretation of the results is provided. Correctly identifies the order of susceptibility of the bacteria to the different antiseptics.	Results are correctly interpreted. Correctly explains the susceptibility of the bacteria to the different antiseptics.	Results are correctly interpreted. Correctly explains the susceptibility of the bacteria to the different antiseptics and supports this with evidence.
		0	1	2	3
	Discussion – sources of error and improvements	Sources of error have not been identified, and there are no suggestions for improving the investigation.	A source of error has been identified. Inadequate or no improvements have been suggested.	Some sources of error have been identified, and improvements have been suggested.	Sources of error and limitations have been identified, and adequate ways of improving the reliability and validity of the investigation have been suggested.
		0	1	2	3
	Conclusion	No clear conclusion is presented, or the conclusion is not based on the results of the experiment.	The conclusion is somewhat disconnected from the results or lacks detail in addressing the aim.	The conclusion addresses the aim and is consistent with the data and information gathered.	The conclusion uses data (both primary and secondary) to provide evidence to address the aim and provides justification for inferences and conclusions.
		0	1	2	3
	Bibliography	Bibliography not submitted	Bibliography submitted but not in Harvard Style	Bibliography submitted in the appropriate format (Harvard Style)	Bibliography submitted in the appropriate format (Harvard Style) + appropriate in text citations
		0	1	2	3
	Literacy (refer to last page)	**/5**			**Total: /45**

GTHS Literacy Criteria

Literacy Outcomes	Elementary achievement You have:	Limited achievement You have:	Satisfactory achievement You have:	High achievement You have:	Outstanding achievement You have:
Vocabulary *Uses technical vocabulary to explain concepts and/or range of precise and appropriate words for effect*	Very limited response. Few content words used.	Only simple words are used.	Some precise and technical words are used.	Sustained use of precise and technical words.	Sustained, consistent and fluent use of precise and technical words.
	0	0.25	0.5	0.75	1
Punctuation *Use of correct and appropriate sentence and other punctuation for effect, and to aid in reading of the text*	No evidence of correct sentence punctuation.	Sentence punctuation is correctly used in at least one place - *one sentence is punctuated correctly.*	Some correct sentence level punctuation (at least 50%). May attempt other punctuation where it is required.	Mostly correct sentence level punctuation (80%) and at least two correct examples of other punctuation.	Writing contains accurate use of all applicable punctuation.
	0	0.25	0.5	0.75	1
Sentences & Cohesion *The intentional construction of a variety of sentences to match purpose and audience, and the control of multiple sentence threads across the whole text.*	No clear evidence of sentences: a list of words OR text fragments.	At least one sentence is used correctly. Some meaning can be construed from the text.	Some correct formation of sentences. Mainly uses simple and compound sentences, but may attempt more complex structures.	Most sentences are correct. Range of sentence types and connectives are evident, but with varied effectiveness.	All sentences are correct, effective and controlled, and include a range of sentence types and connectives (complex sentences and other sophisticated structures)
	0	0.25	0.5	0.75	1
Paragraphs *Paragraphs are used to effectively structure information and partition events and ideas*	No correct use of paragraphing; may be a block of text or random breaks.	Ideas are separated; paragraphs may contain some unrelated ideas.	At least ONE paragraph is well structured and develops an idea	Writing is organised into paragraphs that assist the reader to digest chunks of the text, but may not be linked or executed effectively.	All components of the paragraphs are evident and paragraphing is consistent and well-developed across the whole text.
	0	0.25	0.5	0.75	1
Text Structure *Uses features of the appropriate text type*	No evidence of the structural features of the appropriate text type. *No attempt to write in the appropriate text type and/or response is off task.*	Minimal evidence of the structural features - *1 component evident* - of the appropriate text type.	Some evidence of the structural features - *2 components evident* - of the appropriate text type.	Substantial evidence of the structural features - *all components evident but there may be some lapses* - of the appropriate text type.	Coherent and controlled use of **all** the appropriate structural features of the text type.
	0	0.25	0.5	0.75	1
	Level of response is well below syllabus expectation	Level of response is below syllabus expectation	Level of response is equivalent to syllabus expectation	Level of response is above syllabus expectation	Level of response is well above syllabus expectation