

Year 12 - 2024

Biology Lawrence

Task Number: 2

Notification Date: Monday 06/11/2023

Weight: 30%

Due Date: By 3.20pm Friday 31/05/2024 Week 5 Term 2



## Practical Portfolio

### OUTCOMES ASSESSED

**BIO12-1** develops and evaluates questions and hypotheses for scientific investigation

**BIO12-2** designs and evaluates investigations in order to obtain primary and secondary data and information

**BIO12-3** conducts investigations to collect valid and reliable primary and secondary data and information

**BIO12-4** selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

**BIO12-14** analyses infectious disease in terms of cause, transmission, management and the organism's response, including the human immune system

### TASK DESCRIPTION

Key Content:

- describe a variety of infectious diseases caused by pathogens, including microorganisms, macroorganisms and non-cellular pathogens, and collect primary and secondary-sourced data and information relating to disease transmission, including:
  - design and conduct a practical investigation relating to the microbial testing of water or food samples 📷
- investigate the work of Robert Koch and Louis Pasteur, to explain the causes and transmission of infectious diseases, including: 🧪 ⭐
  - Pasteur's experiments on microbial contamination
- investigate the response of a named Australian plant to a named pathogen through practical and/or secondary-sourced investigation, for example:
  - fungal pathogens
  - viral pathogens

Your task is to plan, conduct and report on 3 practicals, which will be conducted in class.

Your experimental reports should:

- Adhere to scientific conventions for reporting experimental data, including all subheadings within the marking criteria
- Present results as appropriate, as either qualitative photographs and observations, or quantitative tabulated data sets and graphs.
- Discuss experimental sources or error and identify improvements
- Draw conclusions that reflect experimental aim, resulting trends and accuracy of hypothesis.

## TASK INSTRUCTIONS

This depth study will have 9 hours of class time allocated to its completion.

Additional at-home research may also be required

Include in the presentation of your assessment task:

- 3 experimental reports, including in text citations
- A separate reference list according to Harvard guidelines

KEY DATES:

- Equipment Order and Risk Assessment** By 3.20pm Friday 10/05/2024 Week 2 Term 2
- Draft Submission for Feedback** By 3.20pm Friday 24/05/2024 Week 4 Term 2
- Final Copy** – As a hardcopy to your teacher, By 3.20pm Friday 31/05/2024 Week 5 Term 2

Teacher's signature: \_\_\_\_\_

Mrs A Lawrence

HT Admin signature: \_\_\_\_\_

Ms M Eagles

Deputy Principal's signature: \_\_\_\_\_

Mrs A Lawrence

Subheading	Description	Possible Marks	Exp 1	Exp 2	Exp 3	Section Total
Equipment Order	All materials required are listed	2				/9
	Order form is submitted punctually	1				
Risk Assessment	Lists 4 risks (physical, chemical or biological)	2				/18
	Provides 4 precautions for minimizing identified risks	2				
	Risk Assessment is submitted punctually	2				
Aim	Appropriate aim for investigation linking independent and dependent variables	3				/9
Hypothesis	Provides a justified and educated prediction of the outcome of the experiment, supported by their background research	2				/6
Background Research	1. States the relevant theory from coursework	4				/36
	2. Identifies the type of pathogen being studied, and associated transmission factors	4				
	3. Outlines applications of experiment to real life processes	4				
Variables	Correctly identifies independent variable	1				/15
	Correctly identifies dependent variable	1				
	Correctly identifies multiple (3) controlled variables	3				
Materials	All equipment required for method is listed	2				/12
	Matches the equipment order in logbook	2				
Method	Steps to method are sequential (ordered) and numbered	2				/24
	Steps begin with a verb and are specific in quantities	2				
	Lists all steps in an impersonal, concise and logical manner	2				
	Includes a labelled diagram or photograph	2				
Results	Includes photos of performing experiment	2				/42
	Tabulated record of appropriate measurements taken during the experiment showing evidence of repetition	4				
	Calculates averages from multiple trials, including working	4				
	Experimental results displayed in an appropriate graph/chart	4				
Discussion	Describes results in words	2				/48
	Identifies any trends/patterns in the results	2				
	Assesses the accuracy of any measurements taken	2				
	Identifies TWO problems with the experiment and explains their impact on the results	4				
	Discusses TWO ways these problems were addressed	2				
	Suggests TWO ways (2) of reducing identified (2) sources of error	4				
Conclusion	Summarises overall findings of the experiment	1				/12
	Reflects the aim of the experiment	1				
	Evaluates the accuracy of the hypothesis	2				
Drafting process	Submitted draft to teacher by due date	2				/21
	Applied teacher feedback to make multiple (5) corrections to final report	5				

Report Presentation	Provides a coversheet with title, student name and teacher	3				/48
	Provides a Reference List with several sources (5)	5				
	Utilised Harvard Referencing for acknowledging sources	5				
	Places Student Name and Teacher Name in header	2				
	Places Page Number in footer	1				

**PORTFOLIO TOTAL**

**/300**

**Feedback:**

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Task Total**

**%**

**Task Rank**

**Cumulative Rank**