



YEAR 12 Biology - Research Task

Due Date: Wed, Term 3 Week 2 -2nd Aug 2019	Assessment Name: Yr 12 Bio Depth Study
Mark: /175	Weighting: 30%

SYLLABUS OUTCOMES TO BE ASSESSED:

Bio 12-2: designs and evaluates investigations in order to obtain primary and **secondary data and information**

Bio 12- 3: conducts investigations to collect valid and reliable primary and **secondary data and information**

Bio 12-4: selects and processes appropriate qualitative and quantitative data and **information** using a range of appropriate media

Bio 12-5: analyses and evaluates primary and **secondary data and information**

Bio 12-7: communicates scientific understanding using suitable language and terminology for a specific audience or purpose

Bio 12-14: analyses infectious disease in terms of cause, transmission, management and the organism's response, including the human immune system

DIRECTIVES TO BE ASSESSED:

Identify: Recognise and name

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

Justify: Support an argument or conclusion

Evaluate: Make a judgement based on criteria; determine the value of

Describe: Provide characteristics and features

Assess: make a judgement of value, quality, outcomes, results or size

Analyse: Identify components and the relationship between them; draw out and relate implications.

TASK DESCRIPTION: After selecting ONE of a selection of Infectious Diseases;

Students will-Part A. Compile and collate an Infectious Disease Research Portfolio, which includes information about the allocated disease and prepare a 'Fact Sheet' using these and other sources.

- Using no less than 10 different sources
- Coding each of the sources according to validity, reliability and trustworthiness
- Fact sheet to be one A sheet of collated information on chosen disease
- Table of Contents for resources
- Bibliography to be included in portfolio as last page

Part B. Infectious Disease PowerPoint or Google Slides Presentation, students will;

- Include all of the details on the disease as required
- Create a slide presentation of all the relevant data
- Submit notes for an aural presentation & present task to class

ASSESSMENT CRITERIA – STUDENT CHECKLIST:

- A wide range of data and information is used and referenced correctly
- Name and type of pathogen is included and Fact Sheet supplied following the guidelines
- Demonstrate understanding of historical information and transmission processes along with treatment, Symptoms and complications.
- Clear description of Immune response, risk factors, prevention and vaccination including the epidemiology

**TASK DESCRIPTION:
INFECTIOUS DISEASE DEPTH STUDY**

Due Date: Tuesday 18th June 2019

Weighting: 30%

This assessment task consists of two parts and is worth a total of 30% of your HSC Biology Assessment Mark:

Part A: Infectious Disease Research Portfolio and Fact Sheet

Part B: Infectious Disease PowerPoint or Google Slides Presentation

Due Date Week 8 Term 2 2019 Friday 26TH JULY by 3.20pm

BIO11/12-1	develops and evaluates questions and hypotheses for scientific investigation
BIO11/12-2	designs and evaluates investigations in order to obtain primary and secondary data and information
BIO11/12-3	conducts investigations to collect valid and reliable primary and secondary data and information
BIO11/12-4	selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media
BIO11/12-5	analyses and evaluates primary and secondary data and information
BIO11/12-6	solves scientific problems using primary and secondary data, critical thinking skills and scientific processes
BIO11/12-7	communicates scientific understanding using suitable language and terminology for a specific audience or purpose

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

Module 7 is concerned with infectious disease - causes and transmission, immune response, epidemiology, prevention, treatment and control.

A very wide range of pathogens are responsible for disease in humans, animals and plants. Plant diseases will not be considered in this task.

Your task involves selecting one of the diseases from Table 1 below. Each student will report on a different disease, to produce the widest variety of PowerPoints to share with the class. On the issue of the task, please sort your choice in class this Friday, and ensure you have made the best choice (no changes can be made once choices are sorted).

Table 1: List of infectious diseases by type

Bacterial	Viral	Protozoan	Helminth
Whooping cough	Polio	Malaria	Schistosomiasis e.g. Bilharzia (choose one type only)
Cholera	Measles	Coccidiosis	Dracunculiasis (Guinea worm)
Plague	Influenza	Leishmaniasis	<i>Fasciola hepatica</i> (Liver fluke)
Tetanus	Human immunodeficiency virus (HIV)	Trypanosoma disease e.g. Chagas Disease, African Sleeping Sickness (choose one only)	Filarial diseases (Elephantiasis) (choose one type only)
Meningococcal disease	Dengue Fever	<ul style="list-style-type: none"> These diseases may require investigation into vaccine research or reasons vaccines have not 	

Tuberculosis	Ebola	<p>yet been developed rather than efficacy of commercially available vaccines.</p> <ul style="list-style-type: none"> If you have a burning passion to investigate an infectious disease not listed here, please see your teacher to obtain pre-approval.
Anthrax	Hepatitis A, B or C (choose one only)	
	Human Papillomavirus (HPV)	

Part A: Infectious Disease Portfolio

In this section you will collate materials with information about your allocated disease and also prepare a 'Fact Sheet' using these and other sources.

A Fact Sheet is a collection of the information relating to your disease which is summarised on one A4 sheet of paper. This will be also be used as a resource to create your PowerPoint and write your notes for each slide.

1. Infectious Disease Portfolio

A carefully-selected collection of relevant materials found during your research. The portfolio should include items from each of the following categories (if possible), but other relevant materials may also be included. A minimum of Ten (10) items should be included, and each article should be included in the table of contents.

- Relevant journal research or review articles.
- Science magazine articles e.g. Cosmos, New Scientist, and National Geographic.
- Newspaper or consumer magazine articles e.g. Sydney Morning Herald, New Idea.
- Materials such as brochures, awareness campaign materials, fact sheets etc. from governments and/or public health organisations such as; World Health Organisation, United Nations, Centres for Disease Control, National Institutes of Health, Red Cross, Wellcome Trust, Bill and Melinda Gates Foundation etc.
- Epidemiological maps or graphs.
- Relevant images of the pathogen, symptoms etc.
- Relevant historical information e.g. old photographs, drawings, public health posters.
- Commercial advertisements for treatments, vaccines, prevention etc.

Statement of reliability: Categorise each source using the Green/Amber/Red guidelines where; Green represents an excellent source, Amber a questionable source, and Red as a source that is not classified as reliable and valid. Write a *brief* statement (maximum of 100 words per source) addressing reliability for each source. There is no need to exclude biased or 'red' sources in this task – a wide range of types is encouraged to demonstrate a range of reliability.

Sources must include bibliographic information: Use an appropriate citation maker for all materials in the portfolio that are not already clearly identified. i.e, a magazine or journal article with all bibliographic source information intact does not need to be separately referenced. An unlabelled image or extract must be referenced so the item can be located. This Bibliography must be included in your Portfolio binder/folder.

Present these materials in a binder or folder so they can be viewed individually.

2. Fact Sheet

Using the information gathered in your portfolio, create a one page 'poster' (A4 or A3 is acceptable) which you would find in a doctors surgery or health clinic, depicting the important and relevant information about the chosen disease. Be sure to include pictures, diagrams, graphs, and only the information usually found on these sheets. As per your Slide Presentation, be sure to include a short section or diagram of each of the criteria found on this list. (see example:

<https://info-graph.venngage.com/p/83137/staph-info-graph>)

Part B: PowerPoint Presentation

The PowerPoint Presentation should be between 20 to 30 slides excluding the Title Page, Table of Contents and Bibliography. Please use 18 point font (minimum on the sides) and 1.5 or double spacing. Images, maps, graphs and Bibliography are not included in the word count.

Using a wide variety of reputable and reliable sources which should include materials from your portfolio, address the following aspects of your allocated disease using the following headings:

- Title Page-Name of pathogen, student name and class, assignment due date (picture of pathogen if possible)
- Name of pathogen – common and scientific names.
- Type of pathogen – eg type of virus, specific group of helminth.
- Images of pathogen and symptoms.
- Historical information – discovery, naming, any references in historical or ancient texts-examples of available of epidemics or pandemics
- Transmission – how the disease is caught and spread.
- Signs and Symptoms of the disease.

Check your assessment booklet for the PHS Assessment Policy

- Treatment and management options.
- Potential complications.
- Immune response induced by the pathogen.
- Risk Factors that increase the contraction or seriousness of the disease.
- Prevention, treatment, drug therapies, including future research directions.
- Vaccination and/or control programs – development, effectiveness, challenges and problems, public health campaigns, including research into future vaccines where relevant.
- Epidemiology including prevalence and incidence, morbidity and mortality data, any changes over time such as pre and post-vaccination programs. ***This section must include relevant statistical data presented as maps, tables or graphs.***
- Conclude with Reference slide (can be 12 font)

In-text referencing must be used, as per the guide on the classroom. You may use the built-in reference generator in Word (recommended) or manually complete the references using the library link. In-text referencing requires that the reference is listed as (Author, date) where the information sourced from that reference is used **AND** that the full, correctly formatted reference is provided in the Bibliography. When using the built-in References system in Word, inserting citations as you use them will allow you to create a Harvard-formatted Bibliography on completion using the “Insert Bibliography” command, and keeps track of edits and revisions automatically.

Include:

- All the important facts as per your portfolio
- relevant images, diagrams, statistics and graphs.

Conduct research on public health presentations for ideas on how to present the key information clearly and succinctly.

Refer carefully to the Rubric for more detail on the depth of response required.

Submission

Your Infectious Disease Portfolio must be presented as a hard copy in a folder or binder.

Your Fact Sheet must be uploaded to the Assignment section of Google Classroom **BY 3.20 PM WEDNESDAY 19TH JUNE**

Your Fact Sheet must also be submitted to the classroom to generate an originality report.

Your PowerPoint/Google Slides must be submitted both digitally to the Assignment section of Google Classroom AND as a printed hard copy (you can print 3-6 slides per page) by **3.20 PM WEDNESDAY 19TH JUNE**

Draft policy

Your Fact Sheet and PowerPoint/Google Slides

(but not the Infectious Disease Portfolio) must be submitted as a substantially (<90%) complete draft suitably edited for spelling and grammar, no later than **10 days** before the due date to allow time for feedback and review. Any feedback must be substantially acted upon. If no draft is submitted, or the draft is late, partial or no changes are made to reflect feedback, **up to 4 marks may be deducted from the task total.**

MARKING RUBRIC		
Part A 1) Infectious Disease Portfolio	Marks	
A wide range of relevant items from each of the categories listed and at least 10 items in total. Or, greater than 10 items from almost all the categories listed. Poor/Fair/Sound/Thorough/Extensive	20	
All items have clear bibliographic information shown or are correctly formatted and included in the Part A Bibliography submitted with the Portfolio. All/Almost all/Most/Some/None	5	
Each source is correctly categorised according to reliability using the Green Amber Red scale and includes a brief (max 100 words) statement addressing reliability. Includes a range of source categories. Poor/Fair/Good/Thorough/Extensive	20	
Total for portfolio	45	
Part A 2) Fact Sheet		
Name of pathogen (1) including both correctly formatted (1) scientific name (1) and common name (1)	4	
Type of pathogen correctly stated and subtype included where relevant.	1	

Check your assessment booklet for the PHS Assessment Policy

<p>Images of the pathogen and symptoms – a variety of relevant, accurate images.</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	5	
<p>Historical information – discovery, naming, references to the disease in historical texts</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	5	
<p>Transmission of the pathogen described accurately and completely with all known methods of transmission.</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	10	
<p>Symptoms of the disease described accurately</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	5	
<p>Treatment and management options</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	10	
<p>Potential complications</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	5	
<p>Immune response induced by the pathogen in the host</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	10	
<p>Risk Factors that increase the contraction or seriousness of the disease</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	5	
<p>Prevention, treatment, drug therapies (other than vaccination) including future directions for research.</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	10	
<p>Vaccination and/or control programs – development, effectiveness, challenges/problems, public health campaigns, includes vaccine development research where relevant.</p> <p>Poor/Fair/Good/Thorough/Extensive</p>	10	

Epidemiology – including prevalence and incidence terms used correctly, morbidity and mortality data (with date or location range), changes over time, relevant statistical data presented as maps, tables or graphs Poor/Fair/Good/Thorough/Extensive	10	
In-text referencing correctly used. See the Summary Guide in the General Resources section of CANVAS. Images used in report properly cited in-text and in bibliography (any source site) Poor/Fair/Good/Thorough/Extensive	5	
Bibliography - at least ten reliable, reputable sources correctly referenced in reference list. Use of .gov, .org, .edu sites. Poor/Fair/Good/Thorough/Extensive	5	
Total for Fact Summary	100	
Part B Power Point Presentation		
Visually engaging, well-researched powerpoint <u>suitable for intended audience</u> Poor/Fair/Good/Thorough/Extensive	5	
Important facts on disease symptoms, effects, treatment and prevention effectively communicated to intended audience Poor/Fair/Good/Thorough/Extensive	10	
Relevant images, diagrams, statistics and graphs included throughout powerpoint Poor/Fair/Good/Thorough/Extensive	8	
Information epidemiology clearly shown and understanding conveyed to audience Poor/Fair/Good/Thorough/Extensive	5	
At least 20 slides included, (excluding Title Slide, Contents Slide and Bibliography)	2	
Total for Presentation(PowerPoint or Google Slides)	30	

Draft Submission and feedback implementation – Fact Summary and Presentation

Substantially complete (>90%) draft for Fact Summary AND Presentation submitted at least 10 days before the due date.

Incomplete draft of both Fact Summary and Presentation submitted at least 10 days before

Late draft at least 5 days before

No draft submitted or less than 5 days before

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**Senior ALARM Steps
10-12**

Which verb is used in the question?
Follow the steps in the column that correspond to that verb.

				To what extent is the impact effective?
			What is the impact? How does this relate to the set criteria/main idea?	What is the impact? How does this relate to the set criteria/main idea?
		What is the function or purpose? What is the effect of component? 'Why' may need to be addressed	What is the function or purpose? What is the effect of component? Give evidence. 'Why' may need to be addressed	What is the function or purpose? What is the effect of component? 'Why' may need to be addressed
		What are the features and characteristics?	What are the features and characteristics?	What are the features and characteristics?
What is the main component?	What is the main component?	What is the main component?	What is the main component?	What is the main component?

IDENTIFY (Main Concept)	DESCRIBE	EXPLAIN/ANALYSE	CRITICALLY ANALYSE	EVALUATE
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