

Biology - HSC COURSE

Assessment Task: Research Task

Date to be completed: Week 6 Term 2 2019 (Wednesday 3rd June)

Worth: 30%

Outcomes to be assessed from the Syllabus:

HSC outcomes	A student:
BIO 12-1	Develops and evaluates questions and hypotheses for scientific investigation
BIO 12-2	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 – 5	Analyses and evaluates primary and secondary data and information
BIO12– 6	Solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

This task will require you to do some research on an infectious disease in a plant and an animal. You will be allowed to collate your notes and have them with you when you complete the written or online assessment.

Task Syllabus Outcome Details

You will need to have some knowledge of the following areas of study

Students:

- 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 (ACSBL097, ACSBL098, ACSBL116, ACSBL117)
 - classifying different pathogens that cause disease in plants and animals (ACSBL117)
 - investigating the transmission of a disease during an epidemic
 - design and conduct a practical investigation relating to the microbial testing of water or food samples
 - investigate modes of transmission of infectious diseases, including direct contact, indirect contact and vector transmission

- assess the causes and effects of diseases on agricultural production, including but not limited to:
 - plant diseases
 - animal diseases

- investigate and analyse the wide range of interrelated factors involved in limiting local, regional and global spread of a named infectious disease

- investigate procedures that can be employed to prevent the spread of disease, including but not limited to: (ACSBL124)
 - hygiene practices
 - quarantine
 - vaccination, including passive and active immunity (ACSBL100, ACSBL123)
 - public health campaigns
 - use of pesticides
 - genetic engineering

- investigate and evaluate environmental management and quarantine methods used to control an epidemic or pandemic

You will need to:

• Research information on how ONE named plant and ONE named animal disease are transmitted. You will also need to research how the spread of these diseases can be controlled.

• Develop summary notes that are no longer than 3 double-sided A4 sheets to use during the written part of the assessment. You will be given marks for

submitting your summary notes.

• Use the information you have researched to answer a series of questions on the transmission and control of diseases. This will be an online assessment or in the classroom depending on the circumstances.

The following information may help you collate your summary notes. Use the heading provided as a guide to your note-taking.

Inquiry question: How are diseases transmitted?

You are to:

- Define the term pathogen
- Information on an infectious plant pathogen, what is it, what is the mode of transmission, adaptations, other information relating to its role as a pathogen
- Information on an infectious animal pathogen, what is it, what is its mode of transmission, adaptations, other information relating to its role as a pathogen
- The potential effect of the pathogen on associated
 - agricultural production
 - industry
 - societyrelevant to your chosen pathogens.
- Describe infectious diseases caused by pathogens relating to disease transmission, including:
 - classifying the different pathogens that cause a disease in a plant and an animal.
 - For **ONE** of the diseases you are researching create a scenario where your disease causes an epidemic. You need to describe the potential transmission of this disease during an epidemic
 - Describe a scientific test that could be conducted to test for the presence of the diseases you are researching
 - Describe the mode in which the disease is transmitted direct contact, indirect contact or vector transmission

Inquiry question: How can the spread of infectious diseases be controlled?

You are to:

- Investigate and analyse the wide range of factors (many are interrelated) involved in limiting the regional spread (an epidemic and not a pandemic) of your plant or animal infectious disease
- Investigate procedures that can be employed by a variety of people and/or organisations to prevent the spread of infectious diseases. Choose at least three from the following to include as part of your research:
 - hygiene practices
 - quarantine

- vaccination, including passive and active immunity
- public health campaigns
- use of pesticides
- genetic engineering
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- Investigate and evaluate environmental management and quarantine methods used to control an epidemic. (Note that some of the measures may be the same as a pandemic)