

## 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)