Biology - HSC COURSE

Assessment Task: **Research Task**

Date to be completed: Week 6/7 Term 2 2019 (Day to be advised)

Worth: 30%
Outcomes to be assessed from the Syllabus:

HSC outcomes	A student:
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 – 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

Task Outcome Details

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

Task Details: ***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 your diseases can be controlled. Your diseases must be related to agricultural production in some way (refer to dot points below).***

- ***Develop a summary report that is no longer than 3 double-sided A4 sheets to bring with you to class on a specified date in Week 6/7. You will be given marks for submitting a report.***

- ***Use the information you have researched to answer a series of questions on the transmission and control of diseases.***

The following information was given to you on the final day of Term 1:

Inquiry question: *How are diseases transmitted?*
You are to:
- define the term pathogen
- You are to research information on an infectious plant pathogen and an infectious animal pathogen associated with agricultural production.
- describe an infectious diseases caused by a pathogen 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 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.
- assess the effects of each disease on agricultural production.

Inquiry question: *How can the spread of infectious diseases be controlled?*
You are to:
- investigate and analyse the wide range of interrelated factors involved in limiting regional spread of your plant and animal infectious disease
- investigate procedures that can be employed to prevent the spread of disease, these could include but are not limited to:
    - hygiene practices
    - quarantine
    - vaccination, including passive and active immunity
    - public health campaigns
    - use of pesticides
    - genetic engineering.
- investigate and evaluate environmental management and quarantine methods used to control an epidemic or pandemic