**Year 12 ATAR Biology Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Unit 4: Modelling disease outbreak. 30 marks

Assessment type: Investigation

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Models are tools used by epidemiologists to predict the impact of different factors (variables) on the spread and outcome of a disease epidemic. The disease lab simulator can be used to modify various disease characteristics.

Explore the interactive referring to the information given about the different scenarios, factors that can be changed and the data that can be obtained.

<http://www.learner.org/courses/envsci/interactives/disease/disease_help.php>

**You should plan and conduct an investigation using this interactive to determine the effect of changing two factors on the spread and outcomes of two different disease epidemics.**

Time allowed:

* 2 lessons to plan and collect data.
* Homework to complete questions 1-5 Planning and Conducting ( 14 marks)
* 50 minutes Validation Test on Graphing results, Discussion and Conclusions, and the effectiveness of computer modelling to simulate disease outbreaks (16 marks)

**Part 1: Planning and conducting**

1. Aim of the Investigation. (1 mark)

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1. Hypotheses. (2 marks)

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1. Identify the dependent, independent and controlled variables for each scenario. (5 marks)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Dependent | Independent | Controlled variables |
| Senario 1 |  |  |  |
| Senario 2 |  |  |  |

1. Collect, record and record data in appropriate tables demonstrating necessary calculations.

(6 marks)

**Year 12 ATAR Biology**

Unit 4: Modelling disease outbreak Investigation NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part 2: Validation Test (50 minutes in class, under test conditions)**

1. Represent your data in the form of a graph/s. Attach graph paper to this test (6 marks)
2. Describe the results of the two simulations and your conclusions (6 marks)

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1. Outline two benefits of using modelling to predict the outcome of epidemics. (2 marks)

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1. Describe two limitations of using computer simulation models in this way. (2 marks)

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