NAME:_____

Coonabarabran High School
Assessment Notification

Subject: Year 12 Biology
Assessment task 2: Research task
Weighting: 20%
Word limit: 1200 words

Date of Notification: Tuesday 19th February, 2019
Due date: Friday 8th March, 2019
Teacher: Miss Christoff

Outcomes to be assessed

This assessment task will allow you to show evidence of having achieved the following course outcomes:

A student:

BIO11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information

BIO11/12-5 analyses and evaluates primary and secondary data and information

BIO11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose

BIO12-13 explains natural genetic change and the use of genetic technologies to induce genetic change

Task 2 – Research task: Module 6 Genetic Change – Recombinant DNA Technology

Your task is to research and write a report about recombinant DNA technology and its applications.

Include the following information in your report:

1. What is recombinant DNA?
2. Describe a process that is used to create recombinant DNA.
3. Describe an example that uses recombinant DNA in each of the following fields:
    a. Agriculture; and
    b. Medicine

    For each example (3a and 3b)
    i. Outline the process used to create it, including the organisms and genes used.
    ii. Explain why it was created and describe its application/s (current or potential)
    iii. Discuss the benefits and the risks associated with its use. Consider social, economic and environmental factors.
4. State your opinion about using recombinant DNA technologies. Justify your opinion.

Some examples of uses of recombinant DNA (includes transgenic species/genetically modified organisms (GMOs):

Agriculture: Genetically Modified (GM) cotton, GM canola, GM soyabeans, GM corn, GM potatoes, Golden rice, GM salmon, enviropigs, GM tomatoes

Medicine (organism has been modified to study a human disease or to produce a product that is used for a medical application): production of proteins such as human insulin, human growth hormone and blood clotting factor VIII; production of therapeutic proteins such as interferon and tissue plasminogen activator (clot dissolving protein); making vaccines (eg. Hepatitis B); gene therapy

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Marking Guide

Outcome	Outstanding- A 9-10	High- B 7-8	Sound- C 5-6	Developing- D 3-4	Limited- E 1-2	Mark
BIO11/12-3 conducts investigations to collect valid and reliable primary and secondary data and information Select and extracts information from a wide range of reliable secondary sources and acknowledge them using an accepted referencing style. **BIO11/12-5** analyses and evaluates primary and secondary data and information Derive trends, patterns and relationships in data and information Assess the relevance, accuracy, validity and reliability of primary and secondary data and suggest improvements to investigations	Uses a wide range (8+) of sources. Sources are reliable In-text referencing correctly applied throughout the report. A correctly formatted reference list is included. Only includes relevant information. Information included in the report is accurate, valid and current. Information from a range of sources is combined formulate ideas and explanations.	Uses a wide range of sources (5-7) Sources are reliable In-text referencing is mostly correct throughout report. Reference list formatting is mostly correct. Includes all required bibliographical details for sources. Information included in the report is relevant, accurate and valid. Information from a range of sources is combined to formulate paragraphs.	Uses a range of sources (5-7) Uses mostly reliable source In-text referencing is mostly correct throughout the task. Reference list is mostly correct. Missing some of the required bibliographical details for a few sources. Information in the report is mostly relevant, accurate and valid. Some attempt to relate the information from different sources and combine it into paragraphs.	Uses a few sources of information (3-4). Uses a number of unreliable sources. Some irrelevant information included. Attempted in-text referencing. Bibliography/reference list partially correct, missing some bibliographical details for several sources Information in report is generally accurate and valid. Paragraphs are generally formulated using information from a single source.	Uses a limited range of sources (1-2). Includes large amounts of irrelevant information. Unreliable sources used. Includes a bibliography with minimal details for sources, limited use of in-text referencing. Includes a number of incorrect statements.	/10

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BIO11/12-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose Select and use suitable forms of digital, visual, written and/or oral communication Select and apply appropriate scientific notations, nomenclature and scientific language to communicate in a variety of contexts Construct evidence-based arguments and engage in peer feedback to evaluate an argument or conclusion	Uses an appropriate format to logically and coherently communicate ideas. Extensive and correct use of scientific notations, nomenclature and scientific language. Effectively communicates complex ideas and information. Combines information from multiple secondary sources to construct evidence-based arguments that are logical and coherent. Uses relevant diagrams that complement the text. Refers reader to diagram. Diagrams labelled.	Uses an appropriate format to communicate ideas in a logical sequence. Correctly uses scientific notations, nomenclature and scientific language throughout the report. Clearly communicates complex ideas and information. Constructs evidence-based arguments. Includes relevant diagrams that are labelled.	Communicates relevant ideas in an appropriate manner. Some use of scientific notations, nomenclature and scientific language. Scientific notations, nomenclature and scientific language are mostly used correctly. Constructs evidence-based arguments. Includes a relevant diagram.	Basic use of a report format to present ideas. Selects and uses information to communicate ideas in a descriptive manner. Inconsistent use of scientific language and/or some incorrect use of scientific terms. Includes a diagram that is loosely linked to the text.	Report format has been poorly planned and the order of ideas is difficult to follow. Demonstrates elementary skills in recounting information and communicating ideas. Limited use of scientific language. Includes diagrams that are not related to the text.	/10
BIO12-13 explains natural genetic change and the use of genetic technologies to induce genetic change	Demonstrates an extensive knowledge and understanding of scientific models, theories and laws related to the topic. All parts of the task have been addressed.	Demonstrates a thorough knowledge and understanding of scientific models, theories and laws relating to the topic. Addresses all parts of the task	Attempts all question and demonstrates a sound knowledge and understanding of scientific principles. Or Attempts most questions and has demonstrated a thorough understanding of the sections attempted.	Attempts all questions and demonstrates a basic knowledge and understanding of some scientific principles; or Attempts some questions and has demonstrated a sound understanding of the sections attempted.	Demonstrates an elementary knowledge and understanding of some scientific principles related to recombinant DNA technology.	/10

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