



Task Number	2	Task Name	Depth Study
Course	12 Biology	Faculty	Science
Teacher	Mr Allen & Ms Anderson	Head Teacher	Mr Yates
Issue date	Tuesday 5th December 2023	Due date	Monday 18th March 2024
Focus (Topic)	Biotechnology	Task Weighting	30%

Outcomes

A student:

BIO 12-1 develops and evaluates questions and hypotheses for scientific investigation

BIO 12-4 selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

BIO 12-6 solves scientific problems using primary and secondary data, critical thinking skills and scientific processes

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

BIO 12-13 explains natural genetic change and the use of genetic technologies to induce genetic change

Task description

Context

There are natural and human-induced causes and effects of genetic change, including mutations, environmental pressure and uses of biotechnology. It is important to understand how the processes of inheritance and evolution are applied.

Scientists work in various fields within the context of biotechnology, including agriculture, industry and medicine. The impact of biotechnology on biological diversity is important.

Throughout this Depth Study you will:

- Formulate an inquiry question. *You will use one of the Inspiration Statements below as the basis of your own inquiry question.*
- Create a written report (that includes a bibliography) in response to your inquiry question.

OR

- Create a static display and/or audio-visual display that communicates your ideas, relating to your inquiry question, to an audience of Year 10 students.

Inspiration Statement 1

Our increased understanding of biotechnology will impact the Earth's biodiversity and have social and ethical implications.

Inspiration Statement 2

Genetic technologies allow us to artificially manipulate DNA and have implications for industry and medicine.

You will be given class time in Weeks 4 and 5 to research and prepare your response to this task.

Task Submission

Your written report can be submitted either on Google Classroom via the assessment link or a printed copy can be handed to your teacher by 9:20am on Monday 18th March

Marking Guidelines

Outcome	Criteria	Marks Available	Self Mark	Your Mark
Knowledge & Understanding BIO12-13	The information in the written report or display demonstrates an extensive knowledge and understanding of the biology concepts relating to their inquiry question – 5 marks	5		
	The information in the written report or display demonstrates a thorough knowledge and understanding of the biology concepts relating to their inquiry question – 4 marks			
	The information in the written report or display demonstrates a sound knowledge and understanding of the biology concepts relating to their inquiry question – 3 marks			
	The information in the written report or display demonstrates a basic knowledge and understanding of the biology concepts relating to their inquiry question – 2 marks			
	The information in the written report or display demonstrates a limited knowledge and understanding of the biology concepts relating to their inquiry question – 1 mark			
Knowledge & Understanding Subtotal		5		
Skills BIO12-1 BIO12-4 BIO12-6 BIO12-7	The student displays an outstanding ability to describe and explain biology concepts, clearly and accurately in the written report or display. The student applies an outstanding level of critical thinking skills to analyse, evaluate and/or extrapolate biological data effectively to solve problems. Analyses and evaluates data effectively, identifying biological relationships, quantifying explanations and descriptions, synthesising information to draw conclusions Communicates scientific understanding succinctly, logically, and consistently using correct and precise scientific terms, using suitable language for a specific audience or purpose (written report, display and bibliography) AND engages actively in peer feedback.	23-25		
	The student displays a high ability to describe and explain biology concepts, clearly and accurately in the written report or display. The student applies a high level of critical thinking skills to analyse, evaluate and/or extrapolate biological data effectively to solve problems. Explains qualitative and quantitative biological relationships and ideas coherently; identifies patterns in data to draw conclusions. Communicates scientific understanding logically, and consistently using correct scientific terms, using suitable language for a specific audience or purpose (written report, display and bibliography) AND engages actively in peer feedback.	18-22		
	The student displays a sound ability to describe and explain biology concepts, clearly and accurately in the written report or display. The student applies a sound level of critical thinking skills to analyse, evaluate and/or extrapolate biological data effectively to solve problems. Provides qualitative and quantitative descriptions of biological phenomena and explains straightforward biological relationships. Communicates scientific understanding effectively, using suitable scientific terms and language for a specific audience or purpose (written report, display and bibliography) AND engages appropriately in peer feedback.	12-17		
	The student displays a basic ability to describe and explain biology concepts, clearly and accurately in the written report or display. The student applies a basic level of critical thinking skills to analyse, evaluate and/or extrapolate biological data effectively to solve problems. Provides qualitative descriptions of fundamental biological phenomena and explains some straightforward biological relationships. Communicates scientific understanding using basic scientific terms for a specific audience or purpose (written report, display and bibliography) AND engages in peer feedback to a basic level.	8-11		
	The student displays a limited ability to describe and explain biology concepts, clearly and accurately in the written report or display. The student applies a limited level of critical thinking skills to analyse, evaluate and/or extrapolate biological data effectively to solve problems. Provides simple qualitative descriptions of biological phenomena. Communicates scientific understanding using limited scientific terms for a specific audience or purpose (written report, display and bibliography) AND engages in peer feedback to a limited level.	1 - 7		
Skills Subtotal		25		
TOTAL		30		
RANK				

Teacher Comment: