Notice of Assessment Task
Year 11 Biology
Depth Study

Date of initial notification:	Date of submission of task:
Term 2 Week 6 Tuesday 3 June 2025	Term 2, Week 8 Thursday 19 June 2025

Teacher:	Task Number:
Miss Nunes	2

Time Allowed:	Weighting of task:
2 Weeks	40%

Course Component/Focus area/topic/module:
Module 3: Biological Diversity

Task Description

Biodiversity is important to balance the Earth's ecosystems. Biodiversity can be affected slowly or quickly over time by natural selective pressures. Monitoring biodiversity is key to being able to predict future change. Monitoring, including the monitoring of abiotic factors in the environment, enables ecologists to design strategies to reduce the effects of adverse biological change. In this task, students will examine the evidence for the Theory of Evolution by Natural Selection and the effect of various selective pressures on species in the Galapagos Islands.

Task Outline:

Students will undertake a 10-hour depth study to write a **scientific report** to demonstrate their understanding of The Theory of Evolution by Natural Selection. The report is to contain three sections.

- **Part A:** *Evidence for Theory of Evolution by Natural Selection* (approx. 3 pages)
  This section requires students to write a report that discusses and analyses the 6 pillars of evidence for The Theory of Evolution
- **Part B:** *Species Comparison* (approx. 3 pages)
  This section requires students to compare and contrast two pairs of species from the Galapagos Islands and relate this to Natural Selection.
- **Part C:** *Finches Investigation and Data Analysis*
  This section requires students to use provided data to complete an investigation and data analysis of the Galapagos Finches of Daphne Major Island. Students will develop and respond to three questions.

Instructions

- Your report must be submitted in size 12 font with normal margins and 1.15 spacing.
- Ensure your name, class and teachers name is clearly displayed in page headers.
- It is encouraged that the task is submitted digitally, via **Google Classroom** by the due date.
  Hardcopies will also be accepted.
- All components of the task are to be submitted at the same time.
- Your Record of Hours must be submitted digitally or in person by the due date.
- All work submitted must be original and completed individually.
  (Note: any work deemed plagiarised will be treated as a non-serious attempt and dealt an appropriate consequence in accordance with the school and faculty policy)

Outcomes/Competencies to be assessed in this task:

BIO 11-1 develops and evaluates questions and hypotheses for scientific investigation
BIO 11-3 conducts investigations to collect valid and reliable primary and secondary data and information
BIO 11-5 analyses and evaluates primary and secondary data and information
BIO 11-7 communicates scientific understanding using suitable language and terminology for a specific audience or purpose
BIO 11-10 describes biological diversity by explaining the relationships between a range of organisms in terms of specialisation for selected habitats and evolution of species

Feedback: How will I receive feedback on this task?

☒ Written

☒ Whole class

MARKING CRITERIA Preliminary Biology Depth Study - Biodiversity

Part A

Outcomes	Elementary	Basic	Sound	Thorough	Extensive	Mark
BIO11-5 Analysing Data and Information analyses and evaluates primary and secondary data and information	○ Requires teacher assistance to identify secondary data that outlines the pillars of evidence for evolution. ○ Attempts to provide some relevant information.	○ Attempts to utilise secondary data to outline some pillars of evidence for evolution. ○ Provides a basic outline of the evidence for evolution.	○ Utilises secondary data to satisfactorily analyse 5-6 pillars of evidence for evolution. ○ Provides a sound description of the evidence for evolution.	○ Utilises secondary data to thoroughly analyse the 6 pillars of evidence for evolution. ○ Provides a thorough discussion of the evidence for evolution.	○ Utilises secondary data to extensively analyse the 6 pillars of evidence for evolution. ○ Provides an extensive discussion of the evidence for evolution.	
	1 – 2 marks	***3 – 4 marks***	***5 – 6 marks***	***7 – 8 marks***	***9 – 10 marks***	
BIO 11-10 Biological Diversity describes biological diversity by explaining the relationships between a range of organisms in terms of specialisation for selected habitats and evolution of species	○ Applies minimal use of secondary data to demonstrate an elementary understanding of the evidence to support Darwin and Wallace's Theory of Evolution. ○ Provides some relevant information on the pillars of evidence for evolution with no links to specialisation of species. ○ Minimal or no use of images/diagrams to support information.	○ Applies some use of secondary data to demonstrate a basic understanding of the evidence to support Darwin and Wallace's Theory of Evolution. ○ Provides basic information on the pillars for evolution and attempts to link to specialisation of species. ○ Attempts to utilise images/diagrams to support information.	○ Applies use of secondary data to demonstrate a sound understanding of the evidence to support Darwin and Wallace's Theory of Evolution. ○ Provides sound information on the pillars for evolution and makes some links to specialisation of species. ○ Utilises images/diagrams to support information.	○ Applies use of secondary data to demonstrate thorough understanding of the evidence to support Darwin and Wallace's Theory of Evolution. ○ Provides thorough information on the pillars for evolution and makes clear links to specialisation of species. ○ Utilises images/diagrams to support information with reference to these in text.	○ Applies use of secondary data to demonstrate extensive understanding of the evidence to support Darwin and Wallace's Theory of Evolution. ○ Provides extensive information on the pillars for evolution and makes clear and concise links to specialisation of species. ○ Utilises images/diagrams to support information with clearly reference to these in text.	
	1 mark	***2 marks***	***3 marks***	***4 marks***	***5 marks***	
					Subtotal	/ 15

Part B

Outcomes	Elementary	Basic	Sound	Thorough	Extensive	Mark
BIO11-5 Analysing Data and Information analyses and evaluates primary and secondary data and information	○ Requires teacher assistance to identify secondary data to outline divergent evolution in reference to the Galapagos Islands. ○ Requires teacher assistance to create a comparison table for one species pair which compares their structural, physiological or behavioural differences or similarities. ○ Provides some relevant information regarding similarities and differences of species pairs.	○ Attempts to utilise secondary data to support divergent evolution in reference to the Galapagos Islands. ○ Attempts to create a fully enclosed and mostly correct comparison table for one species pair which attempts to compare their structural, physiological and/or behavioural differences and similarities. ○ Provides a basic outline of the similarities and differences of species pairs and attempts to relate it to natural selection and evolution.	○ Utilises secondary data to satisfactorily discuss divergent evolution with reference to the Galapagos Islands. ○ Creates a fully enclosed correctly labelled comparison table for each species pair which compares some structural, physiological and behavioural differences and similarities. ○ Provides a sound comparison of the similarities and differences of species pairs and identifies some relation to natural selection and evolution.	○ Utilises secondary data to thoroughly discuss divergent evolution with reference to the Galapagos Islands. ○ Creates a fully enclosed correctly labelled comparison table for each species pair which compares most structural, physiological and behavioural differences and similarities. ○ Provides a thorough analysis of the similarities and differences of species pairs and relates this to natural selection and evolution.	○ Utilises secondary data to extensively discuss divergent evolution with reference to the Galapagos Islands. ○ Creates a fully enclosed correctly labelled comparison table for each species pair which compares sufficient structural, physiological and behavioural differences and similarities. ○ Provides an extensive analysis of the similarities and differences of species pairs and relates this to natural selection and evolution.	
	1 – 2 marks	***3 – 4 marks***	***5 – 6 marks***	***7 – 8 marks***	***9 – 10 marks***	
BIO 11-10 Biological Diversity describes biological diversity by explaining the relationships between a range of organisms in terms of specialisation for selected habitats and evolution of species	○ Attempts to relate examples of selection pressures to identify advantages and/or disadvantages of adaptations ○ Provides some relevant information on the relationship between selected organisms. ○ Minimal or no use of images/diagrams to support information.	○ Some examples of selection pressures to describe the advantages and/or disadvantages of specific adaptations Provides basic information on the relationship between selected organisms. ○ Attempts to utilise images/diagrams to support information.	○ Uses examples of selection pressures to describe the advantages and/or disadvantages of specific adaptations. ○ Provides sound information on the relationship between selected organisms with some links to divergent evolution. ○ Utilises images/diagrams to support information.	○ Uses some examples of selection pressures to explain the advantages and/or disadvantages of specific adaptations ○ Provides thorough information on the relationship between selected organisms with clear links to divergent evolution. ○ Thorough use of images/diagrams to support information.	○ Uses specific examples of selection pressures to explain the advantages and/or disadvantages of specific adaptations ○ Provides extensive information on the relationship between selected organisms with clear and concise links to divergent evolution. ○ Extensive use of images/diagrams to support information.	

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- *Exemptions and extensions for any other reason will only be determined at the discretion of the Head Teacher, and only in extenuating circumstances. You must advise the Head Teacher as soon as possible if you know you are unable to submit the task on the due date.*
- *All appeals must be lodged within 48hrs of receipt of the task. Students who may consider an appeal are not permitted to take their task home. The original task cannot be altered in any way prior to the appeal process.* See Assessment booklet for details.

	1 mark	*2 marks*	*3 marks*	*4 marks*	*5 marks*	
					Subtotal	/15

Part C

Outcomes	Elementary	Basic	Sound	Thorough	Extensive	Mark
BIO 11-1 Questioning and Predicting develops and evaluates questions and hypotheses for scientific investigation	○ Requires teacher assistance to develop 1 or more questions that can be investigated scientifically. ○ Question has limited links to data provided ○ Requires teacher assistance to identify some relevant information.	○ Develops one question that have some relevance to Galapagos Finches and can be investigated scientifically. ○ Question is unclear and/or does not directly relate to the data provided ○ Requires some teacher assistance to describe and discuss developed questions.	○ Develops two questions that have some relevance to the Galapagos Finches and can be investigated scientifically. ○ Most questions are clear and relate to the data provided ○ Provides an outline of developed questions.	○ Develops three questions that are mostly elegant to the Galapagos Finches and can be investigated scientifically. ○ Questions are clear and relate to the data provided ○ Provides a discussion of developed questions.	○ Develops three questions that have clear relevance to the Galapagos Finches and can be investigated scientifically. ○ Questions are clear, specific and relate to the data provided ○ Provides an evaluation and discussion of developed questions.	
	1 – 2 marks	***3 – 4 marks***	***5 – 6 marks***	***7 – 8 marks***	***9 – 10 marks***	
BIO11-5 Analysing Data and Information analyses and evaluates primary and secondary data and information	○ Identifies some relevant information for the evidence of the Theory of Evolution in relation to the Galapagos finches with no use graphs and tables to support information.	○ Provides a basic description on the evidence for the Theory of Evolution in relation to the Galapagos finches with minimal use of graphs and tables to support information.	○ Provides a sound outline on the evidence for the Theory of Evolution in relation to the Galapagos finches with satisfactory use graphs and tables to support information.	○ Provides a thorough discussion on the evidence for the Theory of Evolution in relation to the Galapagos finches with excellent use of graphs and tables to support information.	○ Provides an extensive explanation on the evidence for The Theory of Evolution in relation to the Galapagos finches with a comprehensive use of graphs and tables to support information.	
	1 mark	***2 marks***	***3 marks***	***4 marks***	***5 marks***	
BIO 11-10 Biological Diversity describes biological diversity by explaining the relationships between a range of organisms in terms of specialisation for selected habitats and evolution of species	○ Applies minimal use of secondary data to demonstrate an elementary understanding of the impact of changes in environments/habitats on Natural Selection ○ Provides limited information on abiotic/biotic factors and environmental impacts on finch populations with little or no links to relevant data.	○ Applies some use of secondary data to demonstrate a basic understanding of the impact of changes in environments/habitats on Natural Selection ○ Provides a basic explanation on abiotic/biotic factors and environmental impacts on finch populations and attempts to link to relevant data.	○ Applies use of secondary data to demonstrate a sound understanding of the impact of changes in environments/habitats on Natural Selection ○ Provides a sound explanation on abiotic/biotic factors and environmental impacts on finch populations and links to some relevant data.	○ Applies use of secondary data to demonstrate a thorough understanding of the impact of changes in environments/habitats on Natural Selection ○ Provides a thorough explanation on abiotic/biotic factors and environmental impacts on finch populations and shows links to relevant data.	○ Applies use of secondary data to demonstrate an extensive understanding of the impact of changes in environments/habitats on Natural Selection ○ Provides an extensive explanation on abiotic/biotic factors and environmental impacts on finch populations and shows clear links to relevant data.	
	1 mark	***2 marks***	***3 marks***	***4 marks***	***5 marks***	
					Subtotal	/20

Outcomes	Elementary	Basic	Sound	Thorough	Extensive	Mark
BIO 11-3 Conducting Investigations conducts investigations to collect valid and reliable primary and secondary data and information	○ Requires teacher assistances to collect valid and reliable secondary data and information ○ Collects limited information to support the Theory of Evolution by Natural Selection ○ Requires teacher assistance to select secondary data and information ○ Collects 1 data set to analyse finch populations	○ Requires some teacher assistance to collect valid and reliable data and information ○ Collects basic information to support the Theory for Evolution by Natural Selection ○ Selects secondary data, and attempts to represent it using scientific formats ○ Collects 2 data sets to analyse finch populations	○ Collects mostly suitable valid and reliable secondary data and information ○ Collects sound information to support the Theory for Evolution by Natural Selection ○ Selects secondary data, and represents it using scientific formats ○ Collects 3 data sets to analyse finch populations	○ Collects suitable valid and reliable secondary data and information ○ Collects thorough information on the evidence to support the Theory for Evolution by Natural Selection ○ Selects accurate, reliable, valid, and relevant secondary data and information and represents it using scientific formats ○ Collects 4 data sets to analyse finch populations	○ Collects suitable valid and reliable secondary data and information ○ Collects extensive information on the evidence to support the Theory for Evolution by Natural Selection ○ Selects accurate, reliable, valid, and relevant secondary data and information and represents it using appropriate scientific formats ○ Collects 5 data sets to analyse finch populations	
	1 mark	***2 marks***	***3 marks***	***4 marks***	***5 marks***	
BIO 11-7 Communicating communicates scientific understanding using suitable language and terminology for a specific audience or purpose	○ Limited use of scientific terminology ○ No use of in-text referencing ○ Limited use of a reference list ○ No or limited use of reliable sources ○ Presentation style not appropriate for audience or purpose ○ Attempts to follow formatting guidelines	○ Uses basic scientific terminology with limited information ○ Attempts to use in-text referencing ○ Provides a reference list and attempts to use the appropriate reference style ○ Use of 2-3 reliable sources ○ Uses an appropriate presentation style ○ Follows some formatting guidelines	○ Uses language that is mostly clear and relevant with mostly accurate scientific terminology and information ○ Use of in-text referencing that may be limited and/or have minor errors ○ Provides a reference list using the appropriate referencing style that may be limited and/or have minor errors ○ Use of mostly reliable sources ○ Uses an informative and mostly easy to read presentation style ○ Follows formatting guidelines	○ Uses language that is mostly clear and precise with accurate and relevant to scientific terminology and information ○ Correct use of in-text referencing with minimal errors ○ Provides an accurate reference list, using the appropriate referencing style with some minor errors ○ Use of all reliable sources ○ Uses an informative and easy to read presentation style ○ Follows formatting guidelines	○ Consistently uses language that is clear and precise including accurate and relevant scientific terminology and information ○ Correct use of in-text referencing ○ Provides an accurate reference list using the appropriate referencing style ○ Use of sufficient reliable sources ○ Uses an eloquent, concise and informative presentation style ○ Follows formatting guidelines	
	1 mark	***2 marks***	***3 marks***	***4 marks***	***5 marks***	

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Subtotal	/10

Total	/ 60	Percentage	%	Rank	/15

FEEDBACK:

The Theory of Evolution and Natural Selection

PART A – The Evidence (approx. 3 pages)

This section requires you to demonstrate your understanding of the evidence for The Theory of Evolution.
Part A of your scientific report should include an in-depth **discussion** on the following pieces of evidence:

- Biochemical Evidence
- Comparative Anatomy
- Comparative Embryology
- Biogeography
- Fossil Record
- Direct Observation of Microevolution

PART B – Comparing Species (approx. 2 pages)

This section requires you to apply the understanding from Part A to compare the similarities and differences of 2 species of animals on the Galapagos Islands.
Part B of your scientific report should include an in-depth **comparison** in the form of a **table** and an **analysis** (no larger than one paragraph per species) of two of the following sets of animal species:

- Galapagos Land Iguana and Galapagos Marine Iguana
- Flightless Cormorant and Great Cormorant
- Chatham Island Giant Tortoise and James Island Giant Tortoise

PART C – The Galapagos Finches

This section requires students to use provided data on Google Classroom to complete a data analysis.
Students must **develop** three questions from the data in relation to:

- Abiotic and biotic factors
- Changes in environmental conditions
- Impacts on environmental conditions to finch population

Once students have their set of questions, they must **respond** to each question, discussing trends and how it relates to evolution and natural selection.
Part C of your scientific report **must** have *direct* reference to the data in the form of graphs and tables.

Each part of your scientific report must include in-text referencing and a reference list must be included at the end of your report, as per the Harvard Style of Referencing

What is Harvard Referencing?

The Harvard referencing style is also known as the "author date" system because you must cite both the author and publication date. The prominence of the author and date of publication in a reference list provides a clear indication of the credibility and currency of the resources used in your research.
The basics of a Reference List entry for a Web page or Web document:

- Author or authors. The surname is followed by first initials.
- Year.
- Title (in italics).
- Publisher. Where there is a corporate author, the publisher and author may be the same.
- Date viewed.

- Web address <in angled brackets>.

Example:

Cancer Council 2017, *Causes of cancer*, Cancer Council, viewed 21 May 2018, <https://www.cancer.org.au/about-cancer/causes-of-cancer/>

Depth Study Lessons

The Depth Study will be conducted over a 10-lesson period. You must keep a record of hours (see below) as you progress through your depth study. Adequate progress *must* be made each lesson to achieve teacher sign off.

The Depth Study will consist of the following:

- 6 x 1 hour independent study lessons (the final independent study lesson may be utilised to receive feedback from your teacher)
- 4 x 1 hour teacher directed content related to Depth Study (including learning on how to navigate the website)

Additional time outside of class may be spent on completion of the Depth Study, however do not count towards the mandatory 10 Depth Study hours.

Preliminary Depth Study – Record of Hours

Date	Time	Activity Completed	Teacher Sign	Student Sign