ORANGE HIGH SCHOOL

ASSESSMENT TASK NOTIFICATION

Subject	Investigating Science
Year	11 (Preliminary HSC)
Weighting	30%
Teacher	Mr Routh
Head Teacher	Mr Shea
Date given	Tuesday the 23rd of July 2019 – Week 1A Term 3
Date and school week	Thursday the 5th of September 2019 – Week 7A Term 3

Assessment Outline

PART 1 – Conducting a depth study investigation to gather data at Taronga Zoo and Narrabeen Rock platform

- Students will complete a study of the Narrabeen rock platform and complete water quality testing of the lagoon, both under the strict guiding of the CEC people.
- Students will also use the knowledge gained at Taronga zoo to complete a research task on some of the animals in the zoo and how scientists work together to try and stop these animals from becoming extinct. This will be conducted in class after the conclusion of the trip to Sydney.

PART 2 – Depth Study Portfolio

- Students will complete a portfolio and answer questions in regards to the zoo animals and the depth study completed at Narrabeen. They will submit this work and their research as a portfolio.

PART 3 – Presentation

- Students will present their depth study analysis during the Wednesday double lesson. This will be marked by the teacher in a one-on-one discussion.
- All work will be submitted to the library prior to 9am, on Thursday the 5th of September 2019 – Week 7A Term 3. Presentations will commence one on one, with the teacher, during Period 4 in class.

Non-completion of Task:

If you know you are going to be away on the day that the task is due, you must make alternative arrangements with your classroom teacher. If you are away on the day of the examination, you must catch up with your classroom teacher on the first day you return to make alternate arrangements to catch up on this task.

Failure to follow the above procedures may result in a zero award.

Outcomes Assessed

INS11 – 1 Develops and evaluates questions and hypotheses for scientific investigation

INS11 – 4 Selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media

INS11 – 7 Communicates scientific understanding using suitable language and terminology for a specific audience or purpose

INS11 – 10 Develops, and engages with, modelling as an aid in predicting and simplifying scientific objects and processes

Year 11 Investigating Science Assessment Task 2

Depth Study Portfolio and Presentation

Weighting: 30%

TOPIC: Module 4 - Theories and Laws

Due Date: Thursday 5th September 2019 - Week 7A Term 3

Task Overview:

This task contains three parts.

PART 1 – Conducting a depth study investigation to gather data at Taronga Zoo and Narrabeen Rock platform

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Syllabus Outcomes:

INS11 – 1 Develops and evaluates questions and hypotheses for scientific investigation
INS11 – 4 Selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media
INS11 – 7 Communicates scientific understanding using suitable language and terminology for a specific audience or purpose
INS11 – 10 Develops, and engages with, modelling as an aid in predicting and simplifying scientific objects and processes

STEPS TO COMPLETE THIS TASK:

Part 1:

1. Complete the zoo visit and Narrabeen Depth study investigation.

2. If absent, students will view in class a PowerPoint presentation of photos and information from the excursion.

3. All students will complete their booklet from the Narrabeen study and share their results with the class. This booklet will be worth a small proportion of your final marks. Please complete the booklet neatly and use scientific terms where possible. Submit with your portfolio on the due date.

Part 2:

Zoos around the world have a common goal of conservation for all species, but particularly for animals who are endangered or close to extinction. Animals being kept in captivity would have their natural behaviours influenced by many factors created by being held in an artificial environment – restricted space to move around, human contact and even a different climate (amongst other things) could all change the way that these animals would behave. Ideally, conservation needs animals to reproduce, ensuring that the numbers of these species are on the increase. This will hopefully guarantee that these animals are around for future generations to see. Zoos have the ability to control the breeding and genetics of these animals by carefully selecting the desired genetic lines and with husbandry techniques. However, if the animals are not comfortable with their environment it will create stresses that could prevent successful reproduction, despite the efforts of the staff working with them.

Many scientists have studied animals in the wild to provide us with an understanding of how they live in nature without human influence. These findings have allowed zoos to change over time, from facilities that existed purely for human entertainment to ones that will ensure the species will continue to be around for many years to come. So how does observing these species in their natural environment assist us with understanding how to successfully replicate their behaviours in captivity? Ultimately, the goal is to achieve success with breeding and continuing the genetic diversity of a species, but by knowing how that particular species lives in nature, the aim would be to make them comfortable and confident enough to survive and procreate. Conservation is defined as the practice of protecting animal species and their habitats. Humans are behind the current rate of species extinction, which is at least 100–1,000 times higher than nature intended. In order to be able to perform the role of conservation, zoos need to ensure that the activities they undertake are with the aim of species protection, breeding and community education.

2.1 Research and answer the following questions based on the zoo:

2.1.1 What is the name given to the study of animal behaviour?
2.1.2 Why is it important?
2.1.3 What benefit do we have from studying animal behaviour?
2.1.4 Explore why scientists study animal behaviour (observations to inferences).
2.1.5 Watch the following clip and then explain how observations can be influenced
https://www.youtube.com/watch?v=fwRbaKaj94o - (The observer effect could be corrupting scientific experiments)

2.1.6 Investigate how zoos have changed the why the way they use observations of animals to better understanding the animals, thus improving the conservation work to save animals.
2.1.7 Outline the role of zoos and scientists in the conservation of animal species in the wild.

Read the website below and answer the following questions:
http://www.conservenature.org/learn_about_wildlife/chimpanzees/chimpanzees.htm

Cultural sensitivity and conservation:
Communities that are established in areas that have wild animals need to be able to live together, side by side, preferably without harm to one another.
2.1.10 What are the threats to the native populations of chimpanzees?
2.1.11 List the other uses of chimpanzees within society.
2.1.12 Provide some suggestions about changing the mentality of the local communities surrounding the chimpanzee habitat – how could we help them to learn to live together, without interfering with the chimpanzee society?

Sustainability and conservation:
2.1.13 Explain how we can maintain life within human built environments (specific to chimpanzees)
2.1.14 Design an enclosure for any animal at Taronga Zoo (use the zoos website to choose an animal), which would allow for the animal to have an environment similar to its natural habitat and that would allow scientists to successfully research the animal and allow for the species to reproduce. Must be a labelled and detail drawing.

2.2 Research and answer the following questions based on the Rock platform study completed in Narrabeen:

2.2.1 Explain the purpose of conducting transects and quadrats on the rock platform.
2.2.2 Describe any trends in your data as you increase from 0m to 30m on the transect.
2.2.3 Use the scaffold below to complete a small report of the field trip. In each section students must: display a deep knowledge of science in their presented work and use scientific terminology throughout.

Abstract

This is a 250 word (maximum) summary of the field study report and all the other sections of this assessment. This must be completed last and after you have done the rest of the sections.

An abstract summarises, usually in one paragraph of 300 words or less, the major aspects of the entire paper in a prescribed sequence that includes:
1) the overall purpose of the study and the research problem(s) you investigated;
2) the basic design of the study;
3) major findings or trends found as a result of your analysis; and,
4) a brief summary of your interpretations and conclusions.
http://libguides.usc.edu/writingguide/abstract

Description of the procedure carried out on the rock platform and the water quality tests completed in the lagoon.

Students produce a detailed method of the field study investigation. It must focus on the rock platform and lagoon water quality testing. It must include all equipment and any measurements that were taken.

Your method (procedure) needs to have the following:

1. Logical flow and coherent
2. Uses steps and starts with a verb
3. Must include detailed and correct instructions
4. All equipment needs to be stated, with a description of how to use the equipment
5. Drawings need to be included.
6. No need to include variables in this method.

An analysis of why scientists use transects and quadrats

Students discuss the benefit of using quadrats and transects in detail in terms of a field study and studying the interactions of an ecosystem.

Analyse: Identify components and the relationship among them; draw out and relate implications

Component: Component: Component:	Relationship between components:

OR

Outline of an implication: Outline of an implication: Outline of other implications:	Relationship between implications:

A brief analysis of two scientific articles related to the field study

Students must review TWO scientific articles. They must write a summary of each article and discuss the relevance of each article to the field study completed

1. Find a few articles linked to conducting field studies on ecosystems.
2. Read the articles, to see if you think it is related to our work. Read the abstract, it is a good start to have a quick general idea of the article.
3. If it is ok, read and write down summary dot points. (about 10 – 20, should be enough)
4. As you go, note down how any of the information is relevant (does it relate to a field study, if so, how)
5. Once complete write down in full sentences a summary of the article (6 sentences)
6. Write a paragraph on how it relates to conducting a field study.
7. You must reference your article as well.

Part 3:

All work (Portfolio of completed questions, completed Narrabeen Booklet, Rock platform analysis and bibliography) will be submitted to the library prior to 9am, on Thursday the 5th of September 2019 – Week 7A Term 3. Presentations will commence one on one, with the teacher, during Period 4 in class.

1. Students will present their depth study analysis during the Thursday's Period 4 lesson. This will be marked by the teacher in a one-on-one discussion.

2. This discussion involves students using their portfolio and completed Narrabeen Booklet as stimulus to demonstrate their knowledge of the concepts and skills needed to conduct their Depth Study Research.

Marking Rubric: **Depth Study Portfolio and Presentation** **NAME:** _____

Outcomes Assessed:	Developing	Achieving	High	Exemplary	Total:
INS11 – 1 Develops and evaluates questions and hypotheses for scientific investigation **(PART 1 Booklet)**	• Rock platform booklet submitted • Demonstrates a basic understanding of the skills used during the depth study **1 - 2 marks**	• Rock platform booklet attempted • Some scientific language, used in the booklet • Some understanding of the skills used during the depth study, as indicated in the question responses in the booklet **3 marks**	• Rock platform booklet mostly completed • Sophisticated use of scientific language, used in the booklet • Demonstrates a growing understanding of the skills used during the depth study, as indicated in the question responses in the booklet **4 marks**	• Rock platform booklet completed • Sophisticated use of scientific language, used in the booklet • Demonstrates a deep understanding of the skills used during the depth study, as indicated in the question responses in the booklet **5 marks**	
INS11 – 4 Selects and processes appropriate qualitative and quantitative data and information using a range of appropriate media **(PART 2 Portfolio)**	All questions relating the zoo are: • Attempted • Have some detail • Demonstrates some knowledge of the concepts • Some use of scientific language **1 mark**	All questions relating the zoo are: • Attempted • Have some detail • Demonstrates a good knowledge of the concepts • Good use of scientific language **2 - 3 marks**	All questions relating the zoo are: • Answered correctly • Detailed • Demonstrates a good knowledge of the concepts • Sophisticated use of scientific language **4 - 5 marks**	All questions relating the zoo are: • Answered correctly • Extremely detailed • Sequential • Demonstrates a detailed knowledge of the concepts • Sophisticated use of scientific language **6 marks**	
	All questions relating the rock platform are: • Attempted • Have some detail • Demonstrates some knowledge of the concepts • Some use of scientific language **1 mark**	All questions relating the rock platform are: • Attempted • Have some detail • Demonstrates a good knowledge of the concepts • Good use of scientific language **2 - 3 marks**	All questions relating the rock platform are: • Answered correctly • Detailed • Demonstrates a good knowledge of the concepts • Sophisticated use of scientific language **4 - 5 marks**	All questions relating the rock platform are: • Answered correctly • Extremely detailed • Sequential • Demonstrates a detailed knowledge of the concepts • Sophisticated use of scientific language **6 marks**	
INS11 – 7 Communicates scientific understanding using suitable language and terminology for a specific audience or purpose **(PART 2 Portfolio)**	• Presents limited information • Shows limited understanding of the scientific method • Shows limited understanding of the scientific concepts **1 mark**	• Communicates basic information in the form of a scientific report • Uses some scientific terminology **2 marks**	• Presents a well-organized report • Selects and uses suitable forms of digital, visual and written forms of communication • Selects and applies appropriate scientific notations, nomenclature and scientific language to communicate **3 marks**	• Presents a sustained, logical and cohesive report supporting conclusions/ideas with evidence • Selects and uses effective forms of digital, visual and written forms of communication • Selects and applies appropriate scientific notations, nomenclature and scientific language to communicate in a variety of contexts **4 marks**	

Outcomes Assessed:	Developing	Achieving	High	Exemplary	Total:
INS11 – 7 Communicates scientific understanding using suitable language and terminology for a specific audience or purpose **(PART 3 Presentation)**	• Links discussion to bibliography • Links to the portfolio of completed questions, completed Narrabeen Booklet, Rock platform analysis and bibliography **1 mark**	• Links discussion to bibliography (5 sources) • Links to the portfolio of completed questions, completed Narrabeen Booklet, Rock platform analysis and bibliography • Presented with some confidence • Easy flowing discussion **2 marks**	• Links discussion to bibliography (5 - 9 sources) • Good use of the portfolio of completed questions, completed Narrabeen Booklet, Rock platform analysis and bibliography • Presented with some confidence and good eye contact • Easy flowing discussion **3 marks**	• Links discussion to a completed bibliography (minimum 10 sources) • Effective use of the portfolio of completed questions, completed Narrabeen Booklet, Rock platform analysis and bibliography • Presented with confidence and good eye contact • Discussion sounds natural and not read off palm cards **4 marks**	
INS11 – 10 Develops, and engages with, modelling as an aid in predicting and simplifying scientific objects and processes **(PART 3 Presentation)**	• Limited understanding of the depth study analysis and the concepts involved • Minimal use of scientific terminology **1 - 2 mark**	• Demonstrates a good level of knowledge of the depth study analysis • Students uses some scientific terminology • Demonstrates some understanding of the concepts involved in the depth study analysis **3 marks**	• Through discussions with the teacher during the presentation, students demonstrate a high level of knowledge of the depth study analysis • Students uses some scientific terminology • Demonstrates a good understanding of the concepts involved in the depth study analysis **4 marks**	• Through discussions with the teacher during the presentation, students demonstrate a deep knowledge of the depth study analysis • Students use of scientific terminology is at an exemplary level • Student can demonstrate an exemplary understanding of the concepts involved in the depth study analysis **5 marks**	
				Total Marks:	**__/30**

Teacher Feedback:

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