

Differentiated Lesson Plan Sequence 📄

Curriculum (Learning) Area of Lesson: Biology

Specific Topic of Lesson: Science as a human Endeavour: Indigenous Australian & Torres Strait Islander History.

Year Level: Stage 1

LESSON CONTEXT

This differentiated lesson sequence is designed for a Stage 1 Biology class of 23 students completing a unit of work on Biodiversity and Ecosystem Dynamics. The lesson embeds the ACARA Stage 1 Biology Stand, *'Understand how Biology Works'*, and the Science as a Human Endeavour (SHE) Unit Level 1 *'Biodiversity and the Interconnectedness of Life'*, which requires students to understand that *"The use of scientific knowledge is influenced by social, economic, cultural and ethical considerations (ACSBLO11)"* (ACARA, n.d.). The lesson sequence is suited to 3 double lessons, and will be positioned towards the end of the Biodiversity and Ecosystem Dynamics unit of work and will serve as an instructional and developmental assessment for the summative SHE assessment task, which is a requirement of the SACE Stage 1 Biology Curriculum (SACE, 2020). The students will complete a SHE Task Preparation Assessment about Indigenous Australian & Torres Strait Islander (IA&TSI) colonial history.

Students will have recent prior knowledge of the entire Biodiversity and Ecosystem Dynamics curriculum content and terminology that is relevant to SHE Task, such as the theory of evolution, classification, and speciation. Furthermore, students would have already acquired research and referencing skills through earlier work that integrated the Science Inquiry Skills strand, as well as an understanding of the SHE concepts of Communication and Collaboration, Development, Influence and Application and Limitation through earlier formative classwork (SACE, 2020).

During the sequence of lessons, students are required to apply their knowledge and understanding of the interaction between science and society in relation to how science influenced the colonisation of IA&TSI peoples. Hence, students will be given the opportunity to apply their knowledge and understanding of Biodiversity and Ecosystem Dynamics through a formative SHE Task assessment that utilises digital technology, in order to facilitate the respectful and considerate communication of the IA&TSI peoples history.

LEARNING OBJECTIVES

As a result of engaging with the lesson sequence, students will **understand that** the use of science played a significant role in the IA&TSI colonisation history, and therefore presents a range of ethical, cultural, social, and economic issues.

Know (e.g. facts, vocabulary, dates, information)

- Knowledge and understanding of the theory of evolution and related terminology.
- Knowledge and understanding of speciation and related terminology.
- Knowledge and understanding of classification and related terminology.
- Basic knowledge and understanding of the SHE concepts.

Be able to (do) (Skills, processes)

- Evaluate a range of artefacts about IA&TSI colonisation history according to the SHE concepts of:
 - Communication and Collaboration
 - Development
 - Influence
 - Application and Limitation
- Identify the connection between biological concepts and societal issues related to IA&TSI colonisation history.
 - Theory of evolution
 - Speciation
 - Classification

Essential Question

How did science influence the colonisation of Indigenous Australian & Torres Strait Islander Peoples?

PREASSESSMENT OF INDIVIDUAL STUDENT READINESS

The differentiated lesson plan sequence is suited to the end of the Biodiversity and Ecosystem Dynamics topic, as relevant concepts such as classification, the theory of evolution, and speciation would have been already been learnt by the students, as well as the SHE concepts. Overall, the collective prior student knowledge was considered as preassessment i.e. students have learnt enough and are therefore, ready to attempt the SHE Task Preparation Assessment. As a result, all students should be able to attempt and complete the task, but where there may be difficulty other differentiation measures are considered i.e. task modifications that support differentiation (instructional adaptations) (Prast et al., 2015).

Instructional Adaptations

- The Starter Activity (SHE Task Lesson Slides) and the SHE Task Table provided students with the opportunity to practice evaluating artefacts using SHE the concepts.

- The videos about IA&TSI history provided students with background information.
- The SHE Task Lesson Slides included an example of the required referencing system (Harvard)
- The SHE Task Preparation Assessment Prompt Sheet provided scaffolding to groups that needed more support to complete the task.

Students will be grouped according to their SHE Task Preparation Assessment topic of interest:

- Group Topic 1 - Speciation
- Group Topic 2 - Theory of evolution: Disease
- Group Topic 3 – Classification: Dehumanisation

LESSON PLAN SEQUENCE

Lesson Plan Sequence Resources (See additional resources)

- Digital technology
 - Smartboard
 - Lesson slides
 - School laptops
 - OneNote
 - Digital worksheets
 - SHE Task Preparation Assessment Task Sheet and Rubric (Students)
 - SHE Task Preparation Assessment Checklist (Teacher)
 - SHE Task Preparation Assessment Prompt Sheet (Differentiation resource)

The students will have access to the lesson slides which would be distributed via the class OneNote.

Lesson Plan Sequence & Rationale

Lesson 1 (Double Lesson – 80 mins)

Whole Class Introduction. (16 minutes)

SLIDE 1-10: Students sit at their tables and the teacher uses the Lesson Slides (displayed on Smartboard) to introduce the essential question and explain the SHE Task Preparation Assessment.

Explanatory notes 📄

Whole Class Introduction Rationale

The rationale for this whole class introduction is that this approach provides students with the opportunity to contribute any prior knowledge or understanding of the links between IA&TSI colonial history and science.

<p>Student Groups Students will be allocated into groups based on their topic of interest.</p> <p>Starter Activity (24 minutes) SLIDE 11-13 In groups, the students are required to watch the 2 short videos that we will watch focuses on the colonisation of the IA&TSI peoples.</p> <p>Planning Time (35-40 minutes) SLIDE 14 In groups, students are able to begin planning and organising their SHE Task Presentations. Students are required to continue the task for homework.</p> <p>Lesson 2 (Double Lesson – 80 mins) Whole Class Introduction. (2 minutes) The teacher explains to the class that they will be continuing with the SHE Task Preparation Assessment.</p> <p>Work Time (75-78 minutes) SLIDE 15 The students are to spend the entire lesson working on the SHE Task Preparation Assessment.</p>	<p>Student Grouping Rationale Students can change groups up until the end of the lesson, the remainder of the lesson time provides the students with the opportunity to better understand or explore alternative topics.</p> <p>Starter Activity Rationale Students are able to practice evaluating artefacts using the SHE concepts. Furthermore, students are provided with background knowledge of IA&TSI history.</p> <ul style="list-style-type: none"> • Students use the SHE Task Table for this section (The SHE Task Table is used to scaffold the SHE concept evaluation of the video artefacts) <p>Lesson Videos VIDEO 1 - A short history of Indigenous Australians https://www.youtube.com/watch?v=U-pYhyzxAaQ VIDEO 1 - 07: The Stolen Generations https://www.youtube.com/watch?v=aDuxRddyZQY</p> <p>The teacher will review each students Starter Activity as part of the formative assessment using the SHE Task Preparation Assessment Checklist. The individual component along with the group work provides a reliable information about each students achievement of the learning objectives.</p> <p>Whole Class Introduction Rationale</p> <ul style="list-style-type: none"> • The teach sets the lessons learning objective • Encourage students to ask question as they are working on their task (teacher feedback) • Remind the class of the due date. <p>Work Time Rationale Depending on the level of knowledge and understanding of students the SHE Task Preparation Assessment Prompt Sheet</p>
--	---

<p>Lesson 3 (Double Lesson – 80 mins) Whole Class Introduction. (2 minutes) The teacher explains to the class that they have some class time to complete the task, and that they will be presenting their work to the class.</p> <p>Complete The Task (30 minutes) SLIDE 16 The students are to spend 30 minutes of the lesson working on the SHE Task Preparation Assessment.</p> <p>Presentation Time (45-50 minutes) SLIDE 17 For the last 50 minutes of the lesson each group will present their work, which will be followed question time.</p>	<p>(Differentiation resource) will be made available to scaffold the task for groups, or individual students within a group who have trouble grasping the overall concept of the task.</p> <p>Whole Class Introduction Rationale</p> <ul style="list-style-type: none"> • Teacher reminds class about question time • Encourage students to ask question as they are working on their task (teacher feedback) • Students can move to other spaces to rehearse if necessary (must return 5 minutes before presentation time). <p>Complete The Task Rationale The students should be ready to complete the task, and by providing them with a timeframe they should be both motivated and focused.</p> <p>Presentation Time Rationale The teacher will use the SHE Task Preparation Assessment Checklist to complete the formative assessment of the students grasp of the SHE concepts in connection to IA&TSI colonisation history.</p>
--	---

Lesson Closure/ Check for Understanding

Checklist to check for understanding

A checklist will be used by the teacher to assess students' knowledge and understanding of the essential question, and therefore, the achievement of the lesson sequences learning objective: students will understand that the use of science played a significant role in the IA&TSI colonisation history, and therefore presents a range of ethical, cultural, social, and economic issues. The check list will be used as a formative assessment to determine whether the class is ready to begin preparing for the summative SHE Task. The teacher can address specific questions to each student to determine their level of understanding of the SHE Concepts in relation to IA&TSI colonisation history. This information contributes to the completion of the checklist. The checklist addresses the SHE Task Rubric provided in the student SHE Task Assessment Task Sheet and Rubric.

References

- ACARA. (n.d.). Senior Secondary Curriculum Science: Biology. *Understand How Biology Works: Science as a Human Endeavour Unit 1 - Biodiversity and the interconnectedness of life*, . Retrieved from <https://www.australiancurriculum.edu.au/senior-secondary-curriculum/science/biology/?unit=Unit+1>
- SACE. (2020). *Stage 1 Biology Subject Outline (for teaching in 2020)*. Wayville, South Australia: South Australian Certificate of Education Board of South Australia Retrieved from <https://www.sace.sa.edu.au/web/biology/stage-1>
- Prast, E. J., Weijer-Bergsma, V. D., E., , Kroesbergen, E. H., & Luit, V., J.E.H. . (2015). Readiness-based Differentiation in Primary School Mathematics : Expert Recommendations and Teacher Self-assessment. *Frontline Learning Research*, 3(2), 90-116. Retrieved from https://openaccess.leidenuniv.nl/bitstream/handle/1887/80732/Prast_et_al_readiness-based_differentiation_2015.pdf?sequence=1