

Year Level: 9 Duration: 5wks Teacher:

# Subject: Science: Ecosystems Unit

PART 1: PURPOSE <i>(What do we want students to learn?)</i>				
General Capabilities	<input type="checkbox"/> Literacy	<input type="checkbox"/> Numeracy	<input type="checkbox"/> ICT	<input type="checkbox"/> Critical and Creative Thinking
	<input type="checkbox"/> Ethical Behaviour	<input type="checkbox"/> Personal and Social	<input type="checkbox"/> Intercultural Understanding	
Cross-curriculum Priorities	<input type="checkbox"/> Aboriginal and TSI Histories and Culture	<input type="checkbox"/> Asia and Australia's Engagement with Asia	<input type="checkbox"/> Sustainability	<input type="checkbox"/> Service Learning

Key Idea / Central Statement <i>The overarching statement that captures the point of this unit and can be explored</i>	Essential Questions: <i>(open, rich question which develops Key Idea / Central Statement. Refer to AC Key Ideas for each subject, where available)</i>
<i>Ecosystems are made up of rich and complex interactions between the living and non living components of an area at a particular time.</i>	<i>How do ecosystems provide everything for the organisms that they sustain? How do factors affect population sizes? Why is energy important in ecosystems? How have humans shown that they are a destructive force on Earth?</i>
<b>Deep Understandings of Concepts:</b>	
<p><i>At the end of this unit, students will understand that:</i> Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems.</p> <p><i>At the end of this unit, students will be able to independently:</i> Identify relationships in ecosystems. Consider the interconnectedness of natural phenomena. Explore the impacts of humans on natural ecosystems.</p>	
<b>Content Descriptions:</b> <i>(from Australian Curriculum)</i>	
<b>Knowledge and Understanding:</b> <i>(What are students expected to know and understand?)</i> Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems <ul style="list-style-type: none"> <li>exploring interactions between organisms such as predator/prey,</li> </ul>	<b>Sophistication of Skills:</b> <i>(What are students expected to be able to do?)</i> <ul style="list-style-type: none"> <li>Plan, select and use appropriate investigation types, including field work and laboratory experimentation, to collect reliable data</li> <li>Select and use appropriate equipment, including digital technologies, to collect and record data systematically and accurately</li> <li>Communicate scientific ideas and information for a particular purpose,</li> </ul>

<p><i>parasites, competitors, pollinators and disease</i></p> <ul style="list-style-type: none"> <li>• <i>examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species</i></li> <li>• <i>considering how energy flows into and out of an ecosystem via the pathways of food webs, and how it must be replaced to maintain the sustainability of the system</i></li> <li>• <i>investigating how ecosystems change as a result of events such as bushfires, drought and flooding</i></li> </ul>	<p><i>including constructing evidence-based arguments and using appropriate scientific language, conventions and representations</i></p>
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<p><b>PART 2: ASSESSMENT EVIDENCE</b> <i>(JS details Assessment here unless uploaded on TA; for MS and SS this information is captured in TA Programs)</i></p> <p><i>(How will we know what students have learned?)</i></p>
<p><b>Year Level Achievement Standard:</b> <i>(from Australian Curriculum)</i></p> <p><i>Students systematically collect data and describe how they considered ethics and safety. They analyse trends in data, identify relationships between variables and reveal inconsistencies in results. They analyse their methods and the quality of their data, and explain specific actions to improve the quality of their evidence. They evaluate others' methods and explanations from a scientific perspective and use appropriate language and representations when communicating their findings and ideas to specific audiences.</i></p>
<p><b>Assessment Task(s):</b> <i>(Formative and Summative tasks that cater for students across the full range of abilities)</i></p> <p>Formative Assessment Task/s; <i>Practical: Photosynthesis</i> <i>Homework Food Webs</i> <i>Research tasks</i> <i>Textbook questions</i> <i>Classroom discussions</i></p> <p>Summative Assessment Task/s; <i>Report: EcoClassroom Field Trip</i> <i>Test: Ecosystems</i></p> <p><b>Other Evidence of Learning:</b> <i>(may include major formative learning tasks, rubrics, formal and informal feedback, student self-assessment)</i></p> <p><i>Formative class activity sheets</i> <i>Formative class experiments</i></p> <p><b>Feedback:</b> <i>(What sort of feedback will students receive?)</i></p> <p><i>Feedback during lesson and when conducting experiments</i> <i>Class discussion/marking of work as a class (formative tasks)</i> <i>Formal feedback documented on Coneqt</i></p> <p><b>Self-assessment:</b> <i>(How will students reflect upon and self-assess their learning?)</i></p>

Marking of work during lesson (continual class feedback)  
Self-reflection (formally documented on Coneqt)

**PART 3: LEARNING AND TEACHING PLAN** *(What would it look like?)*

<b>Academic Vocabulary Instruction:</b> <i>(What subject-specific vocabulary from the Achievement Standards, Content and Skills descriptions will be taught explicitly to students?)</i>	<b>Differentiation: Adjustments for Needs of Learners</b> <i>(How will specific learning needs of individual students be catered for?)</i> e.g. Must Do / Could Do / Should Do; Content Process; Product; Learning Environment; Interests Learning profiles; Readiness	<b>Visible Thinking Skills &amp; Strategies:</b> <i>(How will you enhance the thinking of students?</i> e.g., Bloom's Taxonomy, Questivities, (Creative Questions), De Bono's Six Hat Thinking, Thinkers Keys, Williams 8, Project Zero Thinking Routines
See word list attached in first week of unit on Coneqt.	Paired learning during practical activities Teacher support where necessary to assist students Varied learning activities (hands-on, writing, audio and visual learning opportunities). Specific changes to learning and assessment tasks on an as needs basis.	Bloom's taxonomy is used as a teaching/thinking tool for students when designing discussion questions and assessment tasks.  Use Thinkers keys to illicit more detailed class discussions.

**Teaching and Learning Sequence** is recorded on TA in the week by week unit outline

**PART 4: TEACHER REFLECTION ON THE UNIT PLAN** *(How successful was the Unit in meeting the purpose of the Unit in Part 1? How do I know? What evidence have I collected?)*

Identify what worked well during and at the end of the unit, including:

- learning that worked well and why
  - learning that could be improved and how
  - assessment that worked well and why
  - assessment that could be improved and how
- (Adapted from Queensland Studies Authority)

