

Shorebirds: A lesson in Science and Sustainability Teacher Professional Development

Date:	Tuesday 19 th May 2020 (follow-up work to be completed by 16 th June 2020)		
Time:	4.00 – 5.30pm online video-conference plus lesson preparation time and collaborative feedback		
Duration:	5 hours		
Target group for the course:	Years 3 - 6 Primary School Teachers		
Indicative cost of course to participant:			FREE

Short explanation of how the course relates to the standard descriptors at the Proficient Teacher level

2.1.2 Apply knowledge of the content and teaching strategies of the teaching area to develop engaging teaching activities

Teachers will hear from a range of experts in shorebird conservation and coastal and wetland habitats, who will provide important information to develop teacher knowledge in these areas. They will also be introduced to the environmental research conducted by ANSTO in support of wetland conservation. Teachers will participate in a Q&A session with these experts and discuss how the plight of migratory and resident shorebirds can be used to support teaching in science, geography and creative arts, along with other cross-curricula opportunities. Teachers will select, modify and use example teaching activities that are relevant and appropriate for their own students. They will share these with other participants and provide feedback.

2.2.2 Organise content into coherent, well-sequenced learning and teaching programs

Teachers will be introduced to ANSTO Education sample units of work and discuss and plan how to use these teaching resources within a lesson, and as part of a larger teaching program. Teachers will share lesson ideas, including self-reflections on teaching and learning after delivery, and engage in collegial interactions by offering constructive feedback to other participants.

3.2.2 Plan and implement well-structured learning and teaching programs or lesson sequences that engage students and promote learning.

Teachers will develop a deep understanding of the conservation issues of migratory and resident shorebirds and their habitats, using this as a tool to plan and deliver lessons to students that have an engaging, real-life purpose. Teachers will annotate lessons with self-reflections, and collaborative feedback will support continued enhancement of future lessons on this topic across a range of syllabus outcomes.

3.3.2 Select and use relevant teaching strategies to develop knowledge, skills, problem solving and critical and creative thinking

Teachers are provided with examples of teaching strategies to promote critical and creative thinking, problem solving skills and a deep knowledge of the current threats to shorebirds and their habitats to students. Through a collaborative process, teachers support each other in developing additional strategies that are relevant to a range of students.

Research basis of the course. This should include reliable research, evidence of best practice and the expertise that exists within the teaching profession.

Science education institutions, like ANSTO, not only support development of teacher knowledge but also provide teachers with ideas for pedagogy (Kisiel 2012). It is recognised that primary school teachers lack the knowledge, skills and confidence to implement sustainable education into their programs (Green & Somerville 2015). We aim to contribute to teachers' pedagogical content knowledge in an integrative way, by combining the knowledge of ANSTO education staff, expert speakers and providing practical examples of integration into syllabus outcomes:

- Teachers learn about the latest developments in shorebird conservation and wetland sustainability
- Teachers discuss how this content can help them communicate key science and geography concepts in their syllabus
- Teachers discuss strategies for integrating educational resources and tools into their teaching programs

Green, M. & Somerville, M. (2015) Sustainability education: researching practice in primary schools. *Environmental Education Research* 21(6): 832-845.

Kisiel, J. (2012). Introducing future teachers to science beyond the classroom. *Journal of Science Teacher Education*.24(1):67-91.

Rationale for the course

ANSTO Education strives to support teachers who seek opportunities to collaborate and produce engaging materials that support cross-curricula outcomes. The ANSTO Shorebirds Competition and the associated resources provide teachers with the knowledge and understanding to create authentic learning experiences that meet syllabus outcomes in Geography, Science and Visual Arts. The opportunities to meet additional outcomes in other key learning areas are also available for teachers to pursue.

Summary of the course

The course has been designed to complement the ANSTO Shorebirds Competition by introducing teachers to a range of experts and materials to build knowledge in shorebird conservation and how it can be incorporated into learning programs for Years 3 – 6. The course is fully accessible online and consists of three sessions. Session 1 will consist of pre-reading by teachers (approx. 30mins). Materials will be made available to teachers upon registration for the course. Session 2 will be delivered as a live afternoon video-conference of 1.5 hours where teachers will have the opportunity to learn from experts in migratory and resident shorebird as well as wetland and coastal habitat conservation. New educational resources will be introduced for teachers to incorporate into their teaching programs. Session 3 will be completed by teachers within 4 weeks and will require teachers to use the resources provided to develop, deliver and provide feedback on one lesson relating to migratory and resident shorebirds and/or wetland and coastal habitat sustainability.

Further teacher learning opportunities

Not applicable

Course/program sessions	Focus and content of the sessions	Standard descriptors at the Proficient Teachers level addressed by the session:	Explanation of how the standard descriptors will specifically be addressed within the session
Session 1 Pre-reading (0.5 hour)	Building of participant background knowledge of threatened shorebirds to enhance engagement and participation in Session 2.	2.1.2 Apply knowledge of the content and teaching strategies of the teaching area to develop engaging teaching activities	Participants will be provided with reading materials to develop background knowledge of threatened shorebirds. As the video-conference in Session 2 is an interactive session with Q&A time allocated, this will enable teachers to note any questions they have for the speakers and develop greater knowledge of the content.
Session 2 Talks from experts (via video-conference) (1.5 hours)	<ol style="list-style-type: none"> 1. Introduction to ANSTO and the Shorebirds competition 2. Expert speaker 1: What is a shorebird? And why do they matter? 3. Expert speaker 2: Migration of shorebirds and Australia's obligations. 4. Expert speaker 3: Threats and protection of shorebirds 5. Expert speaker 4: Shores and wetland habitats and ecology of (links to ANSTO research and sample lesson plans). 6. Q&A with expert speakers. 7. Shorebird competition link to syllabus and sample teaching program. 8. Explanation of Session 3. 	<p>2.1.2 Apply knowledge of the content and teaching strategies of the teaching area to develop engaging teaching activities</p> <p>2.2.2 Organise content into coherent, well-sequenced learning and teaching programs</p>	<p>In this session teachers will gain knowledge of the content area and ways to incorporate this into teaching strategies. Experts will provide information about threatened shorebirds and wetland habitats in Australia and suggest ways to engage students through the Shorebirds Competition whilst addressing the following outcomes:</p> <p>From the Australian Curriculum:-</p> <p>Year 3 Science: Biological sciences (ACSSU044), Nature and development of science (ACSHE050)</p> <p>Year 4 Science: Biological sciences (ACSSU072, 073), Nature and development of science (ACSHE061)</p> <p>Years 3 and 4 The Arts: Visual arts (ACAVAM111)</p> <p>Year 5 Humanities and Social Sciences: Geography (ACHGK026, 027, 029)</p> <p>Years 5 and 6 The Arts: Visual arts (ACAVAM115)</p> <p>From the NSW syllabuses:-</p> <p>Stage 2 Science and Technology: Living World (Classification of living things, Life cycle of living things, Survival of living things)</p> <p>Stage 2 Creative Arts: Visual Arts (Making)</p>

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			<p>Stage 3 Geography: Factors that Shape Places (Factors that change environments, Humans shape places)</p> <p>Stage 3 Creative Arts: Visual Arts (Making)</p> <p>Teachers will use classroom activity resources (developed by ANSTO Education) to develop teaching and learning activities that address</p> <ul style="list-style-type: none"> • Threats to shorebirds • Threats to Australian wetlands • Using visual representation to raise public awareness <p>Teachers are given the opportunity to acquire content knowledge through interactions with experts via the video-conference and the provision of additional resources.</p> <p>Teachers are given continuous access to a range of online resources to support the development of teacher pedagogy as it relates to the topic.</p> <p>https://www.ansto.gov.au/education/primary/competitions/shorebirds-competition-2020#content-additional-information</p>

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<p>Session 3</p> <p>Lesson preparation, reflection and feedback</p> <p>(to be completed within 4 weeks)</p> <p>(3 hours)</p>	<p>Using ANSTO Education resources and information provided from Sessions 1 and 2, participants will develop, deliver and reflect on a lesson supporting the Shorebirds Competition.</p> <p>These lessons will be shared amongst participants for collaborative feedback.</p>	<p>2.1.2 Apply knowledge of the content and teaching strategies of the teaching area to develop engaging teaching activities</p> <p>2.2.2 Organise content into coherent, well-sequenced learning and teaching programs</p> <p>3.2.2 Plan and implement well-structured learning and teaching programs or lesson sequences that engage students and promote learning.</p> <p>3.3.2 Select and use relevant teaching strategies to develop knowledge, skills, problem solving and critical and creative thinking</p>	<p>Participants will use the knowledge and materials acquired from Part 1 to develop a lesson for delivery to their students to promote student engagement with the topic. The lesson will support the completion of student entries in the Shorebirds Competition by teaching students about:</p> <ul style="list-style-type: none"> - The migration and/or life cycle of migratory and resident shorebirds; - Threats to migratory and resident shorebirds; - Threats to wetlands and coastal habitats; or - Sustainable practices in our environment <p>Teachers will deliver the lesson to students and annotate the lesson plan with self-reflection notes.</p> <p>The annotated lesson plan will be posted on an online forum.</p> <p>Participants will contribute to the professional development of peers by providing at least one comment on a fellow-participant's lesson plan.</p>