

# Unit Outline (Higher Education)

**Institute / School:** Institute of Education, Arts & Community

**Unit Title:** Science Curriculum 1

**Unit ID:** EDBED3029

**Credit Points:** 15.00

**Prerequisite(s):** Nil

**Co-requisite(s):** Nil

**Exclusion(s):** (EDDDE3002)

**ASCED:** 070301

**Description of the Unit:**

This unit is the first in a sequence of two that focuses on curriculum and pedagogy in the Science specialist teaching area for postgraduate Pre-Service Teachers (PSTs). It provides PSTs with an understanding of the nature of science, the role of science in our community, and the changing role of science education. PSTs explore a range of approaches to teaching Science within a constructivist paradigm and examine ways to develop scientifically literate students.

**Grade Scheme:** Graded (HD, D, C, P, MF, F, XF)

**Work Experience:**

No work experience

**Placement Component:** No

**Supplementary Assessment:** Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

**Course Level:**

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

#### Knowledge:

- K1.** Develop understandings about the nature of Science as a constantly developing field of knowledge and the processes of scientific thinking which support this development.
- K2.** Know about recent developments in Science and how Science impacts on the everyday world.
- K3.** Gain understanding of contemporary curriculum policies and guidelines relevant to teaching and assessing Science in the middle years.
- K4.** Have knowledge of a range of theoretical and pedagogical approaches, which incorporate spacing and retrieval practice, build on preceding knowledge and help students retrieve previous learning relevant to learning and teaching in Science.
- K5.** Demonstrate specific teaching strategies related to Science.
- K6.** Examine different ways of collecting data about student learning.
- K7.** Develop an understanding of scientific literacy and the teaching of global issues including sustainability and ethics.

#### Skills:

- S1.** Reflect critically on practice, make positive use of feedback and learn in ongoing ways about teaching Science.
- S2.** Use appropriate theoretical frameworks and a range of effective and inclusive teaching strategies to produce effective and engaging learning experiences which cater for a range of learners.
- S3.** Articulate and justify planning, teaching and assessment practices.
- S4.** Use a variety of resources in the classroom to enhance learning.
- S5.** Communicate effectively with learners and colleagues, including a clear explanation of what students are expected to learn and chunking the learning into manageable tasks.
- S6.** Develop skills in the collection of formative assessment data.
- S7.** Structure scientific teaching in response to global issues such as sustainability and ethics.

#### Application of knowledge and skills:

- A1.** Create a lesson series based on a science concept for middle years student, including sequencing of tasks which build upon knowledge and skills, meet the students where they are at and explain the progression of skills necessary to complete the tasks.
- A2.** Build a six-week unit of curriculum related to global issues.

#### Unit Content:

Examining science as a field of human knowledge and endeavour, the links between science and other areas of knowledge and between the traditional science disciplines.

A critical evaluation of teaching approaches and dispositions, strategies and resources and their application in Science, including constructivism and scaffolding, inquiry and discovery learning, strategies for building subject-

specific literacy, numeracy and practical work.

Science teaching - using curriculum policies and guidelines for lesson planning, implementation, teaching, evaluation, reflection and assessment purposes

Critical examination of educational, social and cultural issues that impact on Science education and how these might be addressed.

## FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> <li>Using effective verbal and non-verbal communication</li> <li>Listening for meaning and influencing via active listening</li> <li>Showing empathy for others</li> <li>Negotiating and demonstrating conflict resolution skills</li> <li>Working respectfully in cross-cultural and diverse teams.</li> </ul>	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> <li>Creating a collegial environment</li> <li>Showing self-awareness and the ability to self-reflect</li> <li>Inspiring and convincing others</li> <li>Making informed decisions</li> <li>Displaying initiative</li> </ul>	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> <li>Reflecting critically</li> <li>Evaluating ideas, concepts and information</li> <li>Considering alternative perspectives to refine ideas</li> <li>Challenging conventional thinking to clarify concepts</li> <li>Forming creative solutions in problem solving.</li> </ul>	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> <li>Finding, evaluating, managing, curating, organising and sharing digital information</li> <li>Collating, managing, accessing and using digital data securely</li> <li>Receiving and responding to messages in a range of digital media</li> <li>Contributing actively to digital teams and working groups</li> <li>Participating in and benefiting from digital learning opportunities.</li> </ul>	Not applicable	Not applicable
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> <li>Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts</li> <li>Committing to social responsibility as a professional and a citizen</li> <li>Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>Embracing lifelong, life-wide and life-deep learning to be open to diverse others</li> <li>Implementing required actions to foster sustainability in their professional and personal life.</li> </ul>	Not applicable	Not applicable

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K5, K6, S1, S2, S3, S4, S5, S6, A1	Construct a series of lesson plans that teach a scientific concept and literacies to middle years students. Present a practical lesson to peers. Collect data based on feedback from peers.	Lesson plan and peer teaching	30-50%
K1, K2, K3, K4, K6, K7, S2, S3, S4, S6, S7, A2	Develop a curriculum planner that responds to global issues (sustainability, ethics, etc.) for a 6-week unit of work for middle years Science that includes details of lessons and a map of formative and summative assessment tasks.	Development of a curriculum resource	50-70%

### Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)