

Unit Outline (Higher Education)

Institute / School: Institute of Education, Arts & Community

Unit Title: PRIMARY SCIENCE EDUCATION

Unit ID: EDMAS6049

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (EDMAS6043)

ASCED: 070103

Description of the Unit:

This course is designed to examine key theoretical and pedagogical perspectives and issues in the teaching of science and technology with children, with emphasis on developing children`s skills of working scientifically, designing and making products. Students are introduced to a range of current curriculum documents and a variety of teaching strategies used in schools including lesson and unit planning, implementing and enacting curriculum, monitoring and reflecting upon learning and reporting. The course addresses important conceptual ideas and processes about embedding science and technology into classroom learning, understanding science as a human endeavour and the differences in learning progressions in science and technology.

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

Work Experience:

Not wholly work experience: Student is not undertaking work experience in industry or student is undertaking work experience in industry where learning and performance is directed by the provider.

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	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■
Advanced	■	■	■	■	✓	■

Learning Outcomes:

On successful completion of the course pre-service teachers will demonstrate their capacity to:

Knowledge:

- K1.** Recognise key theoretical, philosophical and pedagogical perspectives for teaching science and technologies (Design and Technologies; Digital Technologies).
- K2.** Examine a range of cross-curriculum documents and resources to develop an integrated unit of work which incorporates science and technologies (Design and Technologies; Digital Technologies), and links to cross-curricular priorities and general capabilities in the current curriculum.
- K3.** Engage students in inquiry learning that focuses on a place, time or social issue relating to science, technology, the humanities and social sciences.
- K4.** Investigate how educators can embrace diversity, teach for social justice and develop understandings of how events shape societies and places within them.
- K5.** Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.

Skills:

- S1.** Critically consider how students understand and express their experiences of the world at a local and global level and how to develop an ability to question, think critically, solve problems, communicate effectively, make decisions and adapt to change.
- S2.** Demonstrate the ability to link discipline-based domains of science and technology (Design and Technologies; Digital Technologies), including links to general capabilities and cross-curricular priorities.
- S3.** Apply literacy and numeracy strategies in the teaching of science and technologies.
- S4.** Organise classroom activities and provide clear directions.

Application of knowledge and skills:

- A1.** Using a range of resources and knowledge of student learning and effective teaching strategies, plan lesson sequences in science and technology, plan and present a lesson for reflection, and plan a lesson sequence that includes information and communication technology, general capabilities and cross-curricular priorities.
- A2.** Assess learners in ways that acknowledge and engage with diversity and diverse learners using a variety of assessment methods.

Unit Content:

- Key theoretical and pedagogical perspectives and issues in the teaching of science and technologies (Design and Technologies; Digital Technologies) with children.
- Methods and skills that are crucial to scientific inquiry, designing and making products.
- Current curriculum documents, including reference to general capabilities and cross-curricular priorities, and a variety of teaching strategies used in schools.
- Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.
- Conceptual ideas and processes about embedding science and technology (Design and Technologies; Digital Technologies), into classroom learning, understanding science as a human endeavour and the differences in learning progressions in science and technology (Design and Technologies; Digital

Technologies).

- Literacy and numeracy teaching strategies in science and the technologies.

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 at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: <ul style="list-style-type: none"> • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills • Demonstrating mastery of working respectfully in cross-cultural and diverse teams. 	K1, K2, K4, S1, S4, A1, A2	AT1, AT2
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. <ul style="list-style-type: none"> • Creating and sustaining a collegial environment • Demonstrating a high level of self-awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations 	K3, K4, K5, S1, S2, S4, A1, A2	AT1, AT2
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working 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"> • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning 	K2, K3, K4, K5, S1, S3, A1, A2	AT1, AT2

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide 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"> • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities 	K1, K2, K4, K5, S1, S2, S3, S4, A1	AT1, AT2
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life. 	K4, S1, S4, A2	AT1, AT2

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, S4, A1, A2, APST: 1.2, 1.3, 1.5, 2.1, 2.2, 2.3, 6.3	Using current curriculum documents, research, plan and present an 'Engage' or 'Tuning in' lesson. Write a personal reflection on the activity, noting the key scientific underpinnings, teaching strategies and student outcomes.	Seminar Presentation / teaching activity.	40-60%
K1, K2, K3, K4, K5, S1, S2, S3, S4, A1, A2, APST: 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3	Develop a coherent, active and meaningful inquiry unit of work with a theme that has a focus discipline in science and technology and enables integration across disciplines.	Integrated Unit of work	40-60%

Alignment to the Minimum Co-Operative Standards (MiCS)

The Minimum Co-Operative Standards (MiCS) are an integral part of the Co-Operative University Model. Seven criteria inform the MiCS alignment at a Course level. Although Units must undertake MiCS mapping, there is NO expectation that Units will meet all seven criteria. The criteria are as follows:

1. Co-design with industry and students
2. Co-develop with industry and students
3. Co-deliver with industry

4. FedTASK alignment
5. Workplace learning and career preparation
6. Authentic assessment
7. Industry-link/Industry facing experience

MiCS Course level reporting highlights how each Course embraces the principles and practices associated with the Co-Operative Model. Evidence of Course alignment with the MiCS, can be captured in the Course Modification Form.

MICS Mapping has been undertaken for this Unit No

Date:

Adopted Reference Style:

APA

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

Fed Cite - [referencing tool](#)

Professional Standards / Competencies:
Australian Professional Standards for Teachers (AITSL) - Graduate Teacher: Initial

Attribute	Assessed	Level
Professional Knowledge		
1. Know students and how they learn		
1.2 Understand how students learn Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.	Yes	Advanced
1.3 Students with diverse linguistic, cultural, religious and socioeconomic backgrounds Demonstrate knowledge of teaching strategies that are responsive to the learning strengths and needs of students from diverse linguistic, cultural, religious and socioeconomic backgrounds.	Yes	Advanced
1.5 Differentiate teaching to meet the specific learning needs of students across the full range of abilities Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.	Yes	Advanced
2. Know the content and how to teach it		
2.1 Content and teaching strategies of the teaching area Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area.	Yes	Advanced
2.2 Content selection and organisation Organise content into an effective learning and teaching sequence.	Yes	Advanced
2.3 Curriculum, assessment and reporting Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.	Yes	Advanced
Professional Engagement		
6. Engage in professional learning		
6.3 Engage with colleagues and improve practice Seek and apply constructive feedback from supervisors and teachers to improve teaching practices.	Yes	Advanced