

Unit Outline (Higher Education)

Institute / School:	Institute of Education, Arts & Community
Unit Title:	Mathematics, Numeracy and Learner Engagement 2
Unit ID:	EDMAS6042
Credit Points:	15.00
Prerequisite(s):	(EDMAS6039)
Co-requisite(s):	Nil
Exclusion(s):	(EDFGC5714)
ASCED:	070103

Description of the Unit:

This unit is designed to develop an understanding of the learning and teaching of mathematics and numeracy in the Victorian and Australian contexts. Students use curriculum, current research, and educational policy to implement effective and engaging student learning strategies in different mathematical content and proficiencies. Learning activities are designed to engage a variety of children from a range of social and cultural groups with a range of skills and interests, with a focus on differentiating tasks. Students design and evaluate a variety of assessment tasks to inform the design of their learning activities and reports. Pre-service teachers will develop academic and personal communication skills, self-reflection, personal learning, and the ability to deliver and respond to peer feedback.

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

Learning Outcomes:

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

Knowledge:

- K1.** Explore theories about how teachers and students construe and learn mathematics.
- K2.** Explore the curriculum associated with teaching mathematics to primary students, both the strands and proficiencies.
- K3.** Examine a broad range of learning theories and apply these to teaching mathematics within and beyond the mathematics curriculum.
- K4.** Examine, evaluate, and demonstrate a range of assessment types.

Skills:

- S1.** Develop pedagogies such as explicit teaching and the use of worked examples, problem-solving, scaffolding and the development of thinking skills and how these relate to the teaching and learning of mathematics
- S2.** Design and explain learning activities that cater to a range of students, including First Nations people, EAL learners and a range of skills.
- S3.** Develop mathematical competence in mathematical content areas, including number, algebra, measurement, space, statistics, and probability.
- S4.** Create learning activities that align with the curriculum, current research, and education policy.
- S5.** Develop assessment tasks that will evaluate student learning and inform future teaching.

Application of knowledge and skills:

- A1.** Research, develop and demonstrate diversity in mathematics strategies that could be used for diverse learners, including catering to a range of learners, First Nations peoples and EAL learners.
- A2.** Use a range of assessments to design future learning activities.
- A3.** Develop classroom strategies to support children`s learning in mathematics and numeracy in line with curriculum and education policy, including explicit teaching, problem-solving and the development of thinking skills.

Unit Content:

Topics to be covered

- Knowledge and understanding of the concepts related to mathematics and numeracy content: number, algebra, measurement, space, statistics, and probability.
- Assessment strategies, including formative and summative approaches to assess student learning.
- Understand how students learn, referring to curriculum, current research and education theory, and the implications of this for teaching, including explicit teaching, problem-solving, and the development of thinking skills.
- Reflection of personal mathematics and teaching skills.
- Select and use resources for mathematics teaching and learning.

- Organise content into effective learning activities focusing on including a range of students from different cultures and skills.

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: • 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.	K2, S2, A1, A2	AT2
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. • 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.	A2	AT1
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: • 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, A1	AT1, AT2
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: • 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.	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
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 	A3, S4	AT1

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S1, S2, S3, S4, A1, A2, A3	Research task: Research and report using a peer presentation on the teaching of a mathematical topic, focusing on meeting the specific learning needs of a range of students.	Peer presentation	40-60%
K1, K2, K3, K4, S1, S2, S3, S4, S5, A1, A2, A3	Teaching Activity: Assess student understandings in mathematics by formative approaches, to then plan and analyse learning activities for students in line with current curriculum to cater for a range of abilities.	Teaching Activity	40-60%
	LANTITE Literacy Test (external)	Hurdle	S/UN
	LANTITE Test Numeracy (external)	Hurdle	S/UN

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	Intermediate
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	Intermediate
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	Intermediate
2.2 Content selection and organisation Organise content into an effective learning and teaching sequence.	Yes	Intermediate
2.3 Curriculum, assessment and reporting Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.	Yes	Intermediate
2.5 Literacy and numeracy strategies Know and understand literacy and numeracy teaching strategies and their application in teaching areas.	Yes	Intermediate
2.6 Information and Communication Technology (ICT) Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.	Yes	Intermediate
Professional Practice		
3. Plan for and implement effective teaching and learning		
3.2 Plan, structure and sequence learning programs Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.	Yes	Intermediate
3.4 Select and use resources Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.	Yes	Intermediate

4. Create and maintain supportive and safe learning environments

4.5 Use ICT safely, responsibly and ethically

Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching.

Yes

Intermediate

5. Assess, provide feedback and report on student learning

5.1 Assess student learning

Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.

Yes

Intermediate

5.3 Make consistent and comparable judgements

Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.

Yes

Intermediate