School of Education

EDST6780

Mathematics 2

Term 3 2021

Contents

IMPORTANT:
For student policies and procedures relating to assessment, attendance and student support, please see website, https://education.arts.unsw.edu.au/students/courses/course-outlines/

The School of Education acknowledges the Bedegal people as the traditional custodians of the lands upon which we learn and teach.

1.

STUDENT LEARNING OUTCOMES

Outcome		Assessments
1	Demonstrate understanding of the range of home and community numeracy practices, including the impact of parental/carer attitudes and different cultural systems including Australian Indigenous communities	1
2	Demonstrate understanding of mathematical concepts underpinning development of mathematical knowledge, skills and understanding and communicate them clearly using appropriate terminology	1
3	Identify and explain the difference between mathematics and numeracy and social and cultural needs	1
4	Demonstrate a broad and critical understanding of the NSW Board of Studies (2012) Mathematics K-10 syllabus and use it appropriately to select concepts, sequence and connect lessons and map progress	1, 2
5	Examine and apply a range of pedagogical skills suitable for different developmental stages and levels of understanding	1, 2
6	Design and differentiate engaging teaching activities and materials to accommodate diverse student abilities (including gifted students)	1
7	Select, design, and apply relevant ICT tools to support mathematical understanding and learning	1
8	Evaluate and appropriately use teaching resources such as calculators, games, hands-on materials and puzzles	1

AUSTRALIAN PROFESSIONAL STANDARDS FOR TEACHERS

Standard

3.4.1	Demonstrate knowledge of a range of resources including ICT that engage students in their learning	1
5.1.1	Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative, and summative approaches to assess student learning	2
5.3.1	Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning	2
5.4.1	Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice	2
6.3.1	Seek and apply constructive feedback from supervisors and teachers to improve teaching practices	1

6. COURSE CONTENT AND STRUCTURE

This unit of study involves a 10-module program. This is an ***indicative*** course schedule and reading list. Refer to Moodle for the most current schedule and reading list. Throughout the course, the content ***may*** eeds and interests.

Module	Session Topics and Content
	All verbs noted below represent what students need to do as a result of teaching and learning. The verbs indicate how the concepts in each strand relate to skills and strategies needed for the components of Working Mathematically.

4	**Stages 2 and 3 Addition and subtraction:** add (*sum*, *increased by, plus* in Stage 3) and *subtract* (*decreased by minus* in Stage 3) single-digit numbers and change/arrange sequence to aid fluency; apply partitioning to rewrite addition/subtraction; understand number line (including negative numbers) and demonstrate efficiency of jump/ compensation strategies, bridging decades. Understand addition/subtraction as *inverse operations*; apply concept to check answer. Compare, choose, and explain reasoning for choice of most efficient strategy.
5	**Stages 2 and 3 Multiplication and division** **Estimate** to check operation and **explain** reasoning; check calculations using **Apply division to understand factors**: highest, lowest, common, and applying factors to solving problems. **Partitive** (sharing) versus **quotative** (grouping) processes. *Product* for *multiplied by*. *Per* **Arrays**: use *vertical* columns and *horizontal* rows to represent groups and single items *left over (remainder* number cannot be grouped evenly. Transfer fractions/*decimals* to record *remainder*.
6	**Stages 2 and 3 Multiplication and division cont.** Understand grouping using round brackets/parentheses ( ), square brackets [ ] and braces { } in multi-operation number sentences. Apply priority of inner brackets over outer brackets; use brackets to indicate order of operations. **Money:** Apply understanding of addition/multiplication to vary number and combination of coins/notes to match same sum of money; calculate *change* and round to nearest 5c; apply simple operations to problems involving money and justify strategies/explain solution in real-world contexts. Interpret calculator display for money calculations (2.6 = $2.60). Calculate and interpret currency exchange rates. **Stages 2 and 3 division:** Ask and answer questions about patterns/arrays and apply to odd/even numbers; recognise final digit as critical for odd/even numbers and apply factorisation to identify odd/even numbers. Apply addition/subtraction to count on/back. Reason value of unknown quantity using equivalent number sentences and apply strategy of *substitution* to check. Calculate missing number in a numerical pattern and explain reasoning. Understand representation of number plane with *x*-(horizontal) and *y-axis* (vertical) and explain significance of sequence of *coordinates*.
7	**Stages 2 and 3 Fractions and decimals:** shade parts of a whole to represent *fractional part* and explain reasoning; interpret *numerator*/*denominator*, connect *fractions* and *mixed numbers* by arranging in ascending/descending sequence. Distinguish between *proper* T/F2 10.02 Tf1 0 0 1 27 385o.3 7.52 10.98 reW* nBT/imp:

Measurement and Geometry. Length: Convert between km, m, cm, and mm and use place value to interpret units; apply to understand and calculate *perimeter*, interpret intervals on scaled instruments. **Area:** Use cm^2 grid paper to calculate/estimate area and relate scaled diagrams to multiplication/division, understand why $1m^2$ may not represent a square, apply units (including *hectares*) to

8. ASSESSMENT

Assessment Task	Length	Weight	Student Learning Outcomes Assessed	Australian Professional Standards Assessed	National Priority Area Elaborations Assessed	Due Date
Assessment 1: Assessing student understanding	2000 words (equivalent)	40%	1-8	1.1.1, 1.2.1, 1.3.1, 1.4.1, 2.1.1, 2.5.1, 2.6.1, 3.3.1, 3.4.1, 6.3.1	A4, 8 B1-2 C3-7, 10 D1-2, 6-19 E1-8 F1-9	Friday 15th Oct by 5pm
Assessment 2: Annotation and analysis of student work samples	3000 words (equivalent)	60%	4-5	1.1.1, 1.2.1, 1.3.1, 1.5.1, 5.1.1, 5.3.1, 5.4.1	D1-2, 6-19 E1-8 F1-9	Friday 12th Nov by 5pm

Submission of assessments

UNSW SCHOOL OF EDUCATION
FEEDBACK SHEET
EDST6780 MATHEMATICS 2

Student Name: Student No.:

Assessment Task 1: **Assessing understanding**

SPECIFIC CRITERIA	(-) ——————➤ (+)				
Understanding of the question or issue and the key concepts involved the chosen concept has been assessed. Appropriate hands-on activities selected that allow students to demonstrate ability to work mathematically.					
Depth of analysis and/or critique in response to the task assessed area Lesson plan addresses where to next for the student Indication of what a follow up lesson could cover					

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Student Name: Student No.:

Assessment Task 2: **Annotation and analysis of student**

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