



School of Education

EDST6780
Mathematics 2

Term 3 2021

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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** address needs and interests.

| Module | Session Topics and Content |
|--------|---|
| | <i>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.</i> |

| | |
|---|---|
| 4 | <p>Stages 2 and 3 Addition and subtraction: add (<i>sum, increased by, plus</i> in Stage 3) and <i>subtract (decreased by minus</i> 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.</p> <p>Understand addition/subtraction as <i>inverse operations</i>; apply concept to check answer. Compare, choose, and explain reasoning for choice of most efficient strategy.</p> |
| 5 | <p>Stages 2 and 3 Multiplication and division</p> <p>Estimate to check operation and explain reasoning; check calculations using</p> <p>Apply division to understand factors: highest, lowest, common, and applying factors to solving problems.</p> <p>Partitive (sharing) versus quotative (grouping) processes. <i>Product</i> for <i>multiplied by</i>. <i>Per</i></p> <p>Arrays: use <i>vertical</i> columns and <i>horizontal</i> rows to represent groups and single items <i>left over (remainder</i> number cannot be grouped evenly. Transfer fractions/<i>decimals</i> to record <i>remainder</i>.</p> |
| 6 | <p>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.</p> <p>Money: Apply understanding of addition/multiplication to vary number and combination of coins/notes to match same sum of money; calculate <i>change</i> 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.</p> <p>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.</p> <p>Reason value of unknown quantity using equivalent number sentences and apply strategy of <i>substitution</i> to check. Calculate missing number in a numerical pattern and explain reasoning. Understand representation of number plane with <i>x-</i> (horizontal) and <i>y-axis</i> (vertical) and explain significance of sequence of <i>coordinates</i>.</p> |
| 7 | <p>Stages 2 and 3 Fractions and decimals: shade parts of a whole to represent <i>fractional part</i> and explain reasoning; interpret <i>numerator/denominator</i>, connect <i>fractions</i> and <i>mixed numbers</i> by arranging in ascending/descending sequence.</p> <p>Distinguish between <i>proper</i> T/F2 10.02 T1f 0 0 1 27 385o.3 7.52 10.98 reW* nBT/imp'</p> |

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 15 th 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 12 th 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 | (-) \longrightarrow (+) | | | | |
|--|---------------------------|--|--|--|--|
| <p>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.</p> | | | | | |
| <p>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</p> | | | | | |

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FEEDBACK SHEET
EDST6780 MATHEMATICS 2

Student Name:

Student No.:

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