How content is presented in the Mathematics K–10 Draft Syllabus Version 2

- The knowledge, understanding and skills described in the content provide a sound basis for students to successfully move to the next stage of learning.
- Teachers will make decisions about the sequence of learning and the emphasis to be given to particular content, based on the needs of their students.

### Mathematics • Stage 3

#### Number and Algebra

**Multiplication and Division 2**

<table>
<thead>
<tr>
<th>Outcomes</th>
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<tbody>
<tr>
<td>A student:</td>
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<tr>
<td>describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions MA3-1WM</td>
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<tr>
<td>selects and applies appropriate problem-solving strategies, including technological applications, in undertaking investigations MA3-2WM</td>
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<tr>
<td>gives a valid reason for supporting one possible solution over another MA3-3WM</td>
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<tr>
<td>selects and applies appropriate strategies for multiplication and division, and applies the order of operations to calculations involving more than one operation MA3-6NA</td>
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Students:
Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers (ACMNA123)
- use efficient mental and written strategies, and digital technologies to solve whole-number problems involving multiplication and division, including:
  - the inverse relationship of multiplication and division, eg ‘150 ÷ 3 = 50 because 3 × 5 = 15 and 15 multiplied by 10 is 150’
  - using known facts, eg 10 × 9 = 90 so 13 × 9 = 90 + 9 = 99 + 9 = 90 + 27 = 117
  - multiplying the tens and then the units, eg 25 × 17 is (25×10)+(25×7)=250+175=425
  - the relationship between multiplication facts, eg 75 × 4 is double 75 and double again or 75 × 4 is the same as 150 × 2
  - factorising, eg 48×5=8×6×5=8×30=240 [L, ICT, CCT]
- estimate answers to problems and check to justify solutions (Problem Solving, Reasoning) [N, CCT]
  - use a table or similar visual organiser to record methods used to solve problems (Communicating, Problem Solving) [N, ICT]
- use mental strategies to multiply or divide a number by 100 or a multiple of 10 [N]
- solve problems involving multiplication and division, eg ‘A recipe requires 3 cups of flour for 10 people. How many cups of flour are required for 40 people?’ [N, CCT]
- use appropriate language to compare quantities, eg ‘twice as much as’, ‘half as much as’ (Communicating) [N, CCT]

Explore the use of brackets and order of operations to write number sentences (ACMNA134)
- recognise that grouping symbols ( ) or [ ] are used in number sentences to indicate operations that must be performed first [L, N]

#### Background information

Students could extend their recall of number facts beyond the multiplication facts to 10 × 10 by also memorising multiples of numbers such as 11, 12, 15, 20 and 25, or by utilising mental strategies such as ‘14 × 6 is 10 sixes plus 4 sixes’.

The simplest multiplication word problems relate to rates, eg ‘If four students earn $3 each, how much do they have all together?’ Another type of problem is related to ratio and uses language such as ‘twice as many as’ and ‘six times as many as’.

Refer also to background information in Multiplication and Division 1.

#### Language

Students should be able to communicate using the following language: order of operations, grouping symbols, brackets.