

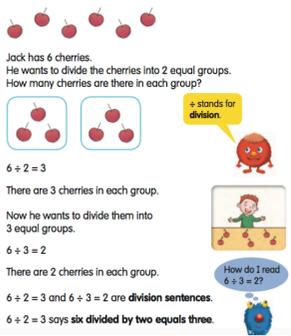
Progression of Key Concepts in Inspire Maths

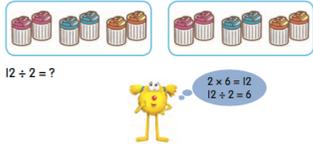
Multiplication and division (making connections between the units) with reference to the pages in the Teacher’s Guide

Inspire Maths 1	Inspire Maths 2	Inspire Maths 3	Inspire Maths 4	Inspire Maths 5	Inspire Maths 6
<p><b>Multiplication:</b> TG1B Unit 14 p122</p> <p><b>Key concept:</b> Multiplication is conceptualized as repeated addition. The × (times) symbol is introduced as another way of representing multiplication.</p> <p>- Adding the same number, relate repeated addition to the multiplication concept:</p> <p>How many groups are there? How many are in each group?  <math>2 + 2 + 2 = 6</math>            3 twos = 6            3 groups of 2 = 6</p> <p>- Making up stories            - Solving word problems</p> <p><b>Division:</b> TG1B Unit 15 p143</p> <p><b>Key concept:</b> Division is conceptualised as dividing a set of objects equally.</p> <p>- Sharing equally            - Finding the number of groups</p> <p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- group: TG1A p32</li> <li>- multiplication: TG1B p122</li> <li>- multiplication stories: TG1B p125</li> <li>- multiplication sentence: TG1B</li> </ul>	<p><b>Multiplication and division:</b> TG2A Unit 4 p131</p> <p><b>Key concept:</b> Multiplying a fixed number of objects by a certain number of times.</p> <p>- How to multiply: multiplication as the number of groups by the number of items; multiplying a set of items by number of times:</p> <p>How many cows are there?</p>  <p>There are two ways to find the number of cows. Look at 1 and 2.</p> <p>1 First count the number of groups. There are 3 groups. Then count the number of cows in each group. There are 5 cows in each group.  <math>5 + 5 + 5 = 15</math>  <math>3 \times 5 = 15</math>            There are 15 cows altogether.</p> <p>2 First count the number of items in each group. There are 5 cows in each group. Then count the number of groups. There are 3 groups. The number 5 is multiplied 3 times.  <math>5 \times 3 = 5 + 5 + 5 = 15</math>            There are 15 cows altogether.</p> <p><b>Key concept:</b> Sharing or dividing a set of items into equal groups so that each group has the same number of items. The ÷ (division) symbol is introduced as another way of representing multiplication.</p> <p>- How to divide: sharing a number of items equally between a number of groups; dividing a set of items into groups given a fixed number of items in each group:</p>	<p><b>Multiplying by 6, 7, 8 and 9:</b> TG3A Unit 5 p118</p> <p><b>Key concepts:</b> The ‘group and item’ concept is used for multiplication and repeated addition.</p> <ul style="list-style-type: none"> <li>- Multiplying by 6: skip counting,</li> <li>- Multiplying by 7: skip counting,</li> <li>- Multiplying by 8: skip counting,</li> <li>- Multiplying by 9: skip counting,</li> <li>- Short cut method for multiplying by 6, 7, 8 and 9</li> </ul> <p><b>Key concepts:</b> Division is the inverse of multiplication. Division involves the distribution of a set of items equally into some groups by relating multiplication facts.</p> <ul style="list-style-type: none"> <li>- Division: finding the number of items in each group</li> <li>- Division: making equal groups</li> </ul> <p><b>Multiplication:</b> TG3A Unit 6 p147</p> <p><b>Key concepts:</b> Vertical format introduced alongside the horizontal format.</p> <ul style="list-style-type: none"> <li>- Multiply a 2-digit or 3-digit number by 2, 3, 4, or 5 without regrouping</li> <li>- Multiply a 2-digit or 3-digit number by 2, 3, 4, or 5 with regrouping in ones, tens and hundreds</li> </ul>	<p><b>Whole Numbers (2):</b> TG4A Unit 2 p42</p> <ul style="list-style-type: none"> <li>- Factors</li> <li>- Multiples</li> </ul> <p><b>Whole Numbers (3):</b> TG4A Unit 3 p67</p> <p><b>Key concepts:</b> The formal algorithm long multiplication is introduced as another strategy</p> <ul style="list-style-type: none"> <li>- Multiply whole numbers (up to 4-digits) by a 1-digit number with or without regrouping</li> <li>- Multiply a whole number (up to 3 digits) by 10 or tens using two different methods with or without regrouping</li> <li>- Multiply a whole number (2 or 3-digits) by another 2-digit number with or without regrouping</li> <li>- Divide a whole number (up to 4 digits) by a 1-digit number with or without regrouping and without remainder</li> <li>- Divide a whole number (up to 4 digits) by a 1-digit number with or without regrouping and with remainder</li> <li>- Solve up to 3-step whole number word problems involving the four operations</li> </ul>	<p><b>Whole Numbers (2):</b> TG5A Unit 2 p53</p> <ul style="list-style-type: none"> <li>- Multiplying by 10</li> <li>- Multiplying by tens</li> <li>- Multiplying by 100 or 1000</li> <li>- Multiplying by hundreds or thousands</li> <li>- Dividing by 10</li> <li>- Dividing by tens</li> <li>- Dividing by 100 or 1000</li> <li>- Dividing by hundreds or thousands</li> <li>- Order of operations</li> </ul> <p><b>Key concepts:</b> Application of concepts and skills of the four operations to solving word problems.</p> <ul style="list-style-type: none"> <li>- Word problems (1) and (2)</li> </ul> <p><b>Decimals:</b> TG5B Unit 7 p6</p> <ul style="list-style-type: none"> <li>- Multiplying by 10</li> <li>- Multiplying by tens</li> <li>- Multiplying by 100 or 1000</li> <li>- Multiplying by hundreds or thousands</li> <li>- Dividing by 10</li> <li>- Dividing by tens</li> <li>- Dividing by 100 or 1000</li> <li>- Dividing by hundreds or thousands</li> </ul>	<p><b>Speed:</b> TG6B Unit 7 p4</p> <p><b>Circles:</b> TG6B Unit 8 p45</p> <ul style="list-style-type: none"> <li>- Diameter</li> <li>- Circumference</li> <li>- Area of circle</li> </ul> <p><b>Volume:</b> TG6B Unit 11 p140</p> <ul style="list-style-type: none"> <li>- Volume = length x width x height</li> </ul> <p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- diameter: TG6B p46</li> <li>- circumference: TG6B p46</li> </ul>

## Progression of Key Concepts in Inspire Maths

Multiplication and division (making connections between the units) with reference to the pages in the Teacher's Guide

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<p>p125</p> <p>- times (multiplication): TG1B p125</p>	 <p>Jack has 6 cherries. He wants to divide the cherries into 2 equal groups. How many cherries are there in each group?</p> <p><math>6 \div 2 = 3</math></p> <p>There are 3 cherries in each group.</p> <p>Now he wants to divide them into 3 equal groups.</p> <p><math>6 \div 3 = 2</math></p> <p>There are 2 cherries in each group.</p> <p><math>6 \div 2 = 3</math> and <math>6 \div 3 = 2</math> are <b>division sentences</b>.</p> <p><math>6 \div 2 = 3</math> says six divided by two equals three.</p> <p><b>Multiplying by 2 and 3: TG2A Unit 5 p148</b></p> <p><b>Key concepts:</b> Multiplication is interpreted as repeated addition and as groups of items. The multiplication concept is 'groups of' or 'multiplying by'. The skip-count strategy helps to find the times table facts.</p> <ul style="list-style-type: none"> <li>- Multiplying by 2: skip counting, using dot paper</li> <li>- Multiplying by 3: skip counting, using dot paper</li> </ul> <p><b>Key concepts:</b> Division is the inverse of multiplication. Division involves the distribution of a set of items equally into some groups by relating multiplication facts.</p> <ul style="list-style-type: none"> <li>- Sharing: finding the number of items in each group:</li> </ul>	<ul style="list-style-type: none"> <li>- Multiply 2-digit or 3-digit number by 2, 3, 4, or 5 with regrouping in ones, tens, hundreds and thousands</li> </ul> <p><b>Division: TG3A Unit 7 p 175</b></p> <p><b>Key concepts:</b> The long division format is used to divide and find the quotient (number of items each group will contain) and remainder. The divisor is the number of groups.</p> <ul style="list-style-type: none"> <li>- Divide a 1-digit or a 2-digit number by 1-digit number without remainder</li> </ul> <p><math>8 \div 2 = ?</math></p>  <p>8 ones <math>\div</math> 2 = 4 ones with no remainder          Quotient = 4 ones          Remainder = 0 ones</p> <p>Each child gets 4 buckets.</p> <p>There are no buckets left.</p> <ul style="list-style-type: none"> <li>- Divide a 1-digit or a 2-digit number by a 1-digit number with remainder</li> <li>- Divide a 2-digit number by a 1-digit number with no regrouping or remainder</li> <li>- Divide a 2-digit number by a 1-digit number with regrouping from tens to ones, with or without remainder</li> <li>- Divide a 3-digit number by a 1-digit number with regrouping from hundreds to tens then from tens to ones with or without remainder</li> </ul>	<p><b>Decimals (2): TG4B Unit 10 p77</b></p> <ul style="list-style-type: none"> <li>- Multiply tenths by a 1-digit whole number</li> <li>- Multiplication involving tenths and ones</li> <li>- Multiplication involving tenths and hundredths</li> <li>- Division of tenths by a 1-digit whole number</li> <li>- Division involving tenths in which regrouping is necessary</li> <li>- Division involving ones, tenths and hundredths when regrouping is necessary</li> </ul> <p><b>Key concepts:</b> Application of the concepts of multiplication and division of a decimal by a whole number to solving word problems.</p> <ul style="list-style-type: none"> <li>- Word problems up to 2 decimal places</li> </ul> <p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- factor: TG4A p42</li> <li>- multiple: TG4A p47</li> <li>- decimal: TG4B p6</li> <li>- decimal place: TG4B p34</li> <li>- exactly (division): TG4A p42</li> <li>- common factor: TG4A p44</li> <li>- common multiple: TG4A p48</li> <li>- calculate: TG4A p71</li> <li>- ratio: TG5A p248</li> <li>- equivalent ratio: TG5A p253</li> </ul>	<p><b>7Mean: TG5B Unit 9 p82</b></p> <p><b>Volume: TG5B Unit 14 p278</b></p> <ul style="list-style-type: none"> <li>- Volume = length x width x height</li> </ul> <p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- numbers one ten thousand to nine ten thousands (counting on in ten thousands): TG5A p6</li> <li>- hundred thousand (place value): TG5A p6</li> </ul>	

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	<p><b>Sharing: Finding the number of items in each group</b></p> <p>1 Divide 12 pencil sharpeners into 2 equal groups. How many pencil sharpeners are there in each group?</p>  <p><math>12 \div 2 = ?</math></p> <p>There are 6 pencil sharpeners in each group.</p> <p>- <i>Grouping: making equal groups</i></p> <p>Divide 15 jelly beans into equal groups. There are 3 jelly beans in each group. How many groups are there?</p> <p><math>15 \div 3 = ?</math></p>  <p><b>Multiplying by 4, 5 and 10: TG2A Unit 6 p182</b></p> <p><b>Key concepts:</b> Multiplication is conceptualized as repeated addition, groups of items, or multiplying. The multiplication concept is 'groups of' or 'multiplying by'. The skip-count strategy helps to find the times table facts.</p> <p>- <i>Multiplying by 4: skip counting, using dot paper</i>            - <i>Multiplying by 5: skip counting, using dot paper</i>            - <i>Multiplying by 10: skip counting, using dot paper</i></p>	<p><b>Solving word problems 2: Multiplication and division: TG3A Unit 8 p205</b></p> <p><b>Key concept:</b> solve one-step word problems on multiplication using model drawing.</p> <p><b>Mental calculations: TG3A Unit 9 p240</b></p> <p><b>Key concept:</b> Commutative rule – reversing the order of groups and items in multiplication concept produces the same product.</p> <p>- <i>Mental multiplication</i></p> <p><b>Key concept:</b> Division is the inverse of multiplication.</p> <p>- <i>Mental division</i></p> <p><b>Solving word problems: length, mass and volume: TG3B Unit 12 p67</b></p> <p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- thousands (<i>place value</i>): TG3A p10</li> <li>- remainder, quotient: TG3A p175</li> <li>- horizontally: TG3A p191</li> <li>- vertically: TG3A p191</li> <li>- finger counting method: TG3A p125</li> <li>- short cut method: TG3A p128</li> <li>- product: TG3A p147</li> </ul>			

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	<p><b>Key concepts:</b> Division is the inverse of multiplication. Division involves the distribution of a set of items equally into some groups by relating multiplication facts.</p> <p>- <i>Sharing: finding the number of items in each group</i></p> <p>- <i>Grouping: making equal groups</i></p> <p><b>Using models: Multiplication and division: TG2A Unit 7 p224</b></p> <p><b>Key concept:</b> Represent the 'group and item' using models either with paper strips or drawing bars to find the number of items or groups.</p> <p><b>Length: TG2A Unit 8 p254</b></p> <p><b>Key concept:</b> draw models to help solve word problems.</p> <p>- <i>Multiplication and division of length</i></p> <p><b>Mass: TG2A Unit 9 p291</b></p> <p>- <i>Multiplication and division of mass</i></p> <p><b>Money: TG2B Unit 11 p36</b></p> <p>- <i>Word problems: multiplication and division.</i></p> <p><b>Volume: TG2B Unit 14 p150</b></p> <p>- <i>Multiplication and division of volumes</i></p>	<ul style="list-style-type: none"> <li>- one-step word problems: : TG3A p205</li> <li>- double: TG3A p207</li> <li>- to begin with: TG3A p208</li> <li>- thrice: TG3A p213</li> </ul>			

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	<p><b>Key vocabulary</b></p> <ul style="list-style-type: none"> <li>- grouping: TG2A p135</li> <li>- skip-counting: TG2A p148</li> <li>- division: TG1B p143</li> <li>- equally: TG1B p143</li> <li>- divide: TG1B p143</li> <li>- sharing / share: TG2A p133</li> <li>- division sentence: TG2A p133</li> <li>- times table: TG2A p155</li> </ul>				