


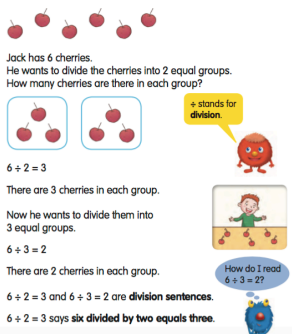

Progression of Key Concepts in Inspire Maths

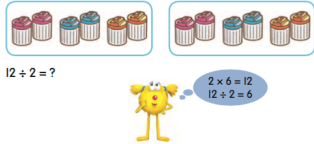

Multiplication and division (making connections between the units) with reference to the pages in the Teacher's Guide

Inspire Maths 1	Inspire Maths 2	Inspire Maths 3	Inspire Maths 4	Inspire Maths 5	Inspire Maths 6
<p>Multiplication: TG1B Unit 14 p122</p> <p>Key concept: 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? $2 + 2 + 2 = 6$ 3 twos = 6 3 groups of 2 = 6</p> <p>- Making up stories - Solving word problems</p> <p>Division: TG1B Unit 15 p143</p> <p>Key concept: Division is conceptualised as dividing a set of objects equally.</p> <p>- Sharing equally - Finding the number of groups</p> <p>Key vocabulary</p> <ul style="list-style-type: none"> - group: TG1A p32 - multiplication: TG1B p122 - multiplication stories: TG1B p125 - multiplication sentence: TG1B 	<p>Multiplication and division: TG2A Unit 4 p131</p> <p>Key concept: 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. $5 + 5 + 5 = 15$ $3 \times 5 = 15$ 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. $5 \times 3 = 5 + 5 + 5 = 15$ There are 15 cows altogether.</p> <p>Key concept: 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>Multiplying by 6, 7, 8 and 9: TG3A Unit 5 p118</p> <p>Key concepts: The 'group and item' concept is used for multiplication and repeated addition.</p> <ul style="list-style-type: none"> - Multiplying by 6: skip counting, - Multiplying by 7: skip counting, - Multiplying by 8: skip counting, - Multiplying by 9: skip counting, - Short cut method for multiplying by 6, 7, 8 and 9 <p>Key concepts: 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"> - Division: finding the number of items in each group - Division: making equal groups <p>Multiplication: TG3A Unit 6 p147</p> <p>Key concepts: Vertical format introduced alongside the horizontal format.</p> <ul style="list-style-type: none"> - Multiply a 2-digit or 3-digit number by 2, 3, 4, or 5 without regrouping - Multiply a 2-digit or 3-digit number by 2, 3, 4, or 5 with regrouping in ones, tens and hundreds 	<p>Whole Numbers (2): TG4A Unit 2 p42</p> <ul style="list-style-type: none"> - Factors - Multiples <p>Whole Numbers (3): TG4A Unit 3 p67</p> <p>Key concepts: The formal algorithm long multiplication is introduced as another strategy</p> <ul style="list-style-type: none"> - Multiply whole numbers (up to 4-digits) by a 1-digit number with or without regrouping - Multiply a whole number (up to 3 digits) by 10 or tens using two different methods with or without regrouping - Multiply a whole number (2 or 3-digits) by another 2-digit number with or without regrouping - Divide a whole number (up to 4 digits) by a 1-digit number with or without regrouping and without remainder - Divide a whole number (up to 4 digits) by a 1-digit number with or without regrouping and with remainder - Solve up to 3-step whole number word problems involving the four operations 	<p>Whole Numbers (2): TG5A Unit 2 p53</p> <ul style="list-style-type: none"> - Multiplying by 10 - Multiplying by tens - Multiplying by 100 or 1000 - Multiplying by hundreds or thousands - Dividing by 10 - Dividing by tens - Dividing by 100 or 1000 - Dividing by hundreds or thousands - Order of operations <p>Key concepts: Application of concepts and skills of the four operations to solving word problems.</p> <ul style="list-style-type: none"> - Word problems (1) and (2) <p>Decimals: TG5B Unit 7 p6</p> <ul style="list-style-type: none"> - Multiplying by 10 - Multiplying by tens - Multiplying by 100 or 1000 - Multiplying by hundreds or thousands - Dividing by 10 - Dividing by tens - Dividing by 100 or 1000 - Dividing by hundreds or thousands 	<p>Speed: TG6B Unit 7 p4</p> <p>Circles: TG6B Unit 8 p45</p> <ul style="list-style-type: none"> - Diameter - Circumference - Area of circle <p>Volume: TG6B Unit 11 p140</p> <ul style="list-style-type: none"> - Volume = length x width x height <p>Key vocabulary</p> <ul style="list-style-type: none"> - diameter: TG6B p46 - circumference: TG6B p46

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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>$6 \div 2 = 3$</p> <p>There are 3 cherries in each group.</p> <p>Now he wants to divide them into 3 equal groups.</p> <p>$6 \div 3 = 2$</p> <p>There are 2 cherries in each group.</p> <p>$6 \div 2 = 3$ and $6 \div 3 = 2$ are division sentences.</p> <p>$6 \div 2 = 3$ says six divided by two equals three.</p> <p>Multiplying by 2 and 3: TG2A Unit 5 p148</p> <p>Key concepts: 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> <p>- Multiplying by 2: skip counting, using dot paper</p> <p>- Multiplying by 3: skip counting, using dot paper</p> <p>Key concepts: 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>- Sharing: finding the number of items in each group:</p>	<p>- Multiply 2-digit or 3-digit number by 2, 3, 4, or 5 with regrouping in ones, tens, hundreds and thousands</p> <p>Division: TG3A Unit 7 p 175</p> <p>Key concepts: 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> <p>- Divide a 1-digit or a 2-digit number by 1-digit number without remainder</p> <p>$8 \div 2 = ?$</p>  <p>8 ones \div 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> <p>- Divide a 1-digit or a 2-digit number by a 1-digit number with remainder</p> <p>- Divide a 2-digit number by a 1-digit number with no regrouping or remainder</p> <p>- Divide a 2-digit number by a 1-digit number with regrouping from tens to ones, with or without remainder</p> <p>- 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</p>	<p>Decimals (2): TG4B Unit 10 p77</p> <p>- Multiply tenths by a 1-digit whole number</p> <p>- Multiplication involving tenths and ones</p> <p>- Multiplication involving tenths and hundredths</p> <p>- Division of tenths by a 1-digit whole number</p> <p>- Division involving tenths in which regrouping is necessary</p> <p>- Division involving ones, tenths and hundredths when regrouping is necessary</p> <p>Key concepts: Application of the concepts of multiplication and division of a decimal by a whole number to solving word problems.</p> <p>- Word problems up to 2 decimal places</p> <p>Key vocabulary</p> <p>- factor: TG4A p42</p> <p>- multiple: TG4A p47</p> <p>- decimal: TG4B p6</p> <p>- decimal place: TG4B p34</p> <p>- exactly (division): TG4A p42</p> <p>- common factor: TG4A p44</p> <p>- common multiple: TG4A p48</p> <p>- calculate: TG4A p71</p> <p>- ratio: TG5A p248</p> <p>- equivalent ratio: TG5A p253</p>	<p>7Mean: TG5B Unit 9 p82</p> <p>Volume: TG5B Unit 14 p278</p> <p>- Volume = length x width x height</p> <p>Key vocabulary</p> <p>- numbers one ten thousand to nine ten thousands (counting on in ten thousands): TG5A p6</p> <p>- hundred thousand (place value): TG5A p6</p>	

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	<p>Sharing: Finding the number of items in each group</p> <p>1 Divide 12 pencil sharpeners into 2 equal groups. How many pencil sharpeners are there in each group?</p>  <p>$12 \div 2 = ?$</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>$15 \div 3 = ?$</p>  <p><u>Multiplying by 4, 5 and 10: TG2A Unit 6 p182</u></p> <p>Key concepts: 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><u>Solving word problems 2: Multiplication and division: TG3A Unit 8 p205</u></p> <p>Key concept: solve one-step word problems on multiplication using model drawing.</p> <p><u>Mental calculations: TG3A Unit 9 p240</u></p> <p>Key concept: Commutative rule – reversing the order of groups and items in multiplication concept produces the same product.</p> <p>- <i>Mental multiplication</i></p> <p>Key concept: Division is the inverse of multiplication.</p> <p>- <i>Mental division</i></p> <p><u>Solving word problems: length, mass and volume: TG3B Unit 12 p67</u></p> <p><u>Key vocabulary</u></p> <ul style="list-style-type: none"> - thousands (<i>place value</i>): TG3A p10 - remainder, quotient: TG3A p175 - horizontally: TG3A p191 - vertically: TG3A p191 - finger counting method: TG3A p125 - short cut method: TG3A p128 - product: TG3A p147 			

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	<p>Key concepts: 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>Using models: Multiplication and division: TG2A Unit 7 p224</p> <p>Key concept: Represent the 'group and item' using models either with paper strips or drawing bars to find the number of items or groups.</p> <p>Length: TG2A Unit 8 p254</p> <p>Key concept: draw models to help solve word problems.</p> <p>- <i>Multiplication and division of length</i></p> <p>Mass: TG2A Unit 9 p291</p> <p>- <i>Multiplication and division of mass</i></p> <p>Money: TG2B Unit 11 p36</p> <p>- <i>Word problems: multiplication and division.</i></p> <p>Volume: TG2B Unit 14 p150</p> <p>- <i>Multiplication and division of volumes</i></p>	<ul style="list-style-type: none"> - one-step word problems: : TG3A p205 - double: TG3A p207 - to begin with: TG3A p208 - thrice: TG3A p213 			

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