

Progression of Key Concepts in Inspire Maths


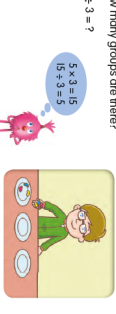
Multiplication and division (making connections between the units) with reference to the pages in the Teacher's Guide					
Inspire Maths 1	Inspire Maths 2	Inspire Maths 3	Inspire Maths 4	Inspire Maths 5	Inspire Maths 6
<p>Multiplication: TG1B Unit 14 p122</p> <p>Key concept: Multiplication is conceptualised as repeated addition. The \times (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? $2 + 2 + 2 = 6$ $3 \text{ twos} = 6$ $3 \text{ groups of } 2 = 6$</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>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. $3 + 3 + 3 = 9$</p> <p>2 There are 3 cows in each group. There are 5 cows in each group. Then count the number of groups. The number 3 is multiplied 5 times. $5 \times 3 = 5 + 3 + 3 = 15$</p> <p>There are 15 cows altogether.</p> <p>3 times 5 is equal to 15.</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 \div (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 \times width \times 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>$6 \div 2 = 3$</p> <p>There are 3 cherries in each group. 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> <ul style="list-style-type: none"> - Multiplying by 2: skip counting, using dot paper - Multiplying by 3: skip counting, using dot paper <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> <ul style="list-style-type: none"> - Divide a 1-digit or a 2-digit number by 1-digit number without remainder $8 \div 2 = ?$ <p>8 ones \div 2 = 4 ones with no remainder Quotient = 4 ones Remainder = 0 ones</p> <p>Each child gets 4 buckets. There are no buckets left.</p> <ul style="list-style-type: none"> - Divide a 1-digit or a 2-digit number by a 1-digit number with remainder - Divide a 2-digit number by a 1-digit number with no regrouping or remainder - Divide a 2-digit number by a 1-digit number with regrouping from tens to ones, with or without remainder - 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>Decimals (2): TG4B Unit 10 p77</p> <ul style="list-style-type: none"> - Multiply tenths by a 1-digit whole number - Multiplication involving tenths and ones - Multiplication involving tenths and hundredths - Division of tenths by a 1-digit whole number - Division involving tenths in which regrouping is necessary - Division involving ones, tenths and hundredths when regrouping is necessary <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> <ul style="list-style-type: none"> - factor: TG4A p42 - multiple: TG4A p47 - decimal: TG4B p6 - decimal place: TG4B p34 - exactly (division): TG4A p42 - common factor: TG4A p44 - common multiple: TG4A p48 - calculate: TG4A p71 - ratio: TG5A p248 - equivalent ratio: TG5A p253
			<p>Inspire Maths 5</p> <p>ZMean: TG5B Unit 9 p82</p> <p>Volume: TG5B Unit 14 p278</p> <p>- Volume = length x width x height</p> <p>Key vocabulary</p> <ul style="list-style-type: none"> - numbers one ten thousand to nine ten thousands (counting on in ten thousands): TG5A p6 - hundred thousand (place value): TG5A p6
			<p>Inspire Maths 6</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>$12 \div 2 = 6$</p> <p>$2 \times 6 = 12$ $12 \div 2 = 6$</p> <p>There are 6 pencil sharpeners in each group.</p> <p>- Grouping: making equal groups</p> <p>Divide 15 jelly beans into equal groups. There are 3 jelly beans in each group. How many groups are there? $15 \div 3 = ?$</p>  <p>$5 \times 3 = 15$ $15 \div 3 = 5$</p> <p>Multiplying by 4, 5 and 10: TG2A Unit 6 p182</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> <ul style="list-style-type: none"> - Multiplying by 4: skip counting, using dot paper - Multiplying by 5: skip counting, using dot paper - Multiplying by 10: skip counting, using dot paper 	<p>Solving word problems 2: Multiplication and division: TG3A Unit 8 p205</p> <p>Key concept: solve one-step word problems on multiplication using model drawing.</p> <p>Mental calculations: TG3A Unit 9 p240</p> <p>Key concept: Commutative rule – reversing the order of groups and items in multiplication concept produces the same product.</p> <ul style="list-style-type: none"> - Mental multiplication <p>Key concept: Division is the inverse of multiplication.</p> <ul style="list-style-type: none"> - Mental division <p>Solving word problems: length, mass and volume: TG3B Unit 12 p67</p> <p>Key vocabulary</p> <ul style="list-style-type: none"> - thousands (place value): 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> <ul style="list-style-type: none"> - <i>Sharing: finding the number of items in each group</i> - <i>Grouping: making equal groups</i> <p>Using models: <u>Multiplication and division: TG2A Unit 7 p224</u></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><u>Length: TG2A Unit 8 p254</u></p> <p>Key concept: draw models to help solve word problems.</p> <ul style="list-style-type: none"> - <i>Multiplication and division of length</i> <p><u>Mass: TG2A Unit 9 p291</u></p> <ul style="list-style-type: none"> - <i>Multiplication and division of mass</i> <p><u>Money: TG2B Unit 11 p36</u></p> <ul style="list-style-type: none"> - <i>Word problems: multiplication and division.</i> <p><u>Volume: TG2B Unit 14 p150</u></p> <ul style="list-style-type: none"> - <i>Multiplication and division of volumes</i> 	<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 				