

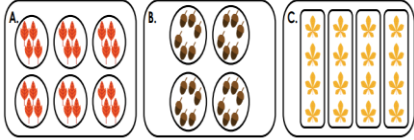
TERM 2 OVERVIEW YEAR 3 – Maths


Term 2 Book – The Lion, The Witch and The Wardrobe		
Topic(s) – Multiplication and Division		Guide Time = 7 weeks
Assessment:	Termly assessments White Rose end of unit assessments Teacher judgements	Very Important Points (VIPs): <u>Multiplication and Division</u> <ul style="list-style-type: none"> Groups need to be represented equally. Multiplying will produce a greater number. Dividing will produce a number which is less than the given number. Multiplication and division have an inverse relationship. Multiplication is commutative. Doubling connects the 2, 4 and 8 times table. Odd numbers 1, 3, 5, 7, 9 Even numbers 0, 2, 4, 6, 8 Multiplication facts can be used to work out division facts. Understand multiplication as scaling. Know the relationship between multiplication and repeated addition. Know the relationship between division and repeated subtraction. See connections between fractions and division. Fat Questions: What relationships can you find between a number of calculations?
Links to prior learning (sequencing) and canon book	<p style="text-align: center;"><u>Year 2 National Curriculum – Multiplication and Division</u></p> Pupils should be taught to: <ul style="list-style-type: none"> recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts 	
Links to other learning (cross fertilisation)	<u>PE</u> - Counting scored points e.g. If a goal (or other means of scoring points) is worth 3 points, how many points will you award the team who have scored 11 goals? <u>ICT</u> – Use of online games to support the rapid recall of number facts.	

	<p>Thematic questions:</p> <p><u>The world beyond us</u></p> <p>How do astronauts use multiplication and division?</p> <p><u>Modern Britain</u></p> <p>Have written methods changed over time?</p> <p><u>Healthy body, Healthy minds</u></p> <p>How can we apply our multiplication knowledge in sports? How can we apply our multiplication and division knowledge when scoring a in game of rugby?</p> <p><u>The world around us</u></p> <p>How will division assist us when being fair to others?</p> <p><u>Culture</u></p> <p>Can multiplication and division help us when planning a celebration?</p> <p><u>Technology in action</u></p> <p>Has the internet changed how we learn number facts?</p>	
Links to future learning	<p>The skills taught this half term will be applied and built upon throughout the year. In year 4, children will be introduced to the remaining times tables and multiplication facts as the year progresses. They will be able to apply their knowledge of multiplication and division to the numbers associated with the year 4 scheme of learning.</p>	
Character/Wider Development ('50 things', cultural capital, skills)	<p>50 Things are personal to each school. However, these skills help with life skills including spending 'pocket money' knowing and understanding how much you have to start with and what you have left.</p>	


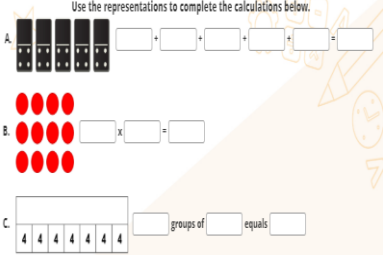
These skills also help with baking, working with bigger numbers and understanding their worth in real life situations.

OVERVIEW OF TEACHING SEQUENCE


Key Facts/Learning	Learning Focus or Key Question	Learning Outcomes (NC)	Key Words/Vocabulary	Greater Depth/SEND	Misconceptions	Activities and Resources
Multiplication and Division	To multiply using equal groups	Pupils should be taught to: <ul style="list-style-type: none"> recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit 	Equal Same as Groups Add Repeated addition Multiply Times	Use reasoning to correct mistakes Identify which options represent a given number with no pictorial representations. Sort a given number of items into groups finding different possibilities. SEND Provide pictorial/visual representations Use of objects and resources	Ensure that pupils understand that each group must have the same amount. Use visual representations to match verbal/written statements 1. Which of the options below represents 4 equal groups of 6? 	Classroom Secrets Step 1 https://classroomsecrets.co.uk/equal-groups-year-3-multiplication-and-division-free-resource-pack/ Third Space Learning lesson 1 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf

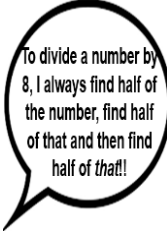

		numbers times one-digit numbers, using mental and progressing to formal written methods		to represent the group.			
	To multiply by 3	<ul style="list-style-type: none"> solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects 	Three times table Multiply Times Groups Array Product Groups of Lots of Multiplied by	Support knowledge of counting in 3s in order to multiply by 3 beyond 12 groups of 3 using their knowledge of the times tables facts up to 12 groups of 3. No pictorial support provided and includes numbers represented as words. SEND Support knowledge of counting in 3s in order to multiply by 3 (up to 12 groups of 3). All questions have pictorial support where each digit is represented.	Some pupils may still confuse x with + and miscalculate problems. Remind pupils of the vocabulary associated with x and use this as frequently as possible. Also it may be beneficial to show the answers e.g. $3 \times 3 = 9$ and $3 + 3 = 6$ Developing a secure understanding of the multiplication facts will also give less chance of incorrect calculations e.g. pupils may say "I know 3×4 is not 11 because that is not a multiple of 3". Use visual representations using cubes	 $3 + 3 + 3 + 3 + 3 = 15$ $5 \times 3 = 15$ <p>There are 15 cubes altogether.</p>	Classroom Secrets Step 2 https://classroomsecrets.co.uk/multiply-by-3-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 2 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf

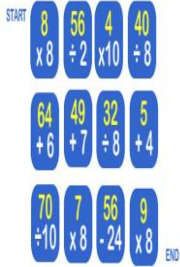
	To divide by 3		Groups Share Share equally Equal groups Divide by	When dividing groups or numbers by 3, pupils can create their own pictorial representations. Use multiple clues to support division problems. SEND Use of practical resources to share into groups such as counters or cubes.	During practical sharing tasks pupils may not share into equal groups and this can cause confusion when groups are not equal. Encourage all pupils who are making pictorial and visual representations to check that all groups are equal before deciding their answer.	Classroom Secrets Step 3 https://classroomsecrets.co.uk/divide-by-3-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 3 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf
	To know the 3 times table		Three times table Multiply Times Groups Array Product Groups of Lots of Multiplied by	Explain what the nth shape in a pattern of 3 would be, using multiples of 3 up to 12 x 3 with numerals and words. No scaffolding or pictorial support. SEND Video clips are available on CS for further support. Ensure that the pupils have access to multiplication	Rapid recall of multiplication facts is an essential skill that all pupils should aim to develop. Use of online support such as TTRockstars will provide opportunities for pupils to increase their speed and accuracy. Teachers can set individual times tables and should monitor their class progress, providing extra support if required. If pupils are over relying on visual resources to solve calculations provide the facts that they find the most difficult to remember e.g. 12x3=36 but encourage rapid recall of others. Provide opportunities to look for mistakes e.g.	Classroom Secrets Step 4 https://classroomsecrets.co.uk/the-3-times-table-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 4 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf

	To multiply by 4		Four times table Multiply Times Groups Array Product Groups of Lots of Multiplied by	grids and written and pictorial representations of the 3 times table. Think about multiplication as scaling You can also help your child by introducing the idea of multiplication as scaling in the real world. Scaling is used when we use multiplication to change the size of the original quantity. For example: 'If you have saved £12 and I have saved four times as much as you, how much money have I saved?' SEND Classroom Secrets has a multiplication and division learning video that may be	Which is different?  To alleviate some misconceptions allow time to discuss the visual representations along with correct vocabulary:  Use the representations to complete the calculations below. A. $\square + \square + \square + \square + \square = \square$ B. $\square \times \square = \square$ C. \square groups of \square equals \square Ensure that pupils are given regular opportunities to recall the multiplication facts for the 4 times table and understand the relationship between repeated addition and multiplication. Provide pictorial and real life representations of reasoning and problem solving tasks.	Classroom Secrets Step 5 https://classroomsecrets.co.uk/multiply-by-4-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 5 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf
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				useful alongside visual representations.		
	To divide by 4		Groups Share Share equally Equal groups Divide by		<p>Pupils will need to tell the difference between odd and even numbers. When dividing by four children will be using even numbers to share equally.</p> <p>Pupils understanding of inverse when calculating division problems will enable them to use this strategy when calculating e.g. When solving $8 \div 4$, pupils may count in steps of four to find out how many groups of 4 there are in 8.</p>	<p>Classroom Secrets Step 6 https://classroomsecrets.co.uk/divide-by-4-year-3-multiplication-and-division-resource-pack/</p> <p>Third Space Learning lesson 6 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3)</p> <p>White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf</p>
	To know the 4 times table		Four times table Multiply Times Groups Array Product Groups of Lots of Multiplied by	Use addition statements and write as multiplication statements e.g. $2+2+2+2+4=$	Fact Families are effective when showing the inverse calculations however teachers must check pupils' understanding as they may make mistakes with the division e.g. $6 \times 4 = 24$ $4 \times 6 = 24$ $6 \div 4 = 24$ $4 \div 6 = 24$	<p>Classroom Secrets Step 7 https://classroomsecrets.co.uk/the-4-times-table-year-3-multiplication-and-division-resource-pack/</p> <p>Third Space Learning lesson 7 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3)</p> <p>White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf</p>

				<p>SEND Use of arrays to support</p>  <p>The following calculations could be made using this array:</p> <ul style="list-style-type: none"> 4+4+4=12 3+3+3+3=12 4x3=12 3x4=12 12÷4=3 12÷3=4 		
	<p>To multiply by 8</p>		<p>Eight times table Multiply Times Groups Array Product Groups of Lots of Multiplied by</p>	<p>Find other possibilities to represent multiplication facts e.g.</p> <p>$2 \times 8 + 7 \times 8 = 72$</p> <p>SEND Make a visual representation or maths story to represent the 8 times table e.g. There are 3 octopi, how many legs altogether?</p>	<p>Pupils may be using column method for some calculations when appropriate. Teachers need to ensure that this is done correctly. Use the resource wall/display for modelling good examples.</p>	<p>Classroom Secrets Step 8 https://classroomsecrets.co.uk/multiply-by-8-year-3-multiplication-and-division-resource-pack/</p> <p>Third Space Learning lesson 8 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3)</p> <p>White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf</p>

	To divide by 8		Groups Share Share equally Equal groups Divide by	Represent problem solving using part-whole method and bar models.  SEND find connections between dividing by 8 and halving... 16 halved = 8 8 halved = 4 4 halved = 2 so $16 \div 8 = 2$	Use digit cards and visual representations to organise the division calculation in the correct order. 4a. Create two number sentences using the cards below. 	Classroom Secrets Step 9 https://classroomsecrets.co.uk/divide-by-8-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 9 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf												
	To know the 8 times table		Eight times table Multiply Times Groups Array Product Groups of Lots of Multiplied by	Apply knowledge and create own versions of games/mazes like the example below:	<table style="width: 100%; text-align: center;"> <tr> <td>$1 \times 2 = 2$</td> <td>$1 \times 4 = 4$</td> <td>$1 \times 8 = 8$</td> </tr> <tr> <td>$2 \times 2 = 4$</td> <td>$2 \times 4 = 8$</td> <td>$2 \times 8 = 16$</td> </tr> <tr> <td>$3 \times 2 = 6$</td> <td>$3 \times 4 = 12$</td> <td>$3 \times 8 = 24$</td> </tr> <tr> <td>$4 \times 2 = 8$</td> <td>$4 \times 4 = 16$</td> <td>$4 \times 8 = 32$</td> </tr> </table> <p>Pupils continue to practise their mental recall of multiplication tables when they are calculating mathematical statements in order to improve fluency. Through doubling,</p>	$1 \times 2 = 2$	$1 \times 4 = 4$	$1 \times 8 = 8$	$2 \times 2 = 4$	$2 \times 4 = 8$	$2 \times 8 = 16$	$3 \times 2 = 6$	$3 \times 4 = 12$	$3 \times 8 = 24$	$4 \times 2 = 8$	$4 \times 4 = 16$	$4 \times 8 = 32$	Classroom Secrets Step 10 https://classroomsecrets.co.uk/the-8-times-table-year-3-multiplication-and-division-resource-pack/ Third Space Learning lesson 10 (Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3) White Rose Maths Hub https://wrm-13b48.kxcdn.com/wp-content/uploads/2019/SoLs/Primary/Autumn2019-20/Year-3-Autumn-Block-3-Number-Multiplication-and-Division.pdf
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				 <p>START</p> <p>8 x 8 = 64 56 ÷ 7 = 8 4 x 10 = 40 40 ÷ 8 = 5</p> <p>64 ÷ 8 = 8 49 ÷ 7 = 7 32 ÷ 8 = 4 5 x 4 = 20</p> <p>70 ÷ 10 = 7 7 x 8 = 56 24 ÷ 8 = 3 9 x 8 = 72</p> <p>END</p> <p>SEND relate to real objects/life</p> <p>Activity: There are eight fish in each tank. Can you complete the missing numbers?</p> <p>a) ___ tanks contain 24 fish. ... x ... = 24</p> <p>b) 9 tanks contain ___ fish. 9 x ... = ___</p> <p>c) ___ tanks contain 32 fish. ... x ... = 32</p> <p>d) 12 tanks contain ___ fish. 12 x ... = ___</p> <p>Look for examples on the Third Space Learning PowerPoints</p>	<p>they connect the 2, 4 and 8 multiplication tables.</p>
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Context (big picture learning)

Mathematics is an important, creative discipline that helps us to understand and change the world. We want all of our children within the Pontrfract Academies Trust to experience all that mathematics has to offer and to develop a sense of curiosity about the subject with a clear understanding. When they leave us we want them to continue their love of maths and use it continuously and positively in their future lives.

We foster a positive 'growth mind-set' attitude and we promote the fact that we believe that all children can achieve in mathematics. We teach for secure and deep understanding of mathematical concepts through manageable, bespoke steps and cross fertilize at every opportunity. VIPs (Very Important Points) are implemented in every lesson to ensure knowledge and skills are revisited and retained over time. We use mistakes and misconceptions as an essential part of learning and provide challenge through rich and sophisticated reasoning and problem solving activities. At our school, the majority of children will be taught the content from their year group only. They will spend time becoming true masters of content, applying and being creative with new knowledge in multiple ways

Children will further their understanding of multiplication and division. This will show a clear progression from KS1 and ensure children are prepared with the skills and knowledge when completing formative assessments. By building on the Mathematical foundations they have already secured, it will result in the development of skills, which can be applied into the world around them. Once children have secured the knowledge and skills required in year 3 it will ensure they are ready to progress into year 4 confidently and deepen their learning.

Link to resources – see above

Folder name (**Trust shared > Primaries > KS2 > Year 3/4 Planning > Maths – YEAR 3**)

VIPs

Groups need to be represented equally.
Multiplying will produce a greater number.

Dividing will produce a number which is less than the given number.

Multiplication and division have an inverse relationship.

Multiplication is commutative.

Doubling connects the 2, 4 and 8 times table.

Odd numbers: 1, 3, 5, 7, 9

Even numbers: 0, 2, 4, 6, 8

Multiplication facts can be used to work out division facts.

Understand multiplication as scaling.

Know the relationship between multiplication and repeated addition.

Know the relationship between division and repeated subtraction.

See connections between fractions and division.

Equivalent means equal in value.

Inverse

$$4 \times 5 = 20 \quad 20 \div 4 = 5$$

Times table knowledge will help to work out a division question.

Equal groups

Each group must have the same amount for it to be an equal group.



There are three equal groups of 7. There are 21 altogether.

$$7 + 7 + 7 = 21$$

You can then represent these groups in an addition number sentence to find out how many there are altogether.

Multiplying by adding/counting

You can use adding and counting in 3s to start multiplying by 3.

$$3 + 3 + 3 + 3 = 12$$

$$3 \times 4 = 12$$

Multiplying by grouping



There are 6 dice with 4 dots on each

There are 6 fours.

$$\underline{6} \times \underline{4} = \underline{24} \text{ dots}$$

Key vocabulary

Equal, same as, groups, add, repeated addition, multiply, times, array, product, groups of, lots of, multiplied by, share equally, equal groups, divide by, sharing, equal, equivalent, inverse, calculation, calculating, place value, whole number, fact family, pictorial representation

Fat Questions

What relationships can you find between a number of calculations?

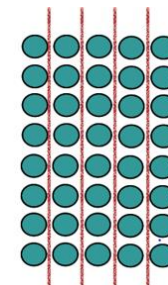
Are pictorial representations always the most appropriate when dividing?

When might you use multiplication or division in real life?

3, 4 & 8 Times Tables

3x table	4x table	8x table
$1 \times 3 = 3$	$1 \times 4 = 4$	$1 \times 8 = 8$
$2 \times 3 = 6$	$2 \times 4 = 8$	$2 \times 8 = 16$
$3 \times 3 = 9$	$3 \times 4 = 12$	$3 \times 8 = 24$
$4 \times 3 = 12$	$4 \times 4 = 16$	$4 \times 8 = 32$
$5 \times 3 = 15$	$5 \times 4 = 20$	$5 \times 8 = 40$
$6 \times 3 = 18$	$6 \times 4 = 24$	$6 \times 8 = 48$
$7 \times 3 = 21$	$7 \times 4 = 28$	$7 \times 8 = 56$
$8 \times 3 = 24$	$8 \times 4 = 32$	$8 \times 8 = 64$
$9 \times 3 = 27$	$9 \times 4 = 36$	$9 \times 8 = 72$
$10 \times 3 = 30$	$10 \times 4 = 40$	$10 \times 8 = 80$
$11 \times 3 = 33$	$11 \times 4 = 44$	$11 \times 8 = 88$
$12 \times 3 = 36$	$12 \times 4 = 48$	$12 \times 8 = 96$

Dividing by grouping



$$40 \div 8 = 5$$

There are 5 groups of 8 in 40.

Intent

To build on times table knowledge and count from 0 in multiples of 3, 4 and 8. To recall and use multiplication and division facts for the 3, 4 and 8 times tables. Using the multiplication tables they know, write and calculate mathematical statements for multiplication and division by using mental and written methods. To solve problems, including missing number problems, involving multiplication and division.

