Multiplication			
Year 5	Year 6		
Basic to subject specific (Beck's Tiers): lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times ten times times as (big, long, wide and so on) repeated addition array row, column double, halve share, share equally factor, multiple, prime, composite, cube numbers, prime numbers, square numbers common factors, prime number, prime factors, composite numbers Instructional vocabulary: carry on, continue, repeat what comes next? predict describe the pattern, describe the rule,	 Basic to subject specific (Beck's Tiers): lots of, groups of times, multiply, multiplication, multiplied by multiple of, product once, twice, three times ten times times as (big, long, wide and so on) repeated addition array row, column double, halve share, share equally, factor, multiple, prime, composite, common factor Instructional vocabulary: carry on, continue, repeat what comes next? predict describe the pattern, describe the rule find, find all, find different investigate 		
 find, find all, find different investigate Generalisation Relating arrays to an understanding of square numbers and making cubes to show cube numbers. Understanding that the use of scaling by multiples of 10 can be used to convert between units of measure (e.g. metres to kilometres means to times by 1000) Some Key Questions What do you notice? What's the same? What's different? Can you convince me? How do you know?	Generalisations Order of operations: brackets first, then multiplication and division (left to right) before addition and subtraction (left to right). Children could learn an acrostic such as PEMDAS, or could be encouraged to design their own ways of remembering. Understanding the use of multiplication to support conversions between units of measurement. Some Key Questions What do you notice? What's the same? What's different? Can you convince me? How do you know?		
 How do you know this is a prime number? NC 2014: Multiply numbers up to 4 digits by a 1 or 2 digit number using a formal written method, including long multiplication for 2 digit numbers Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates 	NC2014: Multiply multi-digit numbers up to 4 digits by a 2 digit whole number using the formal written method of long multiplication. Solve problems involving addition, subtraction, multiplication and division.		

Children should continue to count regularly, on and back, now including steps of powers of 10. Consolidate previous years. Multiply by 10, 100, including decimals (Moving Digits ITP) Children should experiment with order of operations, investigating the effect of positioning the backets in different places, e.g. $20 - 5 \times 3 = 5$; $(20 - 5) \times 3 = 45$ They should be encouraged to choose from a range of strategies to solve problems mentally: Partitioning using x10, x20 etc - Doubling to solve x2, x4, x8 - Decommutativity of multiplication If children know the times table facts to 12 x 12. Can they use this to recite other times tables (e.g. the 13 times tables or the 24 times table) - ThHTU x TU and HTU x TU and including decimals. Start with long multiplication, reminding the children about lining up their numbers clearly ir columns.	Mental Strategies			Mental Strategies					
10. Multiply by 10, 100, 1000, including decimals (Moving Digits ITP) The number line should continue to be used as an important image to support thinking, and the use of informal jottings should be encouraged. They should be encouraged to choose from a range of strategies to solve problems mentally: - Partitioning using x10, x20 etc - Doubling to solve x2, x4, x8 - Recall of times tables - Use of commutativity of multiplication If children know the times table facts to 12 x 12. Can they use this to recite other times tables (e.g. the 13 times tables or the 24 times table) - ThHTU x TU and HTU x TU and including decimals. Show the link with arrays to first Zoncrete, pictorial abstract: 7	Children should continue to count regularly, on and back, now including steps of powers of		Consolidate previous years.						
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	Show the link	with arrays to first					7	4	
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18 This moves to the more compact method			-	18 This mov	estot	he m	ore c	omn	act method
Pictorial Abstract x 13	Pictorial Abstract		x 13			act method.			
Start with long multiplication, reminding	X 10 8 Start with long multiplication, reminding the children about lining up their numbers clearly in columns.		24 (2 × 8)			24	2		
numbers clearly in columns.			24 (5 × 8)			. 54	2		
10 0 0 00 18 30 (3 x 10)) X 18	10 0 0 000	18		30 (3 x 10))		X	14	5	
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80 (10 x 8) 24 100 (10 x 10) 224 156			200 (20 × 20)		24	115	6		
		234		234			44	_	
τυ x τυ	ΤU × ΤU								
78	78								
$\frac{x42}{16(2 \times 8)}$	$\frac{x 42}{10}$								

140 (2 x 70)	
320 (40 x 8)	
+2800 (40 x 70)	
3276	
Compact (long)	
compact (long)	
78	
<u>x42</u>	
156	
<u>+3120</u>	
<u>3276</u>	
Compact method	
Children can continue to be supported by	
all and the accurate on at the action of	
place value counters at the stage of	
multiplication	
matipication.	
6473 = 192	
It is important at this stage that they always	
multiply the ones first and note down their	
multiply the ones first and note down their	
answer followed by the tens which they note	
answer followed by the tens which they note	
below.	
1	

Bar model learners w multiplica methods.	lling and number lines can support then solving problems with tion alongside the formal written x + 59 x + 59 x + 60 = 480 48 - 5 = 480 48 - 5 = 480 48 - 5 = 480 48 - 5 = 480 41 - 5 = 480 41 - 5 = 400 41 - 5 = 400			
Known facts	Know and use the vocabulary of prime numbers, prime fact composite (non-prime) numbers	tors and	Identify common factors, common multiples and prime number	rs
	Recall prime numbers up to 19			
	Recognise and use square and cube numbers and the notat and cubed (³)	ion for squared (²)		
Essential knowledge	4x and 8x tables	100, 1000 times bigger	Multiplication facts up to 12 x 12	Partition to multiply mentally
	3x, 6x and 12x tables; 3x and 9x tables	10, 100, 1000 times smaller	Apply place value to derive multiplication facts, e.g. $3 \times 4 = 12$ so $3 \times 0.4 = 1.2$	Double larger numbers and decimals

11x and 7x tables	Double larger	
	numbers and	
	decimals	