**Chilton Community Primary School** 

Respect, Believe, Achieve

Power Maths calculation policy, UPPER KS2





# **KEY STAGE 2**

In upper Key Stage 2, children build on secure foundations in calculation, and develop fluency, accuracy and flexibility in their approach to the four operations. They work with whole numbers and adapt their skills to work with decimals, and they continue to develop their ability to select appropriate, accurate and efficient operations.

Key language: decimal, column methods, exchange, partition, mental method, ten thousand, hundred thousand, million, factor, multiple, prime number, square number, cube number

Addition and subtraction: Children build on their column methods to add and subtract numbers with up to seven digits, and they adapt the methods to calculate efficiently and effectively with decimals, ensuring understanding of place value at every stage. Children compare and contrast methods, and they select mental methods or jottings where appropriate and where these are more likely to be efficient or accurate when compared with formal column methods. Bar models are used to represent the calculations required to solve problems and may indicate where efficient methods can be chosen.	Multiplication and division: Building on their understanding, children develop methods to multiply up to 4-digit numbers by single-digit and 2-digit numbers. Children develop column methods with an understanding of place value, and they continue to use the key skill of unitising to multiply and divide by 10, 100 and 1,000. Written division methods are introduced and adapted for division by single-digit and 2-digit numbers and are understood alongside the area model and place value. In Year 6, children develop a secure understanding of how division is related to fractions. Multiplication and division of decimals are also introduced and refined in Year 6.	<b>Fractions:</b> Children find fractions of amounts, multiply a fraction by a whole number and by another fraction, divide a fraction by a whole number, and add and subtract fractions with different denominators. Children become more confident working with improper fractions and mixed numbers and can calculate with them. Understanding of decimals with up to 3 decimal places is built through place value and as fractions, and children calculate with decimals in the context of measure as well as in pure arithmetic. Children develop an understanding of percentages in relation to hundredths, and they understand how to work with common percentages: 50%, 25%, 10% and 1%.



	Year 5			
	Concrete	Pictorial	Abstract	
Year 5 Addition				
Column addition with whole numbers	Use place value equipment to represent additions. Add a row of counters onto the place value grid to show 15,735 + 4,012.	Represent additions, using place value equipment on a place value grid alongside written methods. $\frac{TTh}{\bigcirc} Th \\ H \\ T \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0$	Use column addition, including exchanges. TTh Th H T O 1 9 1 7 5 + 1 8 4 1 7 3 7 5 9 2 1 1	
Representing additions		Bar models represent addition of two or more numbers in the context of problem solving. $\begin{array}{c c} \hline & & & \\ \hline & & & $	Use approximation to check whether answers are reasonable. $\frac{TTh Th H T O}{2 3 4 0 5} \qquad \frac{TTh Th H T O}{2 3 4 0 5} + \frac{7 8 9 2}{2 0 2 9 7} + \frac{7 8 9 2}{3 1 2 9 7} + \frac{7 8 9 2}{3 1 2 9 7}$	



Adding tenths	Link measure with addition of decimals. <i>Two lengths of fencing are 0.6 m and</i> <i>0.2 m.</i> <i>How long are they when added together?</i> 0.6 m 0.2 m	Use a bar model with a number line to add tenths. $\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Understand the link with adding fractions. $\frac{6}{10} + \frac{2}{10} = \frac{8}{10}$ 6 tenths + 2 tenths = 8 tenths 0.6 + 0.2 = 0.8
	***************************************	0.6 + 0.2 = 0.8 6 tenths + 2 tenths = 8 tenths	
Adding decimals using column addition	Use place value equipment to represent additions. Show 0.23 + 0.45 using place value counters.	Use place value equipment on a place value grid to represent additions. Represent exchange where necessary. $\underbrace{\begin{array}{c c} \hline & \hline & Tth & Hth \\ \hline & \bullet & \bullet & \bullet \\ \hline & \bullet &$	Add using a column method, ensuring that children understand the link with place value. $\frac{O \cdot \text{Tth Hth}}{0 \cdot 2 \cdot 3}$ + $\frac{0 \cdot 4 \cdot 5}{0 \cdot 6 \cdot 8}$ Include exchange where required, alongside an understanding of place value. $\frac{O \cdot \text{Tth Hth}}{0 \cdot 9 \cdot 2}$ + $\frac{0 \cdot 3 \cdot 3}{1 \cdot 2 \cdot 5}$ Include additions where the numbers of
		$+ \frac{1 \cdot 2 \cdot 5}{6 \cdot 2 \cdot 5}$	decimal places are different. $3.4 + 0.65 = ?$ $\frac{0 \cdot \text{Tth Hth}}{3 \cdot 4  0}$ $+ 0 \cdot 6  5$ $-$

Year 5 Subtraction			
Column subtraction with whole numbers	Use place value equipment to understand where exchanges are required. 2,250 – 1,070	Represent the stages of the calculation using place value equipment on a grid alongside the calculation, including exchanges where required. $15,735 - 2,582 = 13,153$ TThThTTh	Use column subtraction methods with exchange where required. $\frac{\text{TTh Th H T O}}{\frac{5}{6}   \mathcal{I}  ^{2}   0  ^{2}   0  ^{2}   7  ^{2}}$ $-\frac{1 8 5 3 4}{4 3 5 6 3}$ $62,097 - 18,534 = 43,563$
Checking strategies and representing subtractions		Bar models represent subtractions in problem contexts, including 'find the difference'. Athletics Stadium 75,450 Hockey Centre $42.300$ Velodrome 15,735 $\xrightarrow{?}$	Children can explain the mistake made when the columns have not been ordered correctly. $\begin{bmatrix} \frac{TTh Th H T 0}{7 8 7 7} \\ \frac{4}{5 7 9 9 7} \end{bmatrix} \xrightarrow{[TTh Th H T 0]{17 8 7 7}}_{\frac{4}{5 7 9 9 7}} \xrightarrow{[TTh Th H T 0]{17 8 7 7}}_{\frac{4}{2} 1 8 8 9}$ Use approximation to check calculations. <i>I calculated 18,000 + 4,000 mentally to check my subtraction.</i>



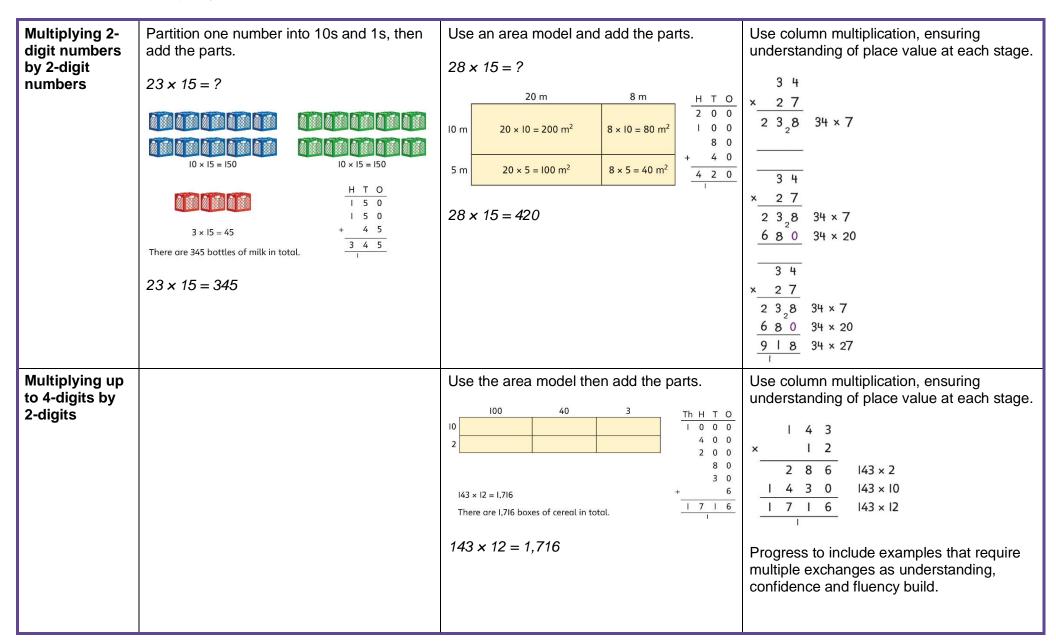
Choosing efficient methods			To subtract two large numbers that are close, children find the difference by counting on. 2,002 - 1,995 = ? 45 - 45 - 42 - 42 - 42 - 42 - 42 - 42 -
Subtracting decimals	Explore complements to a whole number by working in the context of length. 0.49  m 1  m - 0  m = 0  m 1 - 0.49 = ?	Use a place value grid to represent the stages of column subtraction, including exchanges where required. $5 \cdot 74 - 2 \cdot 25 = ?$ $\bigcirc & Tth & Hth \\ \hline \odot & \odot$	Use column subtraction, with an understanding of place value, including subtracting numbers with different numbers of decimal places. $3 \cdot 921 - 3 \cdot 75 = ?$ $\frac{0 \cdot \text{Tth } \text{Hth } \text{Thth}}{3 \cdot 9 + 2 + 1}$ $-\frac{3 \cdot 7 + 5 + 0}{-3 \cdot 7 + 5 + 0}$

Year 5 Multiplication			
Understanding factors	Use cubes or counters to explore the meaning of 'square numbers'.	Use images to explore examples and non- examples of square numbers.	Understand the pattern of square numbers in the multiplication tables.
	25 is a square number because it is made from 5 rows of 5.	3338	Use a multiplication grid to circle each square number. Can children spot a
	Use cubes to explore cube numbers.	$8 \times 8 = 64$	pattern?
	8 is a cube number.	8 <sup>2</sup> = 64 12 is not a square number, because you	
		cannot multiply a whole number by itself to make 12.	
Multiplying by 10, 100 and 1,000	Use place value equipment to multiply by 10, 100 and 1,000 by unitising. $\frac{4 \times I = 4 \text{ ones} = 4}{4 \times I0 = 4 \text{ tens} = 40}$	Understand the effect of repeated multiplication by 10.	Understand how exchange relates to the digits when multiplying by 10, 100 and 1,000.
	4 × 100 = 4 hundreds = 400		<b>I 7</b> 17 × 10 = 170 17 × 100 = 17 × 10 × 10 = 1,700
			$17 \times 1,000 = 17 \times 10 \times 10 = 1,700$ $17 \times 1,000 = 17 \times 10 \times 10 \times 10 = 17,000$

Power Maths calculation policy

Multiplying by multiples of 10, 100 and 1,000	Use place value equipment to explore multiplying by unitising.	Use place value equipment to represent how to multiply by multiples of 10, 100 and 1,000. Use known facts and unitising to multiply. $5 \times 4 = 20$ $5 \times 40 = 2,000$ $5 \times 400 = 2,000$ $5 \times 4,000 - 20,000$ $5,000 \times 4 = 20,000$ $5,000 \times 4 = 20,000$
Multiplying up to 4-digit numbers by a single digit	Explore how to use partitioning to multiply efficiently. $8 \times 17 = ?$ $8 \times 10 = 80$ $8 \times 10 = 80$ $8 \times 7 = 56$ 80 + 56 = 136 So, $8 \times 17 = 136$	Represent multiplications using place value equipment and add the 1s, then 10s, then 100s, then 1,000s.Use an area model and then add the parts. $H$ $T$ $O$ $00$ $3$ $H$ $T$ $O$ $60$ $3$ $00$ $00$ $00$ $3$ $5$ $00$ $00$ $00$ $3$ $5$ $00$ $00$ $00$ $3$ $5$ $00$ $00$ $00$ $3$ $5$ $00$ $00$ $00$ $00$ $3$ $00$ <t< th=""></t<>







			$1,274 \times 32 = ?$ First multiply 1,274 by 2. $x = \frac{32}{25,48} = \frac{1,274 \times 2}{1,274 \times 2}$ Then multiply 1,274 by 30. $x = \frac{32}{25,48} = \frac{1,274 \times 2}{1,274 \times 30}$ Finally, find the total. $1 = 2 = 7 = 4$ $x = \frac{3}{2} = \frac{2}{2} = \frac{1,274 \times 2}{1,274 \times 30}$ Finally, find the total. $1 = 2 = 7 = 4$ $x = \frac{3}{2} = \frac{2}{2} = \frac{2}{5} = 4 = \frac{1,274 \times 2}{1,274 \times 30}$ Finally, find the total. $1 = 2 = 7 = 4$ $x = \frac{3}{2} = \frac{2}{2} = \frac{2}{5} = 4 = \frac{1,274 \times 2}{1,274 \times 30}$ $\frac{3}{4} = \frac{2}{7} = \frac{2}{6} = \frac{1,274 \times 30}{1,274 \times 30}$ $\frac{3}{4} = \frac{2}{7} = \frac{2}{6} = \frac{1,274 \times 30}{1,274 \times 32}$ $\frac{1}{1,274 \times 32} = 40,768$
Multiplying decimals by 10, 100 and 1,000	Use place value equipment to explore and understand the exchange of 10 tenths, 10 hundredths or 10 thousandths.	Represent multiplication by 10 as exchange on a place value grid.	Understand how this exchange is represented on a place value chart. Th H T O • Tth 2.5 × 10 = 25 2.5 × 100 = 250 2.5 × 1,000 = 2,500 2 5 0 0 • 0



Use equipment to explore the factors of a given number. $24 \div 3 = 8$ $24 \div 8 = 3$ 8 and 3 are factors of 24 because they divide 24 exactly. $24 \div 5 = 4$ remainder 4.	Understand that prime numbers are numbers with exactly two factors. $13 \div 1 = 13$ $13 \div 2 = 6 r 1$ $13 \div 4 = 4 r 1$ 1 and 13 are the only factors of 13. 13 is a prime number.	Understand how to recognise prime and composite numbers. <i>I know that 31 is a prime number because it</i> <i>can be divided by only 1 and itself without</i> <i>leaving a remainder.</i> <i>I know that 33 is not a prime number as it</i> <i>can be divided by 1, 3, 11 and 33.</i> <i>I know that 1 is not a prime number, as it</i>
$24 \div 3 = 8$ $24 \div 8 = 3$ 8  and  3  are factors of  24  because they divide $24 \text{ exactly.}$ $24 \div 5 = 4 \text{ remainder 4.}$	$13 \div 2 = 6 r 1$ $13 \div 4 = 4 r 1$ 1 and 13 are the only factors of 13.	can be divided by only 1 and itself without leaving a remainder. I know that 33 is not a prime number as it can be divided by 1, 3, 11 and 33.
B and 3 are factors of 24 because they divide 24 exactly. 24÷5=4 remainder 4.		can be divided by 1, 3, 11 and 33.
00000		I know that 1 is not a prime number. as it
		has only 1 factor.
b is not a factor of 24 because there is a remainder.		
Use equipment to group and share and to explore the calculations that are present.	Represent multiplicative relationships and explore the families of division facts.	Represent the different multiplicative relationships to solve problems requiring inverse operations.
l have 28 counters. I made 7 groups of 4. There are 28 in total.		$12 \div 3 = $ $12 \div = 3$ $12 \div = 3$ $12$ $x = 12$ $x = 3$
I have 28 in total. I shared them equally into 7 groups. There are 4 in each group. I have 28 in total. I made groups of 4. There are 7 equal groups.	$60 \div 4 = 15$ $60 \div 15 = 4$	Understand missing number problems for division calculations and know how to solve them using inverse operations. $22 \div ? = 2$ $22 \div 2 = ?$ ? $\div 2 = 22$
	is not a factor of 24 because there is a emainder. se equipment to group and share and to kplore the calculations that are present. have 28 counters. made 7 groups of 4. There are 28 in total. have 28 in total. I shared them equally into groups. There are 4 in each group. have 28 in total. I made groups of 4. There	is not a factor of 24 because there is a semainder. se equipment to group and share and to compose the calculations that are present. have 28 counters. made 7 groups of 4. There are 28 in total. have 28 in total. I shared them equally into groups. There are 4 in each group. have 28 in total. I made groups of 4. There

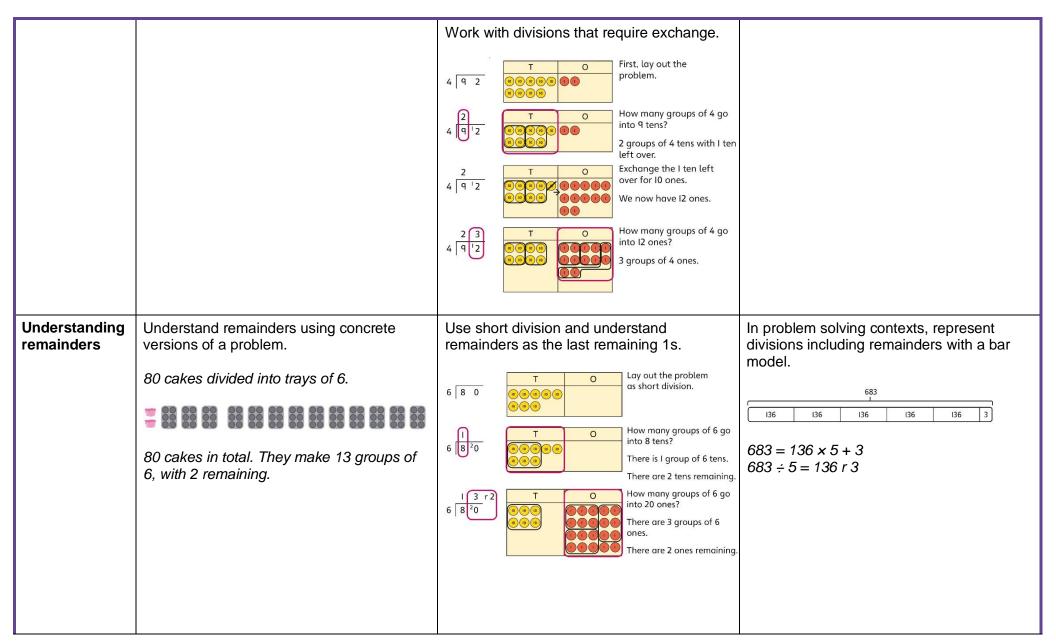
# Power Maths calculation policy

Dividing whole numbers by 10, 100 and	Use place value equipment to support unitising for division.	Use a bar model to support dividing by unitising.	Understand how and why the digits change on a place value grid when dividing by 10, 100 or 1,000.
1,000	4,000 ÷ 1,000 4,000 4,000 is 4 thousands. 4 × 1,000= 4,000 So, 4,000 ÷ 1,000 = 4	$380 \div 10 = 38$ $380$ $7 = 7 = 7 = 7 = 7 = 7 = 7 = 7 = 7 = 7 =$	Th       H       T       0         3       2       0       0 $3,200 \div 100 = ?$ $3,200 \div 3$ thousands and 2 hundreds. $200 \div 100 = 2$ $3,000 \div 100 = 30$ $3,200 \div 100 = 32$ So, the digits will move two places to the right.
Dividing by multiples of 10, 100 and 1,000	Use place value equipment to represent known facts and unitising. <b>15</b> ones put into groups of 3 ones. There are 5 groups. <b>15</b> tens put into groups of 3 tens. There are 5 groups. <b>15</b> $\div$ 3 = 5 <b>15</b> tens put into groups of 3 tens. There are <b>5</b> groups. <b>15</b> $\div$ 30 = 5	Represent related facts with place value equipment when dividing by unitising.	Reason from known facts, based on understanding of unitising. Use knowledge of the inverse relationship to check. $3,000 \div 5 = 600$ $3,000 \div 50 = 60$ $3,000 \div 500 = 6$ $5 \times 600 = 3,000$ $50 \times 60 = 3,000$ $500 \times 6 = 3,000$



		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
Dividing up to four digits by a single digit using short division	Explore grouping using place value equipment. 268 ÷ 2 = ? There is 1 group of 2 hundreds. There are 3 groups of 2 tens. There are 4 groups of 2 ones. 264 ÷ 2 = 134	Use place value equipment on a place value grid alongside short division. The model uses grouping. A sharing model can also be used, although the model would need adapting. $4 \boxed{4 \ 8} \qquad \boxed{1 \ 0} \\ 0 \boxed{0 \ 0} \hline 0 \hline{0 \ 0} \\ 0 \boxed{0 \ 0} \hline 0 $	Use short division for up to 4-digit numbers divided by a single digit. $\begin{array}{r} 0 & 5 & 5 & 6 \\ 7 & 3 & ^38 & ^3q & ^42 \end{array}$ 3,892 $\div$ 7 = 556 Use multiplication to check. 556 $\times$ 7 = ? $6 \times 7 = 42$ $50 \times 7 = 350$ $500 \times 7 = 3500$ 3,500 + 350 + 42 = 3,892





Dividing decimals by 10, 100 and	Understand division by 10 using exchange.	Represent division using exchange on a place value grid.	Understand the movement of digits on a place value grid.
1,000	2 ones are 20 tenths. 20 tenths divided by 10 is 2 tenths.	$\begin{array}{c c} \hline \circ & & \hline & \hline & & \hline & & \hline & & \hline & \hline & \hline & \hline & & \hline \hline & \hline & \hline \hline & \hline & \hline \hline\hline \hline $	$0 \cdot 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$
Understanding the relationship between fractions and division	Use sharing to explore the link between fractions and division. <i>1 whole shared between 3 people.</i> <i>Each person receives one-third.</i>	Use a bar model and other fraction representations to show the link between fractions and division. $I \div 3 = \frac{1}{3}$	Use the link between division and fractions to calculate divisions. $5 \div 4 = \frac{5}{4} = 1\frac{1}{4}$ $11 \div 4 = \frac{11}{4} = 2\frac{3}{4}$



		Year 6	
	Concrete	Pictorial	Abstract
Year 6 Addition			
Comparing and selecting efficient methods	Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods.	Discuss similarities and differences between methods, and choose efficient methods based on the specific calculation. Compare written and mental methods alongside place value representations. +3,000 + +500 + +20	Use column addition where mental methods are not efficient. Recognise common errors with column addition. $32,145 + 4,302 = ?$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{TTh Th H T 0}{3 2 1 4 5}$ $\frac{14 3 0 2}{7 5 1 6 5}$ $Which method has been completedaccurately?$ $What mistake has been made?$ Column methods are also used for decimal additions where mental methods are not efficient. $\frac{H T 0 \cdot Tth Hth}{1 4 0 \cdot 0 9}$ $\frac{H 3 9 \cdot 9 8}{1 8 9 \cdot 9 8}$

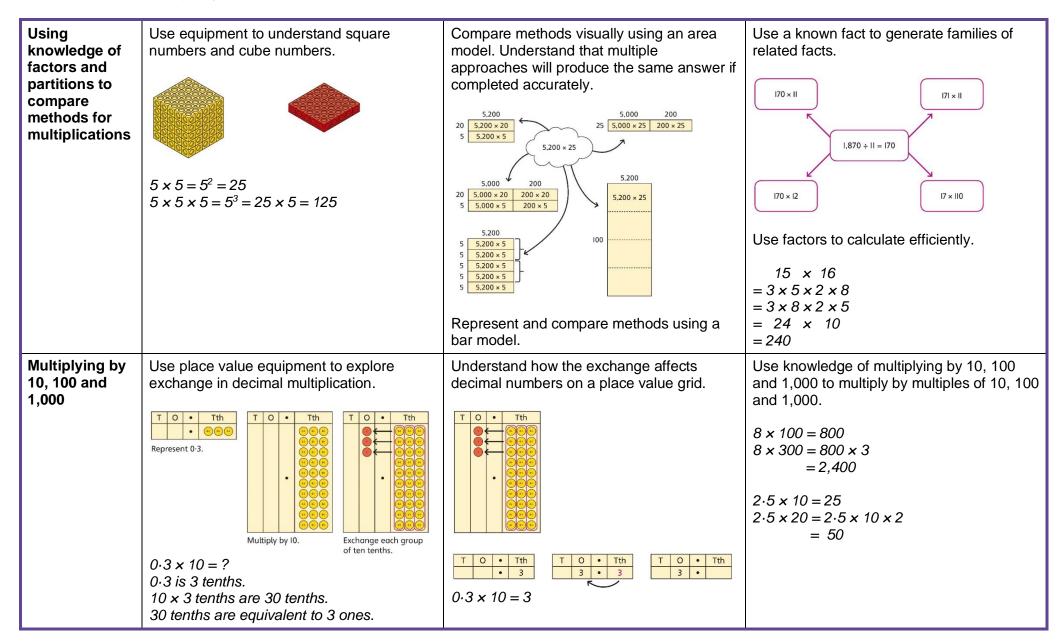


Selecting mental methods for larger numbers where appropriate	Represent 7-digit numbers on a place value grid, and use this to support thinking and mental methods. $\underbrace{\longrightarrow  HTh  Th  H  T  0}_{\bullet\bullet\bullet  \bullet  \bullet  \bullet  \bullet  \bullet  \bullet  \bullet  \bullet  \bullet$	Use a bar model to support thinking in addition problems. 257,000 + 99,000 = ? $1257,000 \pm 100,000$ <i>i</i> added 100 thousands then subtracted 1 thousand. 257 thousands + 100 thousands = 357 thousands $257,000 \pm 100,000 = 357,000$ $357,000 \pm 1,000 = 356,000$ So, 257,000 + 99,000 = 356,000	Use place value and unitising to support mental calculations with larger numbers. 195,000 + 6,000 = ? 195 + 5 + 1 = 201 195 thousands + 6 thousands = 201 thousands So, 195,000 + 6,000 = 201,000	
Understanding order of operations in calculations	Use equipment to model different interpretations of a calculation with more than one operation. Explore different results. $3 \times 5 - 2 = ?$	Model calculations using a bar model to demonstrate the correct order of operations in multi-step calculations. $\begin{array}{c} 16 \times 4 \\ \hline \\ cab \\ \hline \\ 44 \\ 44 \\ 44 \\ 44 \\ 44 \\ 44 \\ 44$	Understand the correct order of operations in calculations without brackets. Understand how brackets affect the order of operations in a calculation. $4 + 6 \times 16$ 4 + 96 = 100 $(4 + 6) \times 16$ $10 \times 16 = 160$	

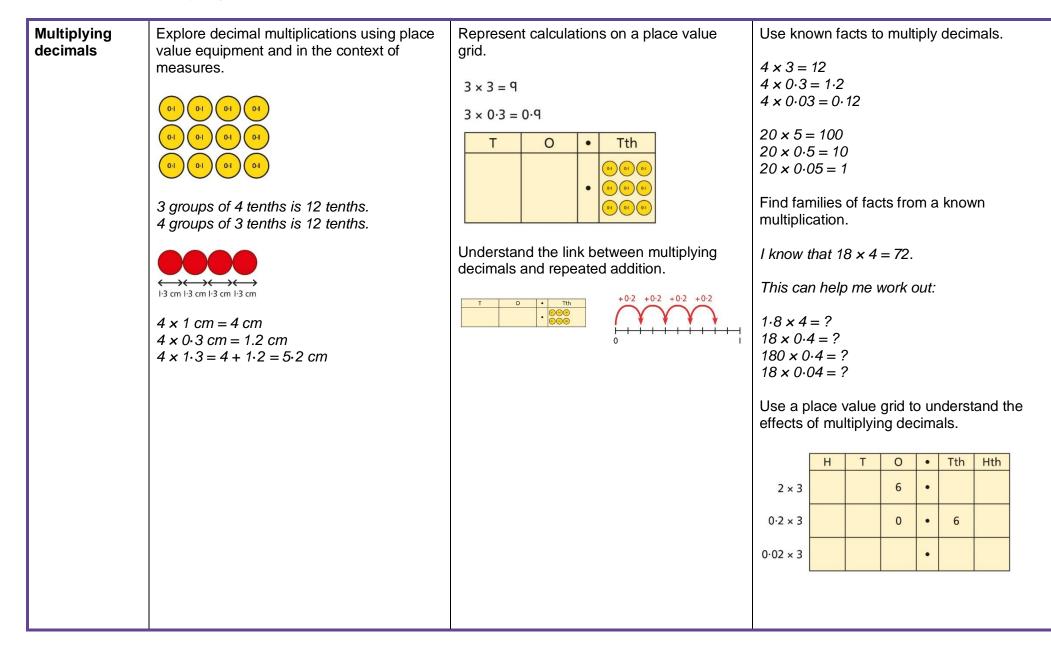
Year 6 Subtraction			
Comparing and selecting efficient methods	Use counters on a place value grid to represent subtractions of larger numbers.	Compare subtraction methods alongside place value representations. $\begin{array}{r} \hline & \hline $	Compare and select methods. Use column subtraction when mental methods are not efficient. Use two different methods for one calculation as a checking strategy. $\frac{\frac{Th}{1} + \frac{H}{9\pi} + \frac{T}{9\pi} - \frac{O}{1}}{\frac{1}{9\pi} + \frac{F}{9\pi} - \frac{1}{9\pi} - 1$
Subtracting mentally with larger numbers		Use a bar model to show how unitising can support mental calculations. 950,000 - 150,000 That is 950 thousands - 150 thousands $950 \xrightarrow{950}{800}$ So, the difference is 800 thousands. 950,000 - 150,000 = 800,000	Subtract efficiently from powers of 10. 10,000 - 500 = ?

Year 6 Multiplication				
Multiplying up to a 4-digit number by a single digit number	Use equipment to explore multiplications. $\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Use place value equipment to compare methods. Method I $3 \ 2 \ 2 \ 5$ $3 \ 2 \ 2 \ 5$ $1 \ 2 \ 9 \ 0 \ 0$ $1 \ 1 \ 2$ Method 2 Method 2 $4 \times 3,000 \ 4 \times 200 \ 4 \times 20 \ 4 \times 5$ 12.000 + 800 + 80 + 20 = 12,900	Understand area model and short multiplication. Compare and select appropriate methods for specific multiplications. Method 3 $3,000 \ 200 \ 20 \ 5$ $4 \ 12,000 \ 800 \ 80 \ 20$ 12,000 + 800 + 80 + 20 = 12,900 Method 4 $3 \ 2 \ 2 \ 5$ $\times \ \frac{4}{1 \ 2 \ 9 \ 0}$	
Multiplying up to a 4-digit number by a 2-digit number		Use an area model alongside written multiplication. Method I 1,000 200 30 5 20 20,000 4,000 600 100 1 1,000 200 30 5 × 2 1 $5 1 \times 5$ 3 0 1 $\times 30$ 2 0 0 1 $\times 1000$ 1 0 0 20 $\times 5$ 6 0 0 20 $\times 30$ $4 0 0 0 20 \times 5$ 6 0 0 20 $\times 30$ $4 0 0 0 20 \times 200$ $2 5 9 3 5 21 \times 1,235$		









Year 6 Division					
Understanding factors	Use equipment to explore different factors of a number.	Recognise prime numbers as numbers having exactly two factors. Understand the link with division and remainders.	Recognise and know primes up to 100. Understand that 2 is the only even prime, and that 1 is not a prime number.		
	$24 \div 4 = 6$ $30 \div 4 = 7 \text{ remainder } 2$		I       Q       3       4       5       6       7       8       9       10         II       12       13       14       15       16       17       18       19       20         21       22       23       24       25       26       27       28       29       30		
	4 is a factor of 24 but is not a factor of 30.	17 ÷ 2 = 8 r l 17 ÷ 3 = 5 r 2 17 ÷ 4 = 4 r l 17 ÷ 5 = 3 r 2	3)       32       33       34       35       36       37)       38       39       40         41       42       43       44       45       46       47)       48       49       50		
Dividing by a single digit	Use equipment to make groups from a total. There are 78 in total. There are 6 groups of 13. There are 13 groups of 6.	H       T       O         H       T       O       H       H       O         H       T       O       O       O       O       O       O       O       O       O       O       O       O       O       O       O       O       O       O       O	Use short division to divide by a single digit. $ \begin{array}{c} 0\\ 6 \overline{)1}^{1}3 2\\ 6 \overline{)1}^{1}3 2\\ 6 \overline{)1}^{1}3 2\\ \end{array} $ $ \begin{array}{c} 0\\ 2\\ 6 \overline{)1}^{1}3 2\\ \end{array} $ Use an area model to link multiplication and division. $ \begin{array}{c} 0\\ 6 \overline{)32}\\ 6 \overline{)12}\\ 6 \overline{)12}\\ 20\\ 2\\ 132\\ 132\\ 132\\ 132\\ 132\\ 132\\ 132\\ $		



Dividing by a 2-digit number using factors	Understand that division by factors can be used when dividing by a number that is not prime.	Use factors and repeated division. $1,260 \div 14 = ?$ $1,260 \div 2 = 630$ $630 \div 7 = 90$ $1,260 \div 14 = 90$	Use factors and repeated division where appropriate. 2,100 $\div$ 12 = ? 2,100 $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$ $\stackrel{+6}{=}$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$ $\stackrel{+6}{=}$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+3}{=}$ $\rightarrow$ $\stackrel{+4}{=}$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+3}{=}$ $\rightarrow$ $\stackrel{+4}{=}$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+3}{=}$ $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+3}{=}$ $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$ $\rightarrow$ 2,100 $\rightarrow$ $\stackrel{+3}{=}$ $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$ $\stackrel{+2}{=}$ $\rightarrow$
Dividing by a 2-digit number using long division	Use equipment to build numbers from groups.	Use an area model alongside written division to model the process. $377 \div 13 = ?$	Use long division where factors are not useful (for example, when dividing by a 2-digit prime number). Write the required multiples to support the division process. $377 \div 13 = ?$ 1 + + + + + + + + + + + + + + + + + + +



			the state. This is included for every shift
			the side. This is included for any children who may have joined from a previous
			school and used this method.
			$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
			$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
			Divisions with a remainder explored in problem-solving contexts.
Dividing by 10, 100 and 1,000	Use place value equipment to explore division as exchange.	Represent division to show the relationship with multiplication. Understand the effect of dividing by 10, 100 and 1,000 on the digits	Use knowledge of factors to divide by multiples of 10, 100 and 1,000.
	0     •     Tth     Hth     Thth       •     •     •     •     Tth     Hth       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •       •     •     •     •     •	on a place value grid. $ \begin{array}{c} 12\\ \hline 12\\ $	$40 \div 50 = 20$ $40 \longrightarrow (\div 10) \longrightarrow (\div 5) \longrightarrow ?$
	Exchange each 0-1 for ten 0-01s. Divide 20 counters by 10.	<sup>1-2</sup> Understand how to divide using division by 10, 100 and 1,000.	$40 \longrightarrow \fbox{5} \longrightarrow \fbox{10} \longrightarrow ?$
			$40 \div 5 = 8$ $8 \div 10 = 0.8$
	0.2 is 2 tenths. 2 tenths is equivalent to 20 hundredths. 20 hundredths divided by 10 is 2	$12 \div 20 = ?$	$S_{2} = 10 = 0.0$ So, $40 \div 50 = 0.8$
	hundredths.	, ? !2 + 10 = I·2 I·2 + 2 = 0-6	



Dividing decimals	Use place value equipment to explore division of decimals.	Use a bar model to represent divisions.	Use short division to divide decimals with up to 2 decimal places.
	8 tenths divided into 4 groups. 2 tenths in each group.	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

# Vocabulary to be on display when covering a unit

### Year Five

Number and	Addition and	Multiplication and	Measure	Geometry	Geometry (properties	Fractions, decimals and
Place Value	Subtraction	division		(position	of shape)	percentages
				and		1
				direction)		
Powers of 10	Efficient written	Factor pairs	Volume	Reflex angle	Regular and	Proper fractions, improper
	method				irregular	fractions, mixed numbers
Numbers up		Multiple	Imperial units,	Dimensions	Polygons	Percentage
to one million			metric			Half, quarter, fifth, two
		Composite	units			fifths, four fifths
		numbers, prime				Ratio, proportion
		number, prime factors,				
		square number, cubed				
		number				
		Formal written				
		method				



#### Year Six

Number and	Addition and	Multiplication	Geometry (position	Geometry	Fractions,	Algebra	Data/Statistics
Place Value	Subtraction	and	and direction)	(properties of	decimals	J	· · · · · · · · · · · · · · · · · · ·
		division		shape)	and		
					percentages		
Numbers to	Order of	Order of	Four quadrants	Vertically	Degree of	Linear	Mean
ten million	operations	operations	(for coordinates)	opposite	accuracy	number	
				(angles)	Simplify	sequence	Pie chart
		Common		Circumference,			
		factors, common		radius,		Substitute	Construct
		multiples		diameter			
						Variables	
						Symbol	
						Krown values	