Supporting Maths Mastery Skills

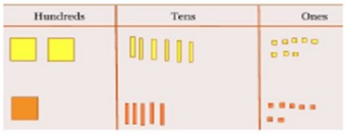
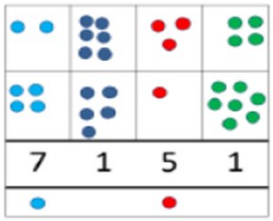
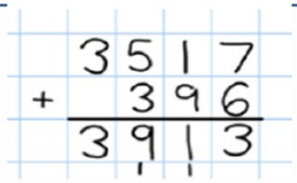
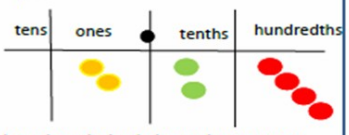
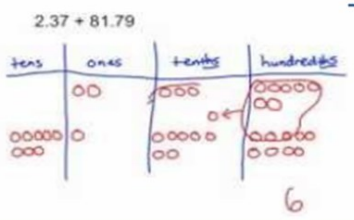
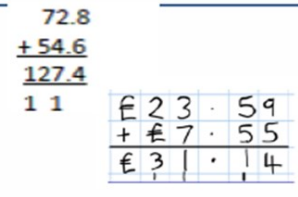
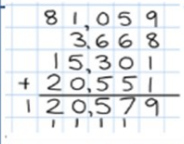
Year 6

This booklet aims to show you, as simply as possible, how to help your child in Maths.

ADDITION

In Year 6, pupils are expected to use the column method to add large numbers, including decimals. Each individual number needs to be recorded in one square and in the correct column. A zero may need to be added as a place hold for decimal numbers.

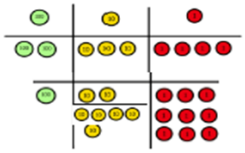
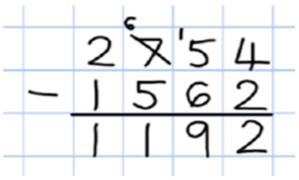
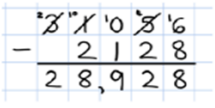
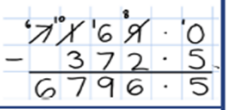
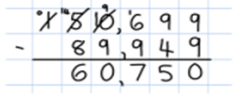
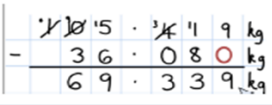
$$\begin{array}{r} 3253.20 \\ +\ 4814.99 \\ \hline 8068.19 \end{array}$$

Objective & Strategy	Concrete	Pictorial	Abstract
Y4—add numbers with up to 4 digits	~~Children continue to use dienes or pv~~ counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. 	 Draw representations using pv grid.	 Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Y5—add numbers with more than 4 digits. Add decimals with 2 decimal places, including money.	As year 4  Introduce decimal place value counters and model exchange for addition.		
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	 Insert zeros for place holders. 

SUBTRACTION

Year 6, pupils will continue to use the column method. The children will also work with decimal numbers. Each number must be set out in the correct column and one number in each square.

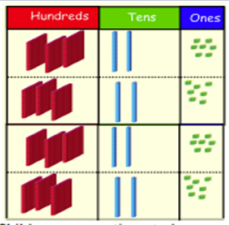
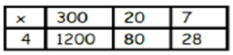
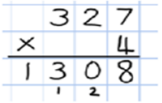
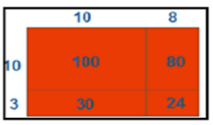
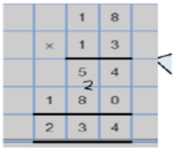
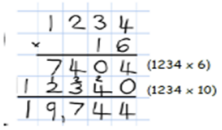
$$\begin{array}{r} 3\,6\,\overset{7}{\cancel{8}}\,\overset{1}{0}\,.\,\overset{4}{\cancel{5}}\,\overset{1}{0} \\ -\;1\,2\,7\,4\,.\,3\,9 \\ \hline 2\,4\,0\,6\,.\,1\,1 \end{array}$$

Objective & Strategy	Concrete	Pictorial	Abstract
Subtracting tens and ones Year 4 subtract with up to 4 digits. *Introduce decimal subtraction through context of money*	234 - 179  Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	 Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures. *Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal*	As Year 4	Children to draw pv counters and show their exchange—see Y3	 Use zeros for place-holders. 
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			 

MULTIPLICATION

Year 6, pupils are expected to continue with long multiplication by a two digit as well as working on multiplying by a decimal number. The children can also use a multiplication grid to show this.

$$
\begin{array}{r}
34.76 \\
\times \quad 17 \\
\hline
243.32 \\
+347.60 \\
\hline
590.92
\end{array}
$$

Objective & Strategy	Concrete	Pictorial	Abstract
Column Multiplication for 3 and 4 digits x 1 digit.	 It is important at this stage that they always multiply the ones first. Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. 321 x 2 = 642		327 x 4 = 28, 80, 1200 = 1308  This will lead to a compact method.
Column multiplication	Manipulatives may still be used with the corresponding long multiplication modelled alongside.	 Continue to use bar modelling to support problem solving	 18 x 3 on the first row (8 x 3 =24, carrying the 2 for 20, then 1 x 3) 18 x 10 on the 2nd row. Show multiplying by 10 by putting zero in units first  (1234 x 6) (1234 x 10)

DIVISION

In Year 6, pupils continue to develop a standard method of dividing a four digit number by 2 digits. Pupils will develop the ability to write their answers with remainders or even a fraction. When numbers become larger long division should be used.

$$12 \overline{)\,3\,^{3}8\,^{2}0\,^{8}7} \quad 0\,3\,1\,7 \quad \tfrac{3}{12}$$

$$\begin{array}{r|llll} & 0 & 2 & 1 & 3 \\ \hline 23 & 4 & 8 & 9 & 9 \\ & -4 & 6 & & \\ \hline & & 2 & 9 & \\ & & -2 & 3 & \\ \hline & & & 6 & 9 \\ & & & -6 & 9 \\ \hline & & & 0 & 0 \\ \hline \end{array}$$

Objective & Strategy	Concrete	Pictorial	Abstract
Divide at least 3 digit numbers by 1 digit. Short Division	96 ÷ 3 Tens Units 3 2 3 Use place value counters to divide using the bus stop method alongside 42 ÷ 3= Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over. We exchange this ten for ten ones and then share the ones equally among the groups. We look how much in 1 group so the answer is 14.	Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups. Encourage them to move towards counting in multiples to divide more efficiently.	Begin with divisions that divide equally with no remainder. Move onto divisions with a remainder. Finally move into decimal places to divide the total accurately.

Year 6 I can statements

By the end of year 6 your child should be able to achieve the following I can statements.

Number

- I can read, write, order and compare numbers up to 10,000,000.
- I can round any whole number.
- I can use negative numbers to calculate intervals across zero.
- I can solve number and practical problems that involve all of the above.

Number – Addition, Subtraction, Multiplication & Division

- I can use the written method for addition and subtraction.
- I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
- I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division, interpreting the remainders as appropriate.
- I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, interpreting the remainders as appropriate.
- I can perform mental calculations, including with mixed operations and large numbers.
- I can identify common factors, common multiples and prime numbers.
- I can use order of operations to carry out calculations.
- I can solve addition and subtraction multi-step problems.
- I can solve problems involving addition, subtraction, multiplication and division.
- I can use estimation to check answers to calculations.

Please help your child become familiar with their times tables.

0 ÷ 6 = 0 6 ÷ 6 = 1 12 ÷ 6 = 2 18 ÷ 6 = 3 24 ÷ 6 = 4 30 ÷ 6 = 5 36 ÷ 6 = 6 42 ÷ 6 = 7 48 ÷ 6 = 8 54 ÷ 6 = 9 60 ÷ 6 = 10 66 ÷ 6 = 11 72 ÷ 6 = 12	0 ÷ 7 = 0 7 ÷ 7 = 1 14 ÷ 7 = 2 21 ÷ 7 = 3 28 ÷ 7 = 4 35 ÷ 7 = 5 42 ÷ 7 = 6 49 ÷ 7 = 7 56 ÷ 7 = 8 63 ÷ 7 = 9 70 ÷ 7 = 10 77 ÷ 7 = 11 84 ÷ 7 = 12	0 ÷ 8 = 0 8 ÷ 8 = 1 16 ÷ 8 = 2 24 ÷ 8 = 3 32 ÷ 8 = 4 40 ÷ 8 = 5 48 ÷ 8 = 6 56 ÷ 8 = 7 64 ÷ 8 = 8 72 ÷ 8 = 9 80 ÷ 8 = 10 88 ÷ 8 = 11 96 ÷ 8 = 12	0 ÷ 9 = 0 9 ÷ 9 = 1 18 ÷ 9 = 2 27 ÷ 9 = 3 36 ÷ 9 = 4 45 ÷ 9 = 5 54 ÷ 9 = 6 63 ÷ 9 = 7 72 ÷ 9 = 8 81 ÷ 9 = 9 90 ÷ 9 = 10 99 ÷ 9 = 11 108 ÷ 9 = 12
6 x 10 = 60 6 x 20 = 120 6 x 30 = 180 6 x 40 = 240 6 x 50 = 300 6 x 60 = 360 6 x 70 = 420 6 x 80 = 480 6 x 90 = 540 6 x 100 = 600 6 x 110 = 660 6 x 120 = 720	7 x 10 = 700 7 x 20 = 140 7 x 30 = 210 7 x 40 = 280 7 x 50 = 350 7 x 60 = 420 7 x 70 = 490 7 x 80 = 560 7 x 90 = 630 7 x 100 = 700 7 x 110 = 770 7 x 120 = 840	8 x 10 = 80 8 x 20 = 160 8 x 30 = 240 8 x 40 = 320 8 x 50 = 400 8 x 60 = 480 8 x 70 = 560 8 x 80 = 640 8 x 90 = 720 8 x 100 = 800 8 x 110 = 880 8 x 120 = 960	9 x 10 = 90 9 x 20 = 180 9 x 30 = 270 9 x 40 = 360 9 x 50 = 450 9 x 60 = 540 9 x 70 = 630 9 x 80 = 720 9 x 90 = 810 9 x 100 = 900 9 x 110 = 990 9 x 120 = 1080
60 ÷ 1 = 60 120 ÷ 2 = 60 180 ÷ 3 = 60 240 ÷ 4 = 60 300 ÷ 5 = 60 360 ÷ 6 = 60 420 ÷ 7 = 60 480 ÷ 8 = 60 540 ÷ 9 = 60 600 ÷ 10 = 60 660 ÷ 11 = 60 720 ÷ 12 = 60	70 ÷ 1 = 70 140 ÷ 2 = 70 210 ÷ 3 = 70 280 ÷ 4 = 70 350 ÷ 5 = 70 420 ÷ 6 = 70 490 ÷ 7 = 70 560 ÷ 8 = 70 630 ÷ 9 = 70 700 ÷ 10 = 70 770 ÷ 11 = 70 700 ÷ 12 = 70	80 ÷ 1 = 80 160 ÷ 2 = 80 240 ÷ 3 = 80 320 ÷ 4 = 80 400 ÷ 5 = 80 480 ÷ 6 = 80 560 ÷ 7 = 80 640 ÷ 8 = 80 720 ÷ 9 = 80 800 ÷ 10 = 80 880 ÷ 11 = 80 960 ÷ 12 = 80	90 ÷ 1 = 90 180 ÷ 2 = 90 270 ÷ 3 = 90 360 ÷ 4 = 90 450 ÷ 5 = 90 540 ÷ 6 = 90 630 ÷ 7 = 90 720 ÷ 8 = 90 810 ÷ 9 = 90 900 ÷ 10 = 90 990 ÷ 11 = 90 1080 ÷ 12 = 90

Useful websites to help enhance your child's learning at home:

Number Blocks
BBC iPlayer - Numberblocks

KS2 BBC Bite Size
KS2 Maths - BBC Bitesize

Kids Maths Games
Kids Math Games Online - Free Interactive Learning Activities, Fun Educational Resources

Top Marks Maths
Ordering and Sequencing Numbers Games (topmarks.co.uk)

ICT Maths Games
ictgames || html5 Home Page

Maths Zone
Maths Zone Cool Learning Games – Maths Games and Learning Activties for Fun

Primary Games (some free games)
Primary Games :: Maths Games and Interactive Resources for the Primary Classroom

Times Table Rock Stars
Times Tables Rock Stars – Times Tables Rock Stars (ttrockstars.com)

Apps
One minute white rose maths
Twinkl times tables