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# Maths: Parent Workshop

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Year 5 and 6



# Expectations at the end of year 6

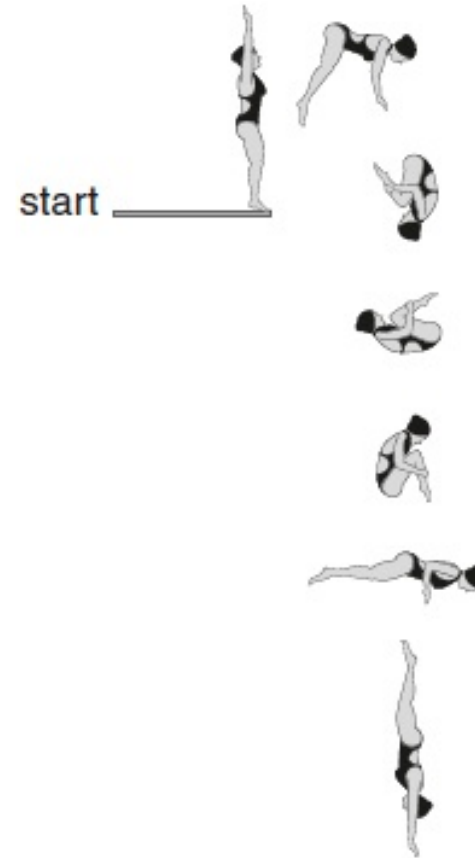
With the person next to you can write down what children would need to know to answer this year 6 SATS question.

$$\frac{5}{6} \times 540 =$$

$$\frac{2}{3} \div 3 =$$

$$1\frac{1}{5} + 2\frac{1}{10} =$$

Layla completes one-and-a-half somersaults in a dive.



How many **degrees** does Layla turn through in her dive?



Calculation Policy Guidance

Year 5

Calculation policy

**Addition**

Missing numbers  
Use formal written methods  
Add numbers with at least 4 digits  
Add numbers with at least 4 digits (as for Year 4) and use formal written methods for calculating numbers Hth, Tth, T.  
Add numbers with different decimal places (same number of decimal places)  
Add several numbers (with different numbers of digits).  
Include adding zero as a 'place holder'.  
Children confidently use formal written methods down the page, setting out calculation sums neatly and working accurately, checking their work by using the inverse operation.  
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.  
Solve addition multi-step problems in contexts, deciding which operations and methods to use and why.  
+ and = signs and missing numbers  
Continue using a range of equations with appropriate larger numbers.  
*Model negative numbers using a number line.*

$$\begin{array}{r} 124.90 \\ + 117.25 \\ \hline 242.15 \\ \text{**} \end{array}$$

**Subtraction**

Missing numbers  
- = signs and missing numbers  
Consolidate number facts and calculation strategies from Year 4  
- = signs and missing numbers  
Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.  
Find a difference by counting up  
e.g.  $8006 - 2993 = 5013$   
This can be modelled on an empty number line (see complementary addition below).  
Subtract the nearest multiple of 10 or 100, then adjust.  
Continue as in Year 2, 3 and 4 but with appropriate numbers.  
Use known number facts and place value to subtract  
E.g.  $6.1 - 2.4 = 3.7$   
Children to cross out the number which they exchange from  
Extend to decimals in the case of money

$$\begin{array}{r} 5 \cancel{0} \cancel{0} \cancel{0} \cancel{0} \\ - 29.65 \\ \hline 504.95 \end{array}$$

Subtract whole numbers with more than 4 digits, including using formal written methods (column subtraction)  
Subtract numbers mentally with increasingly large numbers  
Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy  
Solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

**Multiplication**

Missing numbers  
x = signs and missing numbers  
Continue using a range of equations as in Year 2 but with appropriate numbers  
Pencil and paper procedures  
Partition  
 $47 \times 8 = 92$   
 $47 \times 8 = (40 \times 8) + (7 \times 8)$   
 $= (240) + (42)$   
 $= 282$   
Column method (known as long multiplication)

$$\begin{array}{r} 146 \\ \times 4 \\ \hline 584 \end{array}$$

$$\begin{array}{r} 72 \\ \times 38 \\ \hline 576 \\ 2160 \\ \hline 2736 \end{array}$$

$$\begin{array}{r} 372 \\ \times 24 \\ \hline 1488 \\ 7440 \\ \hline 8928 \end{array}$$

Identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers  
By the end of Year 5 children should have progressed to working with simple decimals with one decimal place.  
Multiply whole numbers and those involving decimals by 10, 100 and 1,000  
Recognise and use square numbers and cube numbers, and the notation for squared ( $^2$ ) and cubed ( $^3$ )  
Counting in 2s, 3s, 4s, 5s, 6s, 7s, 8s, 9s and 10s and in multiples of 10  
Recall multiplication and division facts for multiplication tables up to  $12 \times 12$   
Extend to simple decimals with one decimal place.  
 $12.5$   
 $\times 2$   
1.0 (2.0 x 0.5)  
4.0 (2.0 x 2.0)  
20.0 (2.0 x 10.0)  
25.0  
Moving to formal methods of multiplication for decimals. Carrying numbers underneath.

**Division**

Missing numbers  
 $\div =$  signs and missing numbers  
Sharing and grouping  
Continue to understand division as both sharing and grouping (repeated subtraction).  
Halving numbers up to 1,000 including simple decimals - As in Year 4 with harder numbers  
Pencil and Paper Procedures  
Remainders  
Quotients expressed as remainders - r3.  
Children to use formal written methods. Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.  
Children using the terms 'carry' and 'division box'  
Remainders  
Quotients expressed as fractions or decimals:  
 $12.48 \div 4 = 3.12$

$$\begin{array}{r} 36 \text{ r } 4 \\ 7 \overline{) 2356} \end{array}$$

$$\begin{array}{r} 3.12 \\ 4 \overline{) 12.48} \end{array}$$

Long division  
 $432 \div 15$  becomes  
 $15 \overline{) 432}$   
28 r 12  
Answer: 28 remainder 12  
 $432 \div 15$  becomes  
 $15 \overline{) 432}$   
28  
Answer:  $28 \frac{4}{5}$

Divisibility rules – for the multiplication tables up to 12 and x 100  
Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.



+

addition

X

multiplication

The four operations

-

subtraction

÷

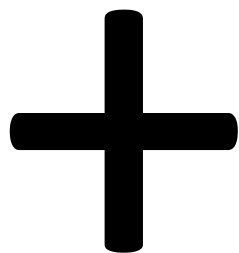
division



# How we teach addition

Formal written method

Column method



$$\begin{array}{r} 3587 \\ + 675 \\ \hline \end{array}$$
$$\begin{array}{r} 4262 \\ \hline \end{array}$$

\* \* \*

Tower method



# How we teach subtraction

Formal written method

Column method

	<del>5</del> <sup>5</sup>	<del>3</del>	1	6	7
-	2	6	8	4	
<hr/>					
	3	7	8	3	
<hr/>					

Tower method



# How we teach multiplication

Short  
multiplication

$$\begin{array}{r} 146 \\ \times 4 \\ \hline 584 \\ \hline 12 \end{array}$$

**X**

Long  
multiplication

$$\begin{array}{r} 372 \\ \times 24 \\ \hline 1488 \\ 7440 \\ \hline 8928 \end{array}$$





$547 \times 9 = \blacksquare$

$647 \times 87 = \blacksquare$

$5674 \times 78 = \blacksquare$

$$\begin{array}{r} 146 \\ \times 4 \\ \hline 584 \\ \hline 1 \quad 2 \end{array}$$

$$\begin{array}{r} 372 \\ \times 24 \\ \hline 1488 \\ 7440 \\ \hline 8928 \end{array}$$

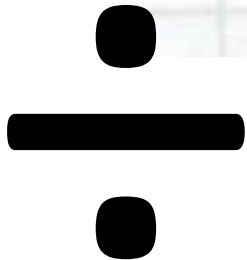




# How we teach division

Short division  
(bus stop method)

$$\begin{array}{r} 36 \text{ r } 4 \\ 7 \overline{) 2356} \end{array}$$



432 ÷ 15 becomes

$$\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{300} \quad 15 \times 20 \\ 132 \\ \underline{120} \quad 15 \times 8 \\ 12 \end{array}$$

$$\frac{12}{15} = \frac{4}{5}$$

Answer:  $28 \frac{4}{5}$

Long division



$588 \div 6 = \blacksquare$

$446 \div 5 = \blacksquare$

$6816 \div 12 = \blacksquare$

$$\begin{array}{r} 338 \text{ r } 4 \\ 7 \overline{) 2356} \end{array}$$

432  $\div$  15 becomes

$$\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{300} \quad 15 \times 20 \\ 132 \\ \underline{120} \quad 15 \times 8 \\ 12 \end{array}$$

$$\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$$

Answer:  $28 \frac{4}{5}$



# Fractions, decimals and percentages

Fractions of amounts

Decimal equivalences

 = $1$	=	<b>1</b>	=	
 = $\frac{1}{2}$	=	<b>0.5</b>	=	
 = $\frac{1}{3}$	=	<b>0.33</b>	=	
 = $\frac{1}{4}$	=	<b>0.25</b>	=	
 = $\frac{1}{5}$	=	<b>0.2</b>	=	
 = $\frac{1}{8}$	=	<b>0.125</b>	=	
 = $\frac{1}{10}$	=	<b>0.1</b>	=	
 = $\frac{1}{100}$	=	<b>0.01</b>	=	

X, +, -, ÷  
fractions

Percentages of amounts



Time Tables Rockstars

[www.ttrockstars.com](http://www.ttrockstars.com)



# Resources

[www.nrich.maths.org](http://www.nrich.maths.org)

<https://www.topmarks.co.uk/maths-games/hit-the-button>

[www.ncetm.org.uk](http://www.ncetm.org.uk)

<https://www.tes.com/teaching-resources/whiterosemathshub>