

# HOLGATE PRIMARY & NURSERY SCHOOL



A guide for parents on written  
calculations in mathematics

Year 4

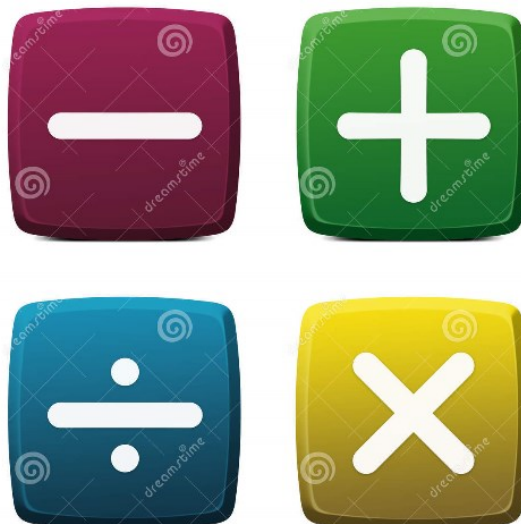
This booklet is designed to support parents understand the strategies/methods used in school when teaching children a formal written method to solve a problem. It shows the progression in calculation strategies for each of the four operations: addition, subtraction, multiplication and division. For each operation there are stages that children need to work through and build upon their basic skills.

These are the calculations that you child will do in year 4. These stages are progressive and will be built upon throughout the academic year. Children will work through these stages at different paces to ensure that they are confident and can apply them independently.

For children to develop a good sense of number, it is important to lay firm foundations in mathematics and to build on these in a systematic way.

At Holgate Primary we have taken into account the way children develop in their learning and understanding, beginning with a firm grounding in mental calculations, and using these skills to develop effective written methods for calculations.

We have provided a copy of the multiplication facts relevant to year 4 at the back of this booklet. These should be learnt by the end of year 4 and children need to become fluent and able to recall these quickly. Times tables are one of the basic skills needed to develop understanding of mathematics. The new curriculum states that all children by the end of year 4 should know all of their times tables (up to  $12 \times 12$ ).



## Addition

### Stage 1

Column addition by partitioning with the brackets

$$135 + 143$$

$$\begin{array}{r} 135 \\ 143 \\ \hline 8 \\ 70 \\ 200 \\ \hline 278 \end{array}$$

### Year 4

(See Y2/3)  
count on  
number line  
| sum  
tens  
units  
partition  
addition  
column  
tens  
boundary

hundreds  
boundary  
increase  
vertical  
bridging  
expanded  
compact  
thousands  
hundreds  
digits  
inverse

# Subtraction

## Stage 1

Using the column partitioned method for exchanging.

$$327 - 136 = 191$$

$$\begin{array}{r} 200 \\ \cancel{300} + 20 + 7 \\ 100 + 30 + 6 \\ \hline 100 + 90 + 1 \end{array}$$

## Stage 2

Introduce the compact method, comparing to the previous one discussing what is the same and different.

$$327 - 136 = 191$$

$$\begin{array}{r} 2 \quad 1 \\ \cancel{3}27 \\ 136 \\ \hline 191 \end{array}$$

## Year 4

equal to  
take away  
less  
minus  
subtract  
distance  
between  
how many  
more  
exchange  
how much  
less is  
decrease  
value

difference  
strategy  
minus  
inverse  
less than  
most  
least  
count back  
how many  
left  
how much  
less is  
difference  
count on  
strategy

# Multiplication

## Stage 1

Use the grid method.

$$24 \times 8 = 192$$

X	20	4
8	160	32

$$160 + 32 = 192$$

## Stage 2

Use the grid method to multiply HTU

x U

$$357 \times 7$$

X	300	50	7
7	2100	350	49

$$2100 + 350 + 49 = 2499$$

## Year 4

groups of	column
lots of	row
times	commutative
array	sets of
altogether	equal groups
multiply	times
count	grid method
multiplies by	multiple
repeated	product
addition	tens
partition	units
inverse	commutative

# Division

## Stage 1

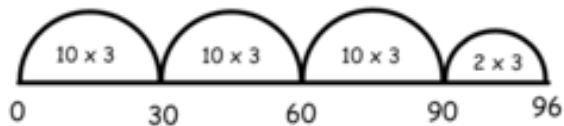
Chunking  $TU \div U$  with no remainders.

$$96 \div 3$$

$$2 \times 3 = 6$$

$$5 \times 3 = 15$$

$$10 \times 3 = 30$$



## Stage 2

Long division by chunking with U.

$$72 \div 4 = 18$$

$$\begin{array}{r} 18 \\ 4 \overline{) 72} \\ \underline{40} \quad (\times 10) \\ 32 \\ \underline{32} \quad (\times 8) \\ 00 \end{array}$$

## Year 4

one each  
two each  
group  
groups of  
equal groups  
of  
lots of  
array  
divide  
divided by  
divided into  
division

grouping  
number line  
left  
left over  
inverse  
short division  
carry  
remainder  
multiple  
divisible by  
factor

## Multiplication Facts

<b>1x</b>	<b>2x</b>	<b>3x</b>	<b>4x</b>	<b>5x</b>	<b>6x</b>
$0 \times 1 = 0$	$0 \times 2 = 0$	$0 \times 3 = 0$	$0 \times 4 = 0$	$0 \times 5 = 0$	$0 \times 6 = 0$
$1 \times 1 = 1$	$1 \times 2 = 2$	$1 \times 3 = 3$	$1 \times 4 = 4$	$1 \times 5 = 5$	$1 \times 6 = 6$
$2 \times 1 = 2$	$2 \times 2 = 4$	$2 \times 3 = 6$	$2 \times 4 = 8$	$2 \times 5 = 10$	$2 \times 6 = 12$
$3 \times 1 = 3$	$3 \times 2 = 6$	$3 \times 3 = 9$	$3 \times 4 = 12$	$3 \times 5 = 15$	$3 \times 6 = 18$
$4 \times 1 = 4$	$4 \times 2 = 8$	$4 \times 3 = 12$	$4 \times 4 = 16$	$4 \times 5 = 20$	$4 \times 6 = 24$
$5 \times 1 = 5$	$5 \times 2 = 10$	$5 \times 3 = 15$	$5 \times 4 = 20$	$5 \times 5 = 25$	$5 \times 6 = 30$
$6 \times 1 = 6$	$6 \times 2 = 12$	$6 \times 3 = 18$	$6 \times 4 = 24$	$6 \times 5 = 30$	$6 \times 6 = 36$
$7 \times 1 = 7$	$7 \times 2 = 14$	$7 \times 3 = 21$	$7 \times 4 = 28$	$7 \times 5 = 35$	$7 \times 6 = 42$
$8 \times 1 = 8$	$8 \times 2 = 16$	$8 \times 3 = 24$	$8 \times 4 = 32$	$8 \times 5 = 40$	$8 \times 6 = 48$
$9 \times 1 = 9$	$9 \times 2 = 18$	$9 \times 3 = 27$	$9 \times 4 = 36$	$9 \times 5 = 45$	$9 \times 6 = 54$
$10 \times 1 = 10$	$10 \times 2 = 20$	$10 \times 3 = 30$	$10 \times 4 = 40$	$10 \times 5 = 50$	$10 \times 6 = 60$
$11 \times 1 = 11$	$11 \times 2 = 22$	$11 \times 3 = 33$	$11 \times 4 = 44$	$11 \times 5 = 55$	$11 \times 6 = 66$
$12 \times 1 = 12$	$12 \times 2 = 24$	$12 \times 3 = 36$	$12 \times 4 = 48$	$12 \times 5 = 60$	$12 \times 6 = 72$
<b>7x</b>	<b>8x</b>	<b>9x</b>	<b>10x</b>	<b>11x</b>	<b>12x</b>
$0 \times 7 = 0$	$0 \times 8 = 0$	$0 \times 9 = 0$	$0 \times 10 = 0$	$0 \times 11 = 0$	$0 \times 12 = 0$
$1 \times 7 = 7$	$1 \times 8 = 8$	$1 \times 9 = 9$	$1 \times 10 = 10$	$1 \times 11 = 11$	$1 \times 12 = 12$
$2 \times 7 = 14$	$2 \times 8 = 16$	$2 \times 9 = 18$	$2 \times 10 = 20$	$2 \times 11 = 22$	$2 \times 12 = 24$
$3 \times 7 = 21$	$3 \times 8 = 24$	$3 \times 9 = 27$	$3 \times 10 = 30$	$3 \times 11 = 33$	$3 \times 12 = 36$
$4 \times 7 = 28$	$4 \times 8 = 32$	$4 \times 9 = 36$	$4 \times 10 = 40$	$4 \times 11 = 44$	$4 \times 12 = 48$
$5 \times 7 = 35$	$5 \times 8 = 40$	$5 \times 9 = 45$	$5 \times 10 = 50$	$5 \times 11 = 55$	$5 \times 12 = 60$
$6 \times 7 = 42$	$6 \times 8 = 48$	$6 \times 9 = 54$	$6 \times 10 = 60$	$6 \times 11 = 66$	$6 \times 12 = 72$
$7 \times 7 = 49$	$7 \times 8 = 56$	$7 \times 9 = 63$	$7 \times 10 = 70$	$7 \times 11 = 77$	$7 \times 12 = 84$
$8 \times 7 = 56$	$8 \times 8 = 64$	$8 \times 9 = 72$	$8 \times 10 = 80$	$8 \times 11 = 88$	$8 \times 12 = 96$
$9 \times 7 = 63$	$9 \times 8 = 72$	$9 \times 9 = 81$	$9 \times 10 = 90$	$9 \times 11 = 99$	$9 \times 12 = 108$
$10 \times 7 = 70$	$10 \times 8 = 80$	$10 \times 9 = 90$	$10 \times 10 = 100$	$10 \times 11 = 110$	$10 \times 12 = 120$
$11 \times 7 = 77$	$11 \times 8 = 88$	$11 \times 9 = 99$	$11 \times 10 = 110$	$11 \times 11 = 121$	$11 \times 12 = 132$
$12 \times 7 = 84$	$12 \times 8 = 96$	$12 \times 9 = 108$	$12 \times 10 = 120$	$12 \times 11 = 132$	$12 \times 12 = 144$

