



St. Stephen's School  
*Learning for life*

## The Calculation Policy

### A Parent's Guide

This policy is designed to give you a clear idea of the level your child should be working at as they work their way through the school, and the strategies that they will be using.

This should give you a clear idea of the different methods that we use to help support your child when they are completing written calculations.

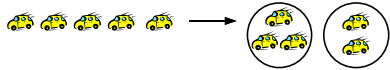
The policy clearly shows how children should work through each of the four operations (+, -,  $\times$ ,  $\div$ ).

## Reception

### Addition

#### **Pictures / marks**

There are 3 cars in the garage. 2 more arrive.  
How many are there now?



### Subtraction

#### **Pictures / marks**

We made 6 cakes. We ate 2 of them.  
How many cakes are left?



### Multiplication

#### **Pictures / marks**

How many wheels do we need to make three lego cars?

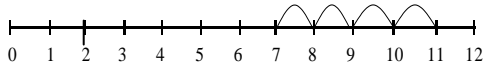


# Year 1

## Addition

### Number lines (numbered)

$7 + 4$

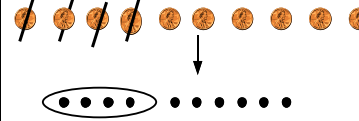


Recording by drawing jumps on prepared lines

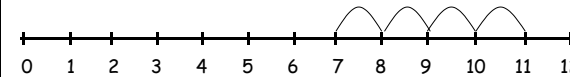
## Subtraction

### Pictures / marks

Sam spent 4p. What was his change from 10p?



The difference between 7 and 11  
(Counting up)

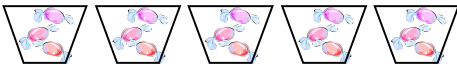


## Multiplication

### Pictures and symbols

There are 3 sweets in one bag.

How many sweets are there in 5 bags?



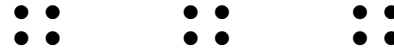
## Division

### Pictures / marks

12 children get into teams of 4 to play a game. How many teams are there?



Grouping using objects:



## Year 2

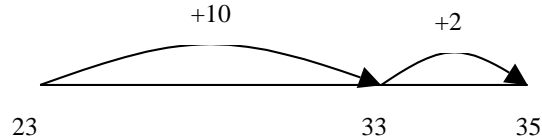
### Addition

**Split both numbers into tens and units (partitioning)**

$$\begin{aligned} 12 + 23 &= 10 + 2 + 20 + 3 \\ &= 30 + 5 \\ &= 35 \end{aligned}$$

**Move on to partitioning the second number only:**

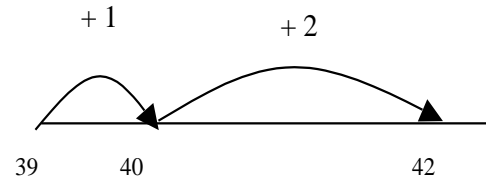
$$\begin{aligned} 23 + 12 &= 23 + 10 + 2 \\ &= 33 + 2 \\ &= 35 \end{aligned}$$



### Subtraction

**Find a small difference by counting up**

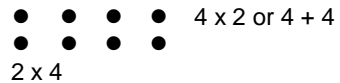
$$42 - 39 = 3$$



### Multiplication

**Arrays and repeated addition**

**Arrays:**



**Repeated addition**

$$2 + 2 + 2 + 2$$

### Division

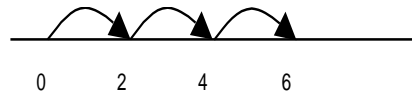
**Understand division as sharing and grouping**

**Sharing** – 6 sweets are shared between 2 people. How many do they have each?



$6 \div 2$  can be modelled as:

**Grouping** – There are 6 sweets. How many people can have 2 each? (How many 2's make 6?)



## Year 3

### Addition

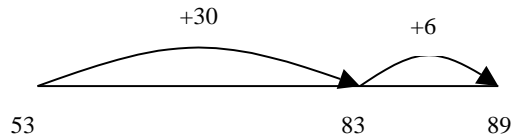
#### Partition into tens and ones and recombine

Partition both numbers and recombine.

$$36 + 53 \quad 50 + 30 = 80$$

$$3 + 6 = 9$$

$$80 + 9 = 89$$



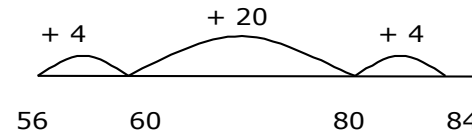
If children are finding adding 30 as a whole block difficult, break down into tens.

### Subtraction

#### Find a small difference by counting up

(This is also called complementary addition)

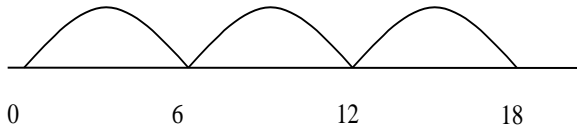
$$84 - 56 = 28$$



### Multiplication

Number lines

$$6 \times 3$$



Begin to introduce the grid method

$$35 \times 2$$

x	30	5
2	60	10

$$60 + 10 = 70$$

### Division

Grouping - How many 3's make 18? – repeated addition



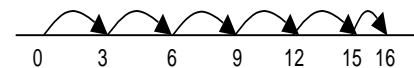
#### Remainders

$$16 \div 3 = 5 \text{ r}1$$

Sharing - 16 shared between 3, how many left over?

Grouping – How many 3's make 16, how many left over?

e.g.



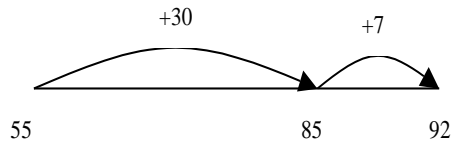
## Year 4

### Addition

#### Partition into tens and ones and recombine

Either partition both numbers (see year 3) and recombine or partition the second number only e.g.

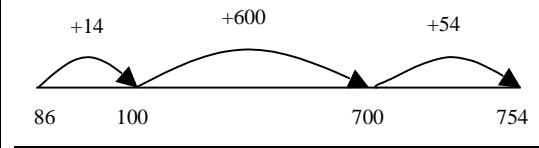
$$\begin{aligned} 55 + 37 &= 55 + 30 + 7 \\ &= 85 + 7 \\ &= 92 \end{aligned}$$



### Subtraction

#### Find a difference by counting up

$$754 - 86 = 668$$



### Multiplication

The Grid Method

$$72 \times 38 =$$

x	70	2
30	2100	60
8	560	16

$$2660 \quad 76$$

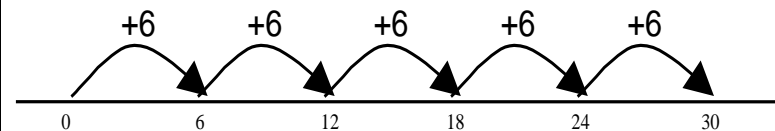
$$2660 + 76 = 2736$$

### Division

$30 \div 6$  can be modelled as:

**Grouping** – groups of 6 taken away and the number of groups counted e.g.

**Sharing** – sharing among 6, the number given to each person



Remainders

$$41 \div 4 = 10 \text{ r}1$$



If children are struggling when adding 40 as a whole block, break into 10's.

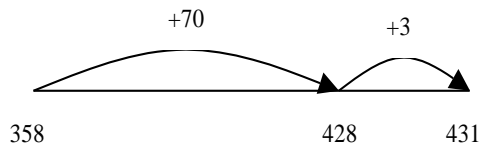
## Year 5

### Addition

#### Split into hundreds, tens and ones and recombine (Partitioning)

Either partition both numbers and recombine or partition the second number only e.g.

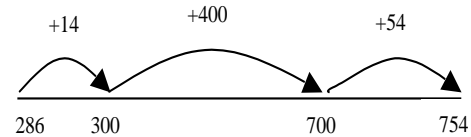
$$\begin{aligned} 358 + 73 &= 358 + 70 + 3 \\ &= 428 + 3 \\ &= 431 \end{aligned}$$



### Subtraction

#### Find a difference by counting up

$$754 - 286 = 468$$



### Multiplication

#### Grid method

72 x 38 is approximately 70 x 40 = 2800

x	70	2
30	2100	60
8	560	16

Extend to simple decimals with one decimal place.

$$\begin{array}{r} 12.5 \\ \times 2 \\ \hline 1.0 \text{ (2.0 x 0.5)} \\ 4.0 \text{ (2.0 x 2.0)} \\ \hline 20.0 \text{ (2.0 x 10.0)} \\ \hline 25.0 \end{array}$$

### Division

#### Written methods – the chunking method

256 ÷ 7 lies between 210 ÷ 7 = 30 and 280 ÷ 7 = 40

$$\begin{array}{r} 256 \\ - \quad 70 \quad (10 \text{ groups}) \text{ or } (10 \times 7) \\ \hline 186 \\ - \quad 140 \quad (20 \text{ groups}) \text{ or } (20 \times 7) \\ \hline 46 \\ - \quad 42 \quad (6 \text{ groups}) \text{ or } (6 \times 7) \\ \hline 4 \quad (36 \text{ groups}) \text{ or } (36) \end{array}$$

Answer: 36 remainder 4

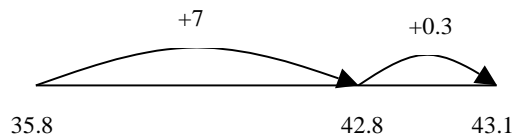
## Year 6

### Addition

#### Split into hundreds, tens and ones and recombine (Partitioning)

Either partition both numbers and recombine or partition the second number only e.g.

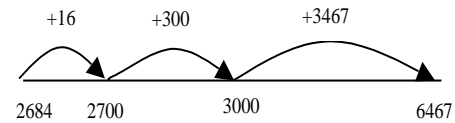
$$\begin{aligned} 35.8 + 7.3 &= 35.8 + 7 + 0.3 \\ &= 42.8 + 0.3 \\ &= 43.1 \end{aligned}$$



### Subtraction

#### Find a difference by counting up

$$6467 - 2684 = 3783$$



OR  $6467 - 2684 = 3783$

### Multiplication

#### Grid method

$372 \times 24$  is approximately  $400 \times 20 = 8000$

x	300	70	2
20	6000	1400	40
4	1200	280	8

Extend to decimals with up to two decimal places.

$$\begin{array}{r} 12.50 \\ \times 2.50 \\ \hline 1.25 \text{ (2.5 x 0.5)} \\ 5.00 \text{ (2.5 x 2.0)} \\ \hline 25.00 \text{ (2.5 x 10.0)} \\ \hline 31.25 \end{array}$$

### Division

#### Written Methods – the chunking method

$977 \div 36$  is approximately  $1000 \div 40 = 25$

$\begin{array}{r} 977 \\ - \underline{360} \text{ (10 groups)} \\ 617 \\ - \underline{360} \text{ (10 groups)} \\ 257 \\ - \underline{180} \text{ (5 groups)} \\ 77 \\ - \underline{72} \text{ (2 groups)} \\ 5 \end{array}$	<p><b>refine to</b></p>	$\begin{array}{r} 977 \\ - \underline{720} \text{ (20 groups)} \\ 257 \\ - \underline{180} \text{ (5 groups)} \\ 77 \\ - \underline{72} \text{ (2 groups)} \\ 5 \end{array}$
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Answer:  $27 \frac{5}{36}$

