

The Calculation Policy

A guide for Parents



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 show you 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 (+, -, x, ÷).



Reception

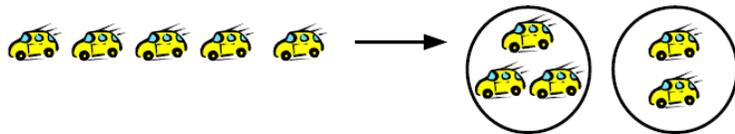
Addition

Pictures / marks / practical activities

There are 3 cars in the garage. 2 more arrive.

How many are there now?

(Do this using toy cars and a pretend garage!)



Subtraction

Pictures / marks / practical activities

We made 6 cakes. We ate 2 of them.

How many cakes are left?



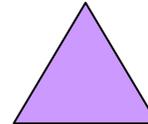
Multiplication

Pictures / marks / practical activities

How many wheels do we need to make 3 lego cars?



How many times do numbers and shapes crop up in our every day lives?



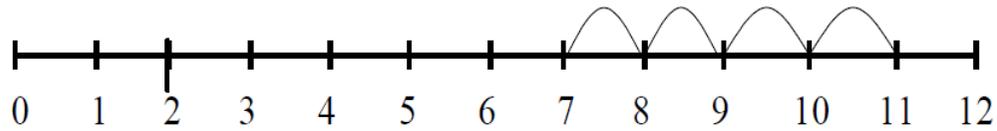
Remember!! You can ask your child's teacher for help and ideas at any time.

Year 1

Addition

Number lines (numbered)

$$7 + 4$$

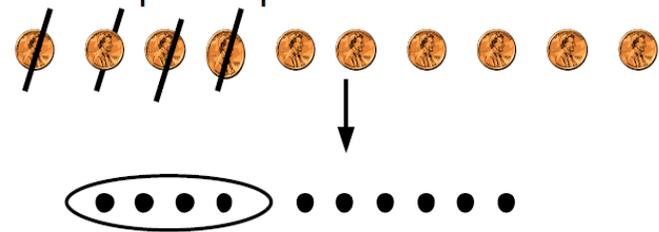


Record by drawing jumps on prepared lines

Subtraction

Pictures / marks

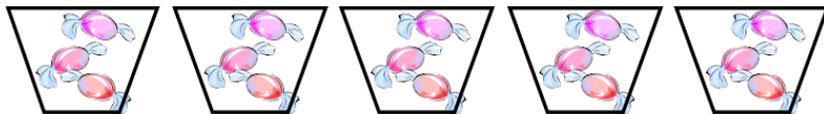
Sam spent 4p. What was his change from 10p?



Multiplication

Pictures and symbols

There are 3 sweets in 1 bag.
How many sweets are there in 5 bags?



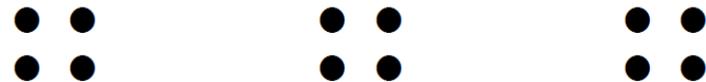
Division

Pictures and marks

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



Grouping using objects:



Reception and Year 1 cont.....



The most important thing to remember when your child is in Reception and Year 1 is that activities need to be **practical!**

There are opportunities to develop your child's mathematical ability in **play** and **every day activities** such as:

- matching socks
- counting the number of stairs
- putting the correct number of tins into a supermarket trolley
- singing counting songs in the car
- recognising shapes in the park
- laying the table for tea



Remember!! You can ask your child's teacher for help and ideas at any time.

Year 2

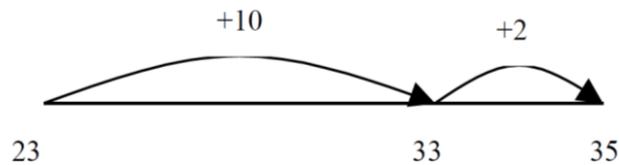
Addition

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:

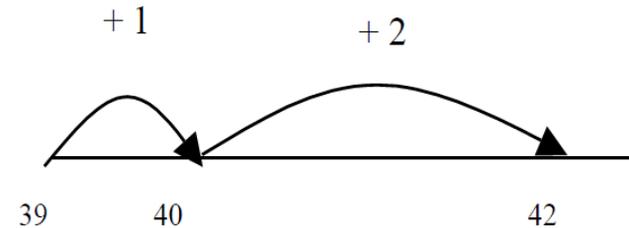
$$\begin{aligned} 23 + 12 &= 23 + 10 + 2 \\ &= 33 + 2 \\ &= 35 \end{aligned}$$



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?)



Remember!! You can ask your child's teacher for help and ideas at any time.



Year 2 cont.....

As your child moves through school, their work will become more formal but this should not replace the practical activities that the children need to do at school and at home.

There are opportunities to develop your child's mathematical ability in **play** and **every day activities** such as:

- Helping to sort the laundry
- counting money out in supermarkets
- working out what time programmes on television start
- singing counting songs in the car
- counting savings
- laying the table for tea



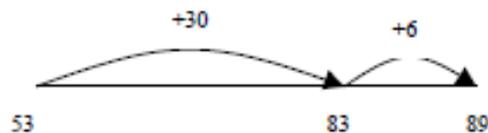
Year 3

Addition

Partition into tens and ones and recombine

Partition both numbers and recombine.

$$\begin{array}{r} 36 + 53 \\ 50 + 30 = 80 \\ 3 + 6 = 9 \\ 80 + 9 = 89 \end{array}$$



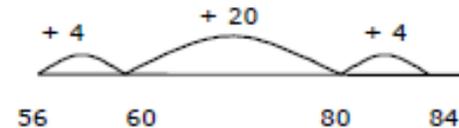
If children are finding adding 30 as a whole block difficult, break down into tens.

Subtraction

Find a small difference by counting up

(This is also called complementary addition)

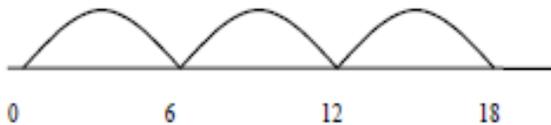
$$84 - 56 = 28$$



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



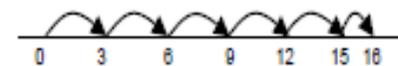
Remainders

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

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

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

e.g.



Remember! You can ask your child's teacher about this at any time.



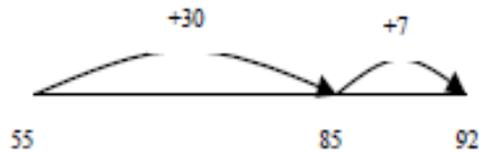
Year 4

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.

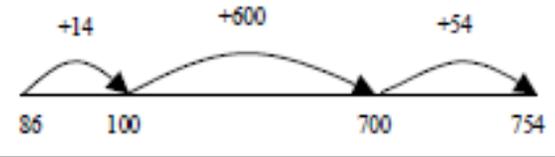
$$\begin{aligned} 55 + 37 &= 55 + 30 + 7 \\ &= 85 + 7 \\ &= 92 \end{aligned}$$



Subtraction

Find a difference by counting up

$$754 - 88 = 668$$



Multiplication

The Grid Method

$$72 \times 38 =$$

x	70	2
30	2100	60
8	560	16

$$2660 \quad 76$$

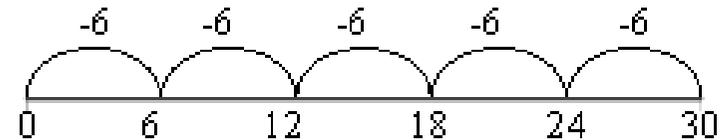
$$2660 + 76 = 2736$$



Division

Grouping.

This can be done by taking away groups of the same size. For example here we take away 5 groups of 6



Sharing

This is done by sharing out a number of objects into a certain number of groups .i.e.

$$15 = 3 \text{ groups of } 5$$



Remember! You can ask your child's teacher about this at any time.

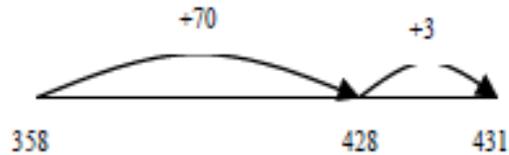
Year 5

Addition

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

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

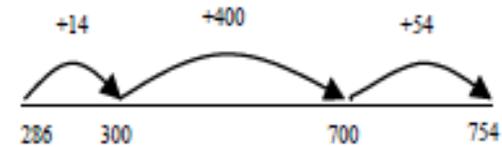
$$\begin{aligned} 358 + 73 &= 358 + 70 + 3 \\ &= 428 + 3 \\ &= 431 \end{aligned}$$



Subtraction

Find a difference by counting up

$$754 - 288 = 468$$



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.

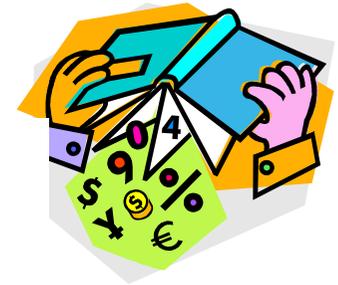
Division

Written methods – the chunking method

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

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

Answer: 36 remainder 4



Remember! You can ask your child's teacher about this at any time.

Year 6



Addition

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

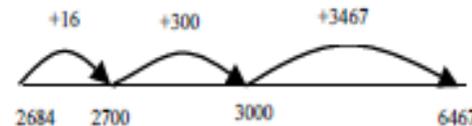
Either partition both numbers and recombine or partition the second number only e.g.
 $35.8 + 7.3 = 35.8 + 7 + 0.3$
 $= 42.8 + 0.3$
 $= 43.1$



Subtraction

Find a difference by counting up

$6467 - 2684 = 3783$



OR $6467 - 2684 = 3783$

Multiplication

Grid method

372×24 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.

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

Division

Written Methods – the chunking method

$977 \div 38$ is approximately $1000 \div 40 = 25$

$ \begin{array}{r} 977 \\ - 380 \text{ (10 groups)} \\ \hline 617 \\ - 380 \text{ (10 groups)} \\ \hline 257 \\ - 180 \text{ (5 groups)} \\ \hline 77 \\ - 72 \text{ (2 groups)} \\ \hline 5 \end{array} $	$ \begin{array}{r} 977 \\ - 720 \text{ (20 groups)} \\ \hline 257 \\ - 180 \text{ (5 groups)} \\ \hline 77 \\ - 72 \text{ (2 groups)} \\ \hline 5 \end{array} $
--	--

Answer: $27 \frac{5}{38}$



Year 6 cont.....

Year 6 also use a strategy called "Coin Maths" to help with mental calculations. This can be used with all numbers and a range of calculations once the children are familiar with it!!

X 16	
1	
2	
5	80

1. We start with $1 \times 16 = 16$
2. Then we can work out $10 \times 16 = 160$
3. Next we double 1×16 to get $2 \times 16 = 32$
4. Finally we halve 10×16 to get $5 \times 16 = 80$

From this we can work out any multiple of 16

$$21 \times 16 = 160 + 160 + 16 = 336$$

$$13 \times 16 = 160 + 32 + 16 = 208$$

Please come and speak to your child's teacher if you want this explaining.

10	160
----	-----

Standard Written Methods

In addition to the methods from previous pages, we also use and teach the standard written methods which parents may have been taught themselves at school. We do this as all children learn differently and need to find a method that they understand and feel confident with. Below are examples of addition, subtraction and long multiplication. We do not teach the standard written method for division as children do not understand it and find it very difficult to get right.

Addition

$$\begin{array}{r}
 37 \\
 + 24 \\
 \hline
 61 \\
 \hline
 \end{array}$$

Subtraction

$$\begin{array}{r}
 \overset{0}{\cancel{7}} \overset{1}{3} \\
 - 24 \\
 \hline
 49 \\
 \hline
 \end{array}$$

Long Multiplication

$$\begin{array}{r}
 16 \\
 \times 24 \\
 \hline
 64 \\
 320 \\
 \hline
 \overset{1}{3}84
 \end{array}$$

If you have any questions or want any of the examples explained then please come in and see us!
We will be very pleased to help.