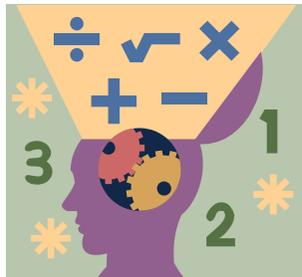


Maths at Home





Dear Parents,

This booklet includes information which has been put together by the teachers of Newlands Spring Primary School.

The intention is to support you at home when helping your child with their Maths.

Whilst your child is developing their mathematical skills it is an ideal opportunity for you to enjoy sharing ideas with them.

I hope that you find this booklet helpful. Please do ask if you have any queries.

Happy counting!!

Susannah Edom-Baker



Maths

Mathematics is a key learning area which has a central place in the curriculum. It provides a means to solve real problems in many everyday situations. Mathematics is not ‘sums’ but mental number knowledge and skills and of prime importance as they underpin written calculations.

You can help your child with mathematics at home by involving them in practical activities and by helping them to recall key facts e.g. number bonds or times tables. Some suggested activities might include:

Naming and recognising the properties of 2D and 3D shapes,

- Recognising shapes in the environment e.g. ‘shape eye-spy’
- Building with a variety of materials e.g. junk,
- Making models,
- Playing games like Twister,

Measures-Weight, Capacity and Length

- Cookery,
- Bath play with plastic containers,
- Sandpit,
- Playing with tape measures, rulers etc.

Time-Reading an analogue clock

- Use a clock to identify different times of the day e.g. breakfast, lunchtime, home time etc.
- Link Analogue time to Roman Numerals
- Working out the position of hands on an analogue clock when a favourite television programme will be on,

- Timing themselves doing different activities e.g. how long do you think it will take to lay the table?
 - How many times can they do an activity in a minute?

Money

- Play shopping with real coins,
- Make decisions at the shops using their own pocket money,
- Recognise and sorting coins,
- Count loose change in Mum and Dad's pockets,

Number Skills

- Making numbers (plasticine, lego)
- Recognising numbers in the environment e.g. door numbers etc, number bingo, number snap, dominoes.
- Counting numbers of objects,
- Board games e.g. snakes and ladders, games involving two dice.
- Number based story books,

Methods and Strategies

As children progress in mathematics, they develop written strategies to record the work they are doing practically. Number lines are used in the very early stages to add and subtract.

To make this clear, the progression in the four operations will be set out separately although in the teaching sequence the inverse operations are often used alongside each other

i.e. addition is the inverse of subtraction

$$8 + 4 = 12$$

$$12 - 8 = 4$$

$$4 + 8 = 12$$

$$12 - 4 = 8.$$

multiplication is the inverse of division

$$2 \times 4 = 8$$

$$8 \div 2 = 4$$

$$4 \times 2 = 8$$

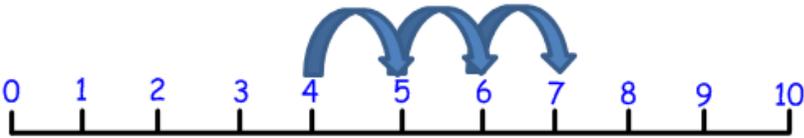
$$8 \div 4 = 2$$

Addition

Progression in written strategies for addition

1. The child starts at the bigger number and counts on in 1s making each jump on the line

$$4 + 3 =$$



2. Children should develop an understanding of the equals sign and complete 'empty box' style questions eg.

$$6 + \square = 9.$$

3. Children must reinforce using the empty number lines to complete TU + U calculation e.g. $39 + 6 = 45$



4. Number lines continue to be used for addition but the children also learn to partition number

$$\begin{aligned} 33 + 24 &= \\ 30 + 3 & \\ \underline{20 + 4} & \\ 50 + 7 &= 57 \end{aligned}$$

5. This progresses to a more formal setting

$$\begin{array}{r} 43 \\ + 21 \\ \hline 4 \\ \underline{60} \\ 64 \end{array}$$

6. Leading to

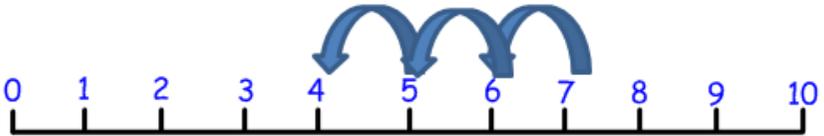
$$\begin{array}{r} 453 \\ + 219 \\ \hline 672 \\ 1 \end{array}$$

Subtraction

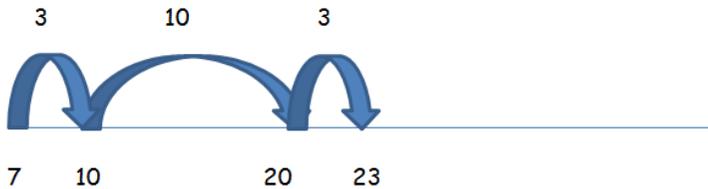
Progression in written strategies for subtraction

1. Children should begin by counting back using a variety of apparatus. This will reinforce and develop the concept of subtraction.

$$7 - 4 =$$



2. Children should develop an understanding of the equals sign and complete 'empty box' style questions
eg. $8 - \square = 6$
3. Children will move onto finding the difference between a 2 digit number and a 1 digit number (TU – U) using a number line.
 $23 - 7 = 16$



4. Children will move onto completing the **expanded (partitioning) column method** to subtract a two digit number from a two digit number (TU – TU)

$$\begin{array}{r} 79 - 31 = 48 \\ 70 + 9 \\ - 30 + 1 \\ \hline 40 + 8 \end{array}$$

5. Once children feel secure with the expanded column method they will move onto the **compact column subtraction method.**

$$\begin{array}{r} 6 1 \\ 2 7 4 \\ - 1 5 6 \\ \hline 1 1 8 \end{array}$$

Multiplication

Progression in multiplication

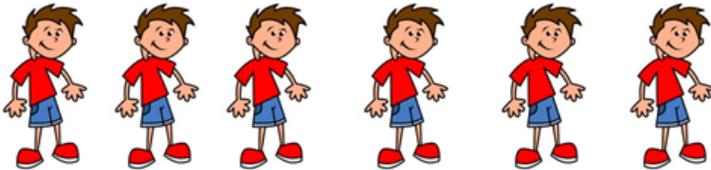
1. Children will begin to count repeated groups of the same size in practical contexts, for example counting pairs of socks and the number of fingers on hands.



2. They will solve practical problems that involve combining groups of the same size.

How many legs will 6 people have?

How many legs will 6 people have?



$$2 + 2 + 2 + 2 + 2 + 2 = 12$$

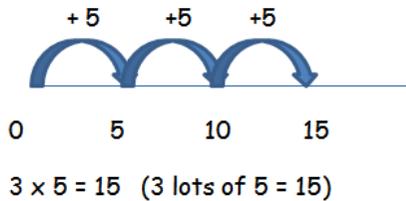
Using arrays

$$6 \times 3 = 18$$



3. Children will continue to develop their understanding of multiplication using arrays and repeated addition on number lines.

Using repeated addition on a number line



4. Children will progress onto using their understanding of place value and partitioning to complete multiplication sums of two digit by one digit numbers.

$$12 \times 4 =$$


$$10 \quad 2$$

$$10 \times 4 = 40$$

$$2 \times 4 = 8$$

$$40 + 8 = 48$$

This will develop to using the **grid method** for multiplying a two digit number by a one digit number.

$$15 \times 3 =$$

$$15 \times 3 =$$

x	10	5
3	30	15

$$30 + 15 = 45$$

5. Once children feel confident with this strategy they will move onto the **expanded short and long multiplication** method.

$$13 \times 6 = 78$$

$$\begin{array}{r} 10 + 3 \\ \text{X} \quad \underline{\quad 6} \\ 18 \text{ (6 x 3)} \\ + \underline{60 \text{ (6 x 10)}} \\ 78 \end{array}$$

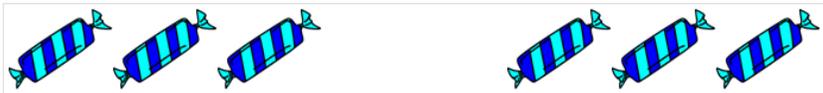
6. Children will progress onto using the **compact short and long multiplication** method.

$$\begin{array}{r} 46 \\ \times \underline{6} \\ \underline{276} \\ 3 \end{array}$$

Division

Progression in division

1. During practical activities and through discussion they will begin to solve problems involving halving and sharing.

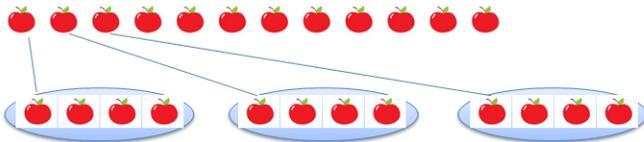


For example share the sweets between two people.
'Half of the sweets for you and half of the sweets for me.'

2. Children will then move onto building their understanding of the difference between grouping and sharing.

Sharing

$$12 \div 3 = 4$$



Grouping

Children will then sort objects into 2s / 3s/ 4s etc



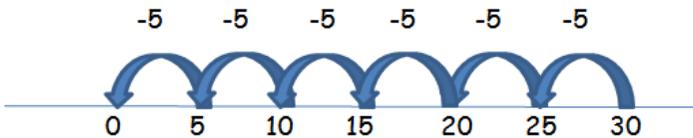
There are 15 flowers. Plant 3 in each pot. How many pots are there?

3. When children are ready, they will use apparatus and empty number lines to count forwards:

$$15 \div 3 = 5$$



Children will also jump back to make the link with repeated subtraction



4. Children will then begin to use division using partitioning (two digits divided by one digit):

$$65 \div 5 = 13$$

$$65 = 50 + 15 \quad \text{Partition 65 into 50 and 15}$$

$$50 \div 5 = 10$$

$$15 \div 5 = 3$$

$$10 + 3 = 13$$

They will also use more formal written methods eg 'Chunking'.

$$\begin{array}{r}
 13 \\
 5 \overline{) 65} \\
 \underline{50} \quad (10 \times 5) \\
 15 \\
 \underline{15} \quad (3 \times 5) \\
 0
 \end{array}$$

5. These partitioning methods will lead onto the formal written methods of short division.

432 ÷ 5 becomes

$$\begin{array}{r} 86r2 \\ 5 \overline{) 432} \end{array}$$

Answer: 86 remainder 2

6. Children will also need to use long division when dividing two digit numbers.

432 ÷ 15 becomes

$$\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{30} \\ 132 \\ \underline{120} \\ 12 \end{array}$$