



Welcome to our Maths Workshop

Wednesday 5th October 2016

Objectives of this evening

- To give you a brief overview of the progression of skills taught in Maths, from Reception to the end of Key Stage 1.
- To look more closely key skills and some ways we teach them in Reception.
- Explore some ways you can support your child's learning at home.



Whole and halves



Progression in Skills

Your child learns skills and techniques progressively, from their arrival in Reception to the end of Year 2.

We will briefly talk though how specific skills are developed from Reception to the end of Key Stage 1.

Please be aware that the Reception skills listed are the end of year expectations for an average child.



EYFS and Key Stage 1 Numeracy Overview

<u>Reception</u>	<u>Year 1</u>	<u>Year 2</u>
<p><u>Number and Place Value</u> <u>Pupils taught to:</u></p> <ul style="list-style-type: none"> Count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Select the correct numeral to represent 1 to 5, then 1 to 10 objects. Find one more or one less from a group of up to five objects, then ten objects. 	<p><u>Number and Place Value</u> <u>Pupils taught to:</u></p> <ul style="list-style-type: none"> Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count, read and write numbers to 100 in numerals; count in multiples of two's, five's and tens. Given a number count 1 more and 1 less. Identify and represent numbers using objects and pictures including a number line. Use mathematical language such as : equal to, more than, less than, most, least 	<p><u>Number and Place Value</u> <u>Pupils taught to:</u></p> <ul style="list-style-type: none"> Count in steps of 2, 3, and 5 from 0 and in tens from any number, forward and back. Recognise and place value each digit in two – digit numbers. Identify, represent and estimate numbers using different representations including the number line. Compare and order numbers from 0 to 100 using \geq, \leq and $=$ signs. Read and write numbers to at least 100 in numerals and words. Use place value and number facts to solve problems.

Addition and Subtraction

Pupils taught to:

- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.
- Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

Addition and Subtraction

Pupils taught to:

- Read, write and interpret mathematical statements involving addition, subtraction and equals signs. $+$ $-$ $=$
- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one and two digit numbers to 20, including zero.
- Solve one step problems that involve addition, subtraction. These may be presented as missing number problems.

Addition and Subtraction

Pupils taught to:

- Solve problems with addition & subtraction:
 - Using objects or pictures to support, involving numbers, quantities and measures.
 - Applying their increasing knowledge of mental and written methods.
- Recall and use addition and subtraction facts to 20 fluently, and derive these and use related facts up to 100.
- Add and Subtract numbers mentally, using pictures or objects, including :
 - A two-digit number and ones
 - A two- digit number and tens
 - Two two-digit numbers
 - Adding three one – digit numbers
- Show that addition of two numbers can be done in any order and subtraction of one number from another cannot.
- Recognise and use the inverse relationship between addition and subtraction to check calculation and solve missing number problems.

Multiplication and Division

Pupils taught to:

- They solve problems, including doubling, halving and sharing.

Multiplication and Division

Pupils taught to:

- Solve one step problems involving multiplication and division. Children may use objects, pictures or arrays to support them with this.

Multiplication and Division

Pupils taught to:

- Recall and use multiplication and division facts for the 2, 5, and 10 multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them as a number sentence.
- Show that multiplication of two numbers can be done in any order and division from one number by another cannot.
- Use arrays, pictures, repeated addition and subtractions methods, mental methods and times table recall to solve problems.

Fractions

Pupils taught to:

- They solve problems, including doubling, halving and sharing.

Fractions

Pupils taught to:

- Recognise, find and name a half as one of two equal parts of an object, shape or quantity.
- Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity

Fractions

Pupils taught to:

- Recognise, find, name and write fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$ of a length, shape, set of objects or quantity.
- Write simple fractions for example : $\frac{1}{2}$ of 6 = 3
- Recognise the equivalence of $\frac{1}{2}$ and $\frac{2}{4}$.

Measures

Pupils taught to:

- Use everyday language to talk about:
 - size,
 - weight,
 - capacity,
 - position,
 - distance,
 - time and
 - money
 - Compare quantities and objects and to solve problems.

Measures

Pupils taught to:

- Compare, describe and solve practical problems for: height, length, mass, weight, capacity, volume, time.
- Measure and begin to record the following:
 - Lengths / height
 - Mass / weight
 - Capacity / volume
 - Time in hours, minutes and seconds
- Recognise and know the value of different denominations of coins and notes.
- Sequence events in chronological order
- Recognise and use language relating to dates, including days of the week, weeks, months and years.
- Tell the time to the nearest hour and half past the hour.

Measures

Pupils taught to:

- Choose and appropriate standard unit of measurement to estimate and measure:
 - Length / height (m/cm)
 - Mass ((kg/g)
 - Temperature (°c)
 - Capacity (l / ml)
- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
- Find different combinations of coins that equal the same amounts of money.
- Solve simple problems in a practical context involving addition and subtraction of money, including giving change.
- Compare and sequence intervals of time
- Tell and write the time to five minute intervals including:
 - O'clock
 - Half past
 - Quarter to
 - Quarter past
- Know the number of minutes in an hour and the number of hours in a day.

Shape

Pupils taught to:

- Begin to use mathematical names for
 - 'solid' 3D shapes and
 - 'flat' 2D shapes, and mathematical
- Select a particular named shape.
- Use terms to describe shapes.
- They recognise, create and describe patterns.

Shape

Pupils taught to:

- Recognise and name 2D and 3D shapes including:
 - 2D – rectangles squares, circles and triangles
 - 3D – cuboids, cubes, pyramids and spheres.

Shape

Pupils taught to:

- Identify and describe the properties of 2D shapes, including the number of sides, lines of symmetry in a vertical line.
- Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.
- Identify the 2D shapes on the surface of 3D shapes.
- Compare and sort common 2D and 3D shapes.

Position and Direction

Pupils taught to:

- Measure short periods of time in simple ways.
- Use everyday language related to time.

Position and Direction

Pupils taught to:

- Describe position, direction and movement including whole, half, quarter and three quarter turns.

Position and Direction

Pupils taught to:

- Order and arrange combinations of mathematical objects in patterns and sequences.
- Use mathematical vocabulary to describe the position, direction and movement:
 - Rotation – in terms of right angles
 - Quarter turn
 - Half term
 - Three quarter turn
 - Clockwise and Anti-clock wise

Statistics

Pupils taught to:

- Interpret and construct simple pictograms, tally charts, block diagrams and simple tables
- Ask and answer simple questions by counting the number of objects in each category and sorting categories by quantity.
- Ask and answer questions about totally and comparing categorical data.





How is maths taught in Reception?

Children learn about maths in lots of ways in Reception:

- ✓ Carpet session each day linked to Maths
- ✓ Cross-curricular table top activities and outdoor
- ✓ Lots of talking
- ✓ Thinking
- ✓ Self-discovery
- ✓ Problem solving
- ✓ Using manipulatives
- ✓ Asking questions
- ✓ Real-life learning

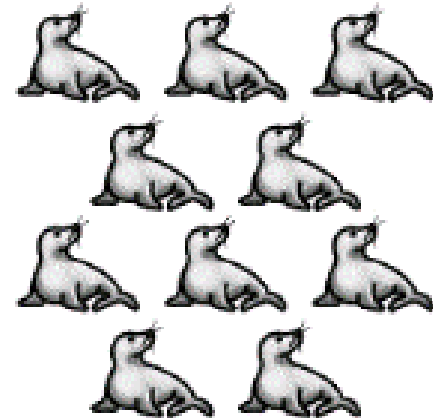
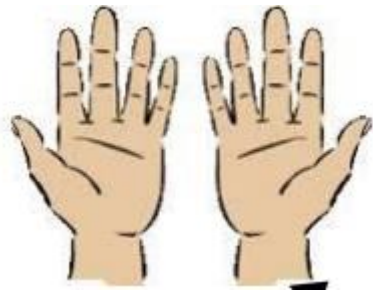


What does my child need to know?

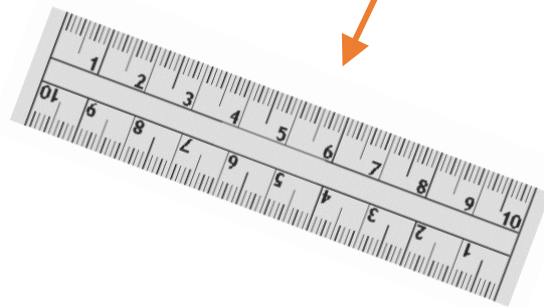
Number			
Number and place value  <ul style="list-style-type: none">- Representation of numbers as value- Need to reliably count and order numbers to 20- Need to be able to say numbers before or after each- 1st, 2nd, 3rd	Addition and subtraction  <ul style="list-style-type: none">- Need to be able to work out 1 less, 1 more than any given number- Need to be able to add or subtract 2 digit numbers	Sharing  <ul style="list-style-type: none">- Need to be able to solve problems around sharing	Doubling and halving  <ul style="list-style-type: none">- Need to be able to solve problems around doubling and halving

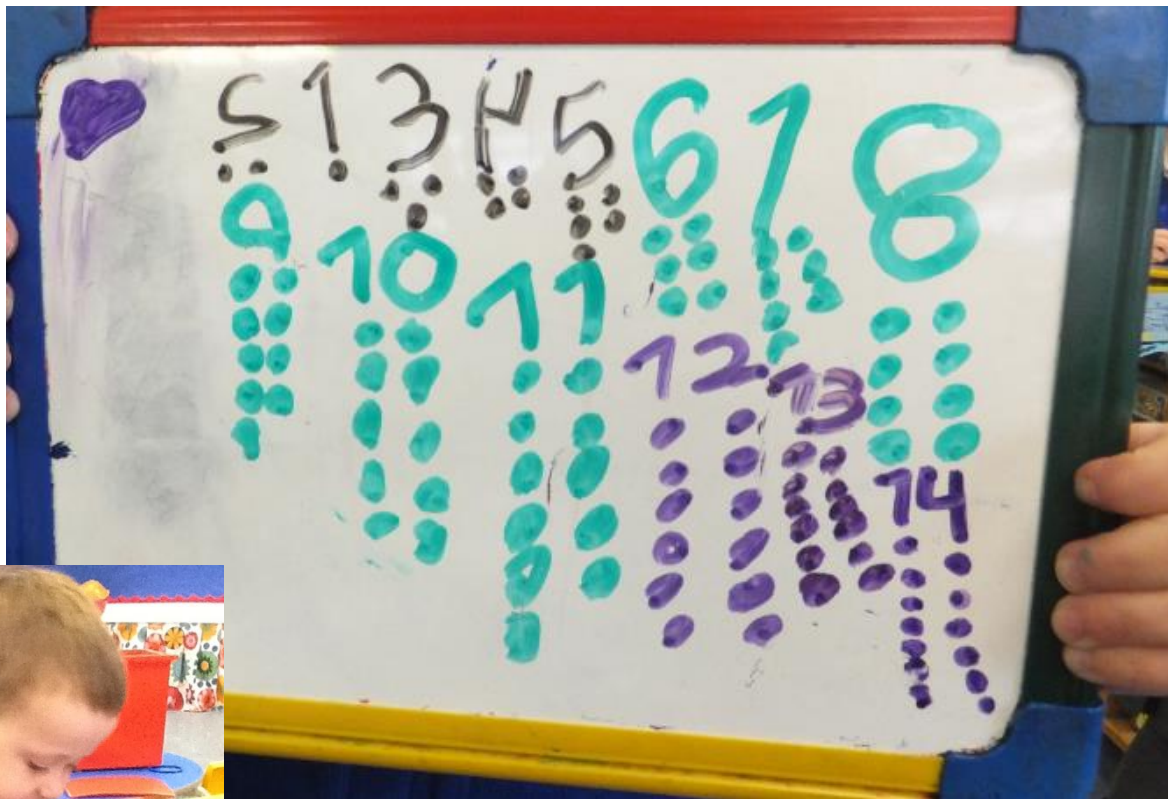
Additional to prepare for Year 1 – count in 2s, 5s and 10s

Understanding the value of number



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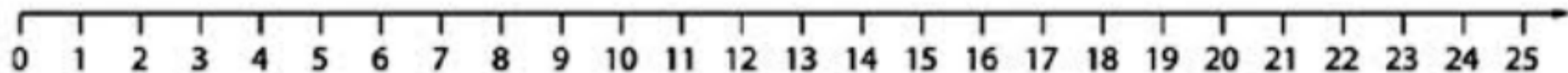
Children need first to learn number names and to count in sequence. Rhymes and songs help this.

They will learn the grapheme associated with a number, initially to 10, then 20 and beyond AND that each number refers to a physical quantity. This needs to be understood in concrete, physical terms.

Once children grasp this, and understand securely how numbers relate to one another, they can confidently begin to explore the operations of adding, subtracting and sharing.

Order these numbers from smallest to largest.

20 3 14 7 0



Early addition

Once they understand what numbers 'mean' children can begin to learn operations and strategies for working with them, eg:

- Find one more using objects, or find one more than a numeral
- Combine groups of objects
- Worded problems
- Solving number sentences



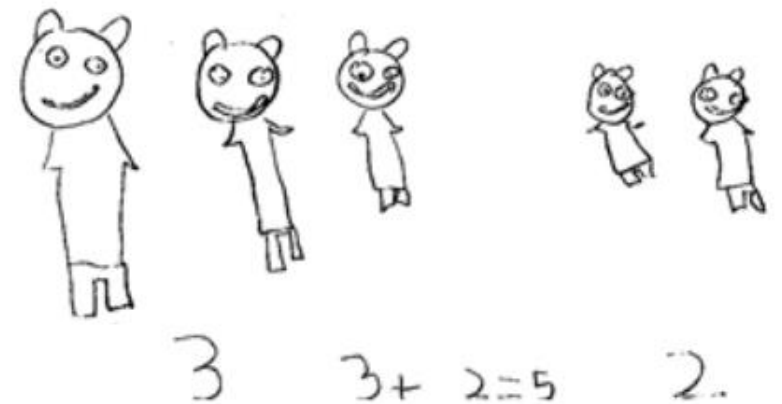
How might your child
solve this problem?

Jane had three bears,
she was given two more.
How many does she have now?

Here are a few possibilities:

- Counting out sets of objects and combining the groups to find the total
- Using their fingers (three fingers, two fingers and count them all)
- Counting on from the first number (big number on their head)
- Drawing the problem and finding the solution
- Knowing the number fact
- Counting on using a number line

(These are in rough order of skill development)





Your turn! What is

$$27 + 59?$$

How did you work it out?
What strategy did you use?

Early subtraction

Subtraction, or finding 'less' is the next skill taught. Children will:

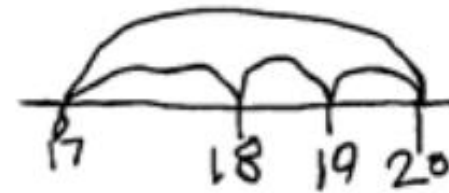
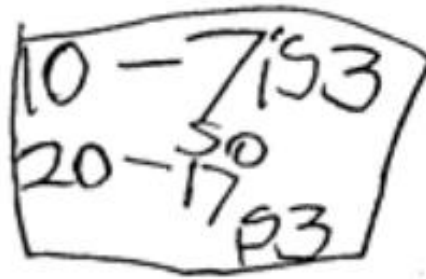
- Need to understand concept behind the related vocabulary (less, fewer, subtract, take away, minus).
- Find one *less* using objects, or find the number one *less* than a numeral
- Use quantities or objects to subtract two single-digit numbers and count back to find the answer.
- Begin to subtract single digit numbers from numbers to 20.
- Solve worded problems
- Solve number sentences

How is it taught?

- Songs and rhymes
- Counting on and back on number lines
- Physically removing objects and counting what is left
- Real life situations (eg numbers allowed at an activity – how many would need to leave)
- Number sentences

The same question can be solved in many ways.

e.g. There are 20 children in the group. Three are away. How many are here?



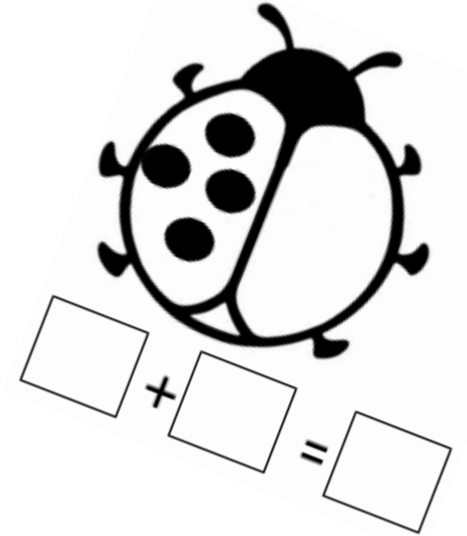
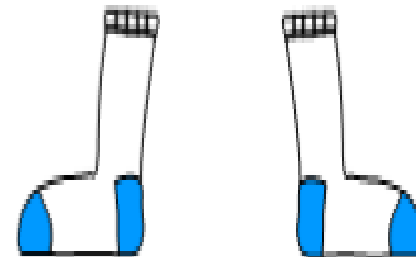
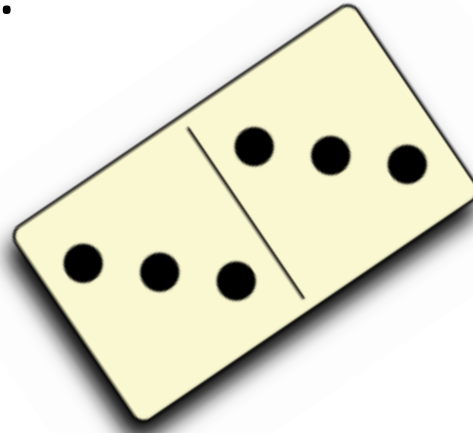
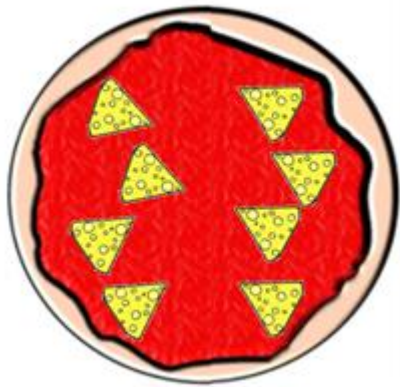
2 away would be 18
so 3 away must
be 17.

|||||
 $20 - 3 = 17$

Children are introduced to a variety of strategies over time and in Reception are encouraged to find ways to solve problems.

Early division and multiplication

In reception we explore it through 'sharing', doubling and halving,
We explore the concepts practically.



How you can support your child

Counting



Be a number detective!



What numbers can you see? What is this number called? What is the total of the numbers? What is 7 take away 3? Is this number odd or even?



Measuring and weighing



Go shopping!



Which is heaviest?
What shape is it? How
many have we got?
How many more do
we need to have 5?



Can you give me
5p? Is there
another way you
could do it?



Sharing, halving, doubling



Share the breadsticks / sweets between you and your friend. How many will you have each. What if we had to share them between 3 people?



Can you cut your toast in half? How many pieces would you have if you cut it again?



Please DO try this at home...

(a few everyday ideas to explore and perhaps use at home)

Geraldine loves cookies!

Puppets and cookies – or other tasty treat (real or not!).

- great for adding,
- subtracting,
- sharing,
- counting.



What's in the bag?

We love a good bag here in Reception! You can hide and reveal a variety of things:

- 2D and 3D shapes – guess revealing, by just feeling or by describing it.
- Plastic numbers – reveal (just a little at a time or all of it), name them and sequence them. Which is biggest, smallest. Take two out and work out the total.

Useful websites

Some useful websites:

www.crickweb.co.uk

www.topmarks.co.uk

www.twinkl.co.uk

www.ictgames.co.uk

www.whizz.com

Any questions?