Cannon Lane Primary School

Reception Maths

This booklet is designed to provide information for parents about the Early Years Maths curriculum. At the end of Reception, most children are expected to reach an Early Learning Goal in Number and in Shape, Space and Measure. This booklet gives details on what those Early Learning Goals mean and how you can support your child at home.

The statutory Early Years Foundation Stage curriculum extends from the birth of a child to the end of the school year in which they turn five, usually the Reception year at school. At the end of Reception, teachers are required to assess the children against 17 Early Learning Goals and determine whether they have reached the expected level, exceeded that level or are still emerging in terms of their learning and development.

Early Learning Goal for Number

- **Expected**
    - Count reliably with numbers from 1 to 20, place them in order and know what is one more or one less from any given number.
    - Using quantities and objects, they add and subtract two single digit numbers and count on or back to find the answer.
    - Solve problems such as doubling, halving and sharing
- **Exceeding**
    - Children estimate a number of objects and check quantities by counting up to 20.
    - They solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.

- **Early Learning Goal for Shape, Space and Measure**
- **Expected**:
    - Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare objects and quantities and solve problems.
    - They recognise, create and describe patterns
    - They explore characteristics of everyday objects and shapes and use mathematical language to describe them.
- **Exceeding:**
    - Children estimate, measure, weigh and compare and order objects and talk about properties, position and time.

If a child is still working towards the Early Learning Goals they will be deemed emerging and will continue to work towards achieving these goals in Year 1.

Counting

There are two skills involved in learning to count:

- Reciting number names
- Enumerating objects

The most important aspect of learning to count is understanding that each number represents a set of objects. Children have to learn that 4 means a group of 4 objects or that 8 means a set of 8 objects. We encourage counting using real objects to develop the conceptual understanding of numbers as abstract representations of concrete sets of objects.

Reciting Number Names	Enumerating objects
Forwards 1 - 20	1:1 correspondence; saying one number and touching one object
Backwards 20 – 1	Final number: counting out a set amount from a larger group e.g. give me 6
Start at a number and count up or back: start at 13 and count up to 20; start at 9 and count back to 1	Conservation of number: 6 big things is the same amount as 6 small things
Ordering number cards	

How to help at home

- Sing Number songs and rhymes. They can be extended to the suit the child's ability for example 10 Green Bottles can become 100 Green Bottles
- Number quiz. Pick a number between 1 and 20 and ask your child to count on from that number or count back. This will develop a child's understanding of the order of numbers and which are larger or smaller.
- Counting real objects. Use every opportunity to count real objects taking care to ensure one number corresponds to one object. Again this can be developed to suit your child's ability e.g. stairs; cars; lampposts; paving slabs

Calculation

As with Counting, it is very important that calculation is carried out using real objects for very young children to gain an understanding of the concrete nature of the operations.

Addition	Subtraction
One more, two more: say a number and know what is one more than that number up to 20	One less, two less: say a number and know what is one less than that number up to 20
Counting all: combine two groups of objects by counting all of them	Counting back: take away a smaller group from a larger group by counting back from the total
Counting on: keep the number of the larger group in your head and count on the number to be added e.g. 7 add 3 by starting at 7and count on 8,9,10.	Counting on: find the difference between two numbers by counting on from the smaller one to the bigger one.
Number bonds to 10: what do I add to 6 to get to 10?	Number bonds to 10: 10 take away 5 leaves…

With early calculation we use terminology that will help the children to understand the concept so we say:

- 7 and 4 makes 11
- 6 and 3 makes 9

Some children may progress on to using mathematical symbols such as +, -, = towards the end of Reception. More children will develop these skills of abstraction in Year 1.

Further information regarding calculation in Reception and the progression through to Year 1 and 2 is available on Cannon Lane Primary School website.

Word Problems

Solving word problems involves the application of the skills of adding and subtracting in a real life context. Instead of simply adding 3 and 4, a word problem would situate the mathematical operation in a real context e.g.

> *I have 3 bananas and you have four apples. How many pieces of fruit do we have altogether?*

Word problems are used to ensure children understand the practical application that mathematics has. Skills applied in word problems can extend beyond adding and taking away to include doubling, halving and sharing which form the basis of multiplication and division e.g.

> *We have 6 sweets and three children. How many sweets does each child get if we share them evenly?*
> *Two children have 4 chocolates each. How many altogether?*
> *If we have one pizza and there are two children, how much does each child get?*

How to help at home

- Play board games such as Snakes and Ladders. Many of these support the concept of *counting on* i.e. starting from a given number and counting forward. Board games involving dice build up number and calculation skills in a play based way that Is appropriate for young children.
- There are many card games that are suitable for young children including Snap based games and domino games. Calculation skills can be further supported with games such as 21, Solitaire and Hearts.
- Word problems as discussed above can be made up on the spot in any situation: 2 red cars and 4 black cars; 2 plates, but I want 4 altogether. How many more do we need?
- Number bonds to 10 can be explored using fingers. If I have 3, how many more do I need to add on to get to 10?

Shape

By the end of Reception children are expected to be able to name and identify some common 2d and 3d shapes. The list of shapes below is not exhaustive.

2D shapes	3D shapes
Circle Square Triangle Rectangle	Sphere Cone Cylinder Cube

Some children will love to learn names of shapes and can be extended to include pentagons, hexagons and octagons.
In addition to knowing shape names, children are taught to recognise shapes in the environment e.g. windows, light switches, clocks. The practice of identifying shapes in the real world relates to the focus of Early Years Mathematics being on the understanding concepts and making connections with children's early experiences.
The third aspect to shape is for children to begin to learn what makes a triangle, a triangle and what makes a square, a square. Children begin to learn mathematical language such as faces, vertices, sides.

How to help at home

- Shapes in the environment: looking at shapes that occur in the everyday environment. How many can you see? Can you count all the circles you can see?
- Shape hunt: who can find a triangle?
- Shape quiz: I am a shape with 4 sides; all my sides are the same length; what am I? Find me the shape with 3 sides.
- Puzzles are a great way of beginning to understand the relationships between objects that fit together or even tessellate. Puzzles also help children to develop the fine motor skills of fitting objects together.
- Construction can vary from commercial brands such as Lego or Stickle Bricks to junk modelling using empty boxes and containers. All forms of construction help children to understand shape and support their creative skills of design and evaluation.

Measure

Measure is a very broad area that covers:

- Size: Big, bigger, biggest
- Weight: Heavy, heavier, heaviest
- Capacity: Full, half full, empty
- Distance: Far or near
- Time: Sequence of the day
- Money: Coins, value

Children are taught to compare the size of one object to another and begin to use **comparative language** of bigger than, smaller than and lighter than. When it comes to Time, children are taught to sequence events in their day such as what happens in the morning, lunchtime, afternoon or night time. Children develop an awareness of clocks as instruments of measure and that particular positions of the hands signify specific events e.g. lunchtime; home time. Money is also taught in terms of coins that represent a value. Role play with coins in a pretend shop is an effective way to develop children's familiarity with coins and that they are worth different amounts.

How to help at home

- Cooking and baking offer a number of opportunities to explore mathematical concepts such as counting ingredients; weighing and measuring; sequencing activities; timing the cooking process.
- Shopping also brings mathematics to life: encourage children to handle coins and see what they can buy for £1

Space

Learning about space in EYFS involves investigating the position and location of objects in relation to other objects or oneself. Children learn about positional language such as under; behind; in front of. In addition children learn about pattern. These patterns could perhaps be 2 two colour repeating pattern in beads or blocks or predicting what will come next in a given pattern. Pattern is a fundamental mathematical concept that is developed further as children grow up and is encountered not just in Mathematics but also in Science, Computing and Geography etc.

How to help at home

- Use household objects for creating repeating patterns such as cutlery, items of clothing, drawing and colouring. Use coloured blocks and bricks such as Lego to build using repeating patterns.
- Position can be reinforced by using cuddly toys and giving instructions to put them in certain places: under the table; next to the TV; on top of the bed.

At the end of Reception children will be assessed in terms of their mathematical development. However, the teaching and learning of the concepts described above continues into Year 1 with a blend of the concrete and the abstract.

Some websites that support young children's mathematical development

Please find below a selection of websites offering games and resources suitable for children in Reception.

Nrich Maths is a fabulous website that explains some of the theory behind early mathematical development as well as suggesting games and resources to be used with young children.
https://nrich.maths.org/early-years

Busy Things is a fun, engaging website accessible using the London Grid for Learning (LGFL) logins and passwords the children have been given. Children and parents can differentiate the activities they choose by selecting age ranges: age 4; age 5; ages 5-6.
http://busythings.lgfl.org.uk/

Here are a few other websites that are generally available.

http://www.topmarks.co.uk/maths-games/5-7-years/counting

http://www.crickweb.co.uk/Early-Years.html

http://www.ictgames.com/resources.html

http://www.bbc.co.uk/schools/websites/4_11/site/numeracy.shtml

http://mathszone.co.uk/rec-summer-maths/