Founded 1904
Registered Charity No 528912

Mathematical Development Policy

RIGHTS RESPECTING SCHOOL
This policy is in accordance with the 1989 United Nations Convention on the Rights of the Child (UNCRC)
Article 28 Every child has the right to an education.
Article 29 Education must develop every child's personality, talents and abilities to their full.

At Selly Oak Nursery School we believe children learn mathematical concepts best through practical first hand experiences. Learning should be fun and mathematical language develops most effectively when supported by interaction with adults. Children learn mathematical concepts through activities both planned by adults and chosen independently. It is school policy that adults plan activities around children's interests wherever possible but also ensure that a balance of activities is planned over time. Children develop their abilities in using numbers, as labels and for counting and calculating, as well as activities to develop concepts of shape, space and measure.

Adults ensure that there is a cross curricular holistic approach to mathematical learning. Cooking activities are planned to give opportunities to use mathematical language for instance "how many more cakes do we need to make?" or "do we need a big spoon for the jam or a little one?" and also weighing opportunities.

We have a rich learning environment that enables children to achieve the next steps in learning through independent play. Role play areas set up both indoors and outside enable a variety of mathematical learning to take place. A shop, post office and builder's yard encourage the children to write their own price tags, explore money and talk about the size or height of towers. Inside the nursery there is a specific maths area that is well resourced with attractive mathematical apparatus and games. There is a laptop linked to the interactive whiteboard which is used for all areas of learning.

Our emphasis on developing children's independent learning ensures there are opportunities to develop mathematical learning in all rooms. Play equipment is accessible to children. It is classified and labelled in boxes or trays so that, at tidy up time, children are learning to sort and match. Children are given opportunities to solve problems and work together. They are encouraged to begin to record mathematical ideas in their own way when playing indoor games.

The organisation of the session ensures children work individually and in groups. Every day the session ends in a family group story time. This session sometimes involves a story with a mathematical theme e g "The Three Bears" with story sack props. Staff use other opportunities to sing number rhymes on a regular basis including props where possible.
Staff assess and record children's learning through observation, using photographs and the Early Years Foundation Stage profile. Photographic assessment is shared with parents and they receive a written report of their child's progress when they leave the nursery.

Parents are also informed through termly open evenings and Mathematical information leaflets. Areas of mathematical learning are shown on the weekly planning sheet for parents/carers following assessment and observation of children.

Numbers

Learning Objectives 30 – 50 months

- Uses some number names and number language spontaneously
- Uses some number names accurately in play
- Recites numbers in order to 10
- Knows that numbers identify how many objects are in a set
- Beginning to represent numbers using fingers, marks on paper or pictures
- Sometimes matches numeral and quantity correctly
- Shows curiosity about numbers by offering comments or asking questions
- Compares two groups of objects, saying when they have the same number
- Shows an interest in number problems
- Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same
- Shows an interest in representing numbers
- Realises not only objects, but anything can be counted, including steps, claps or jumps

Learning Objectives (40 – 60 months)
Overview: Children learn about recognising and ordering numbers as well as beginning to use vocabulary associated with adding and subtraction.

Early Learning Goal (end of Reception)

Children count reliably with numbers from one to twenty, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They sovle problems, including doubling, halving and sharing

Examples of activities to develop learning

- Lotto
- Play dough with bun tins, chocolate boxes
- Coloured pegs
- Tea parties in home corner
- Cooking activities
- Number rhymes
- Number washing lines
- Number puzzles
- Hopscotch/number lines, outside/indoors
- Number carpet tiles
- Clocks/telephones
- Maths in the environment walks, record with clipboards
- Bags/boxes, card numerals, to find the right number
- Trays and dishes, sorting toys and magnetic numerals
- Computer games
- Dice games/cake game/ladybird game/dominoes
- Compare bears and other sorting toys to rearrange
- Small world toys to sort and rearrange e.g. animals, cars
- Building bricks
- Estimate how many segments of the orange or grapes on the bunch
- Estimate how many will fit in the box, bag
- Estimate how many are in the box or bag
- Sand/water play how many will fill the bucket etc
- Guess how many steps to the climbing frames
- Counting the number of bubbles blown in the playground
- Solve practical problems such as where toys should go at tidy up time, how best to collect the sand from the floor, how to share the sandwiches/biscuits fairly
- Calculators
- Sorting toys
- Sorting dolls' clothes, socks, shoes
- Small world toys, animals, cars, dolls' house furniture

- Sorting each other by gender, hair etc
- Traffic survey, children to record tallying with clip boards
- Find the big cars, blue cars, baby animals etc (partitioning)
- Number lines, rhymes, carpet tiles, skittles etc forwards and backwards
- Cooking and sharing, use language more than/less than
- Roamer, Pixie, Bee Bots (ICT Programmable toys)
- Block graphs, likes, dislikes, colour, fruit, pets, families, how you come to school, eyes

Shape, Space and Measure

Learning Objectives (30 – 50 months)

- Shows an interest in shape and space by playing with shapes or making arrangements with objects
- Shows awareness of similarities of shapes in the environment
- Uses positional language
- Shows interest in shape by sustained construction activity or by talking about shapes or arrangements
- Shows interest in shapes in the environment
- Uses shapes appropriately for tasks
- Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'

Learning Objectives (40 – 60 months)

Overview: Children learn about the names for both 2D and 3D shapes as well as beginning to talk about their properties. Children begin to measure length, height, weight and capacity whilst ordering 2 or 3 objects. Children will begin to use vocabulary associated with time and money.

Early Learning Goal (End of Reception)

Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

Activities

- Compare and order height
- Measuring with hands and feet
- Modelling language such as long and short using tape measures

- Play with scales and balances
- Cooking
- Collections of boxes same size different weights, objects that are large and light, small and heavy
- Egg timers, cooking timers
- Time of day, seasons
- Real shopping
- Play shops, sorting money, recognising coins and exchange
- Sand/water play, full, empty, half full, etc
- Making shape pictures
- Drawing around shapes
- Shape games
- Tessellation
- 'Shape walk' in the environment with clip board to record
- Shape sorter
- Feely bags
- Printing with shapes
- Junk modelling
- Block play and with ramps
- Notice and recreate patterns in the environment, stripes, spots etc
- Copy, continue and create pattern using, bricks, beads or pasta necklace
- Jigsaws
- Positional language, hide and seek, obstacle course
- Three Bears story with props
- Stacking and nesting toys

Agreed by Selly Oak Nursery School Governors Curriculum Sub - Committee on ……..

Signed ……..

Review date ……..