



Head Teacher
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Principal
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Curriculum Policy for Problem Solving, Reasoning and Numeracy

Foundation Stage (Nursery and Reception)

Aim

To foster enthusiasm, confidence and the development of knowledge in exploring, using and applying a broad range of mathematical concepts.

Objectives

To provide all children with broad and varied experience in which mathematical language, skills and concepts can be created, supported and nurtured.

Operating Policy

The children will have an opportunity to observe peers and adults using and applying mathematical skills and concepts in everyday situations and in class based activities. Maths is not seen as a separate area but rather as part of the whole curriculum and potential for developing mathematical awareness is built into all the activities provided by the Nursery and Reception classes.

The children will have the opportunity to explore the properties of a wide range of materials in a range of contexts which will include much free play experience with and without adult input, and experience of real life situations such as shopping, cooking, sharing etc.

Confidence and enthusiasm will be supported through sensitive adult input which will provide for open ended questioning and the development of mathematical thinking and language.

Programme of Work

Learning will be achieved via a mixture of subject, cross-curricular and topic based activities. The curriculum will be delivered through both adult led and structured free play activities.

The programme of work will include opportunity for topic based and general activities which will encourage the children to explore, investigate and question.

Activities will involve the use of both natural and made material, selected to support the children's learning. The activities will be of a free play or teacher directed nature, and will be based upon structured play.

Where play is properly structured, and there is sensitive intervention and language input from adults, children can gain knowledge of mathematical concepts and language in an incidental manner.

The children need many experiences of sorting, matching and comparing a wide variety of objects and materials in order that they can begin to count systematically and understand the true meaning of number. There are certain concepts which the children need to understand,

and in planning Foundation Stage activities we aim to provide the children with practical experience to enable the development of this understanding.

In planning these activities we are very much aware that each child is an individual and that not all children will grasp concepts and ideas at the same rate or level. It is of utmost importance that each child is allowed to explore and experiment before being given more structured activities - ideally there will be four stages of development in the mathematical experience of the children:-

- a. Children should be allowed to play with as many activities and materials as possible without adult intervention.
- b. Children play with materials which have been deliberately provided by the adult, in order to encourage the acquisition of certain concepts, but still without adult intervention.
- c. Children play with materials of their own choice with the active involvement of the adult.
- d. Children play with materials selected, guided and led by the adult.

The programme will include some or all of the following activities in both the secular and kodesh lessons:

Shape:

- *Free play with a wide variety of natural objects - shells, leaves, stones, etc with language input from the teacher where appropriate.*
- *Free play with manmade objects e.g. bricks, logic blocks.*
- *Model making using boxes and junk materials.*
- *Describing and identifying shapes - first by sight and later by touch - words such as fat, thin, long, short, spiky, sharp, smooth, etc can be introduced.*
- *Simple movement themes - long shapes/snakes, short shapes/a tiny seed, etc.*
- *Play with jigsaws.*
- *2D patterns - printing, painting, paper cutting etc.*
- *Collage.*
- *Drawing around shapes.*
- *Shapes in the environment - traffic signs, vehicles, food, etc.*
- *Collapsing cardboard containers - looking at shapes when flat, then rebuilding.*
- *Symmetry can be experienced on a simple level by folding paper and painting on one side only, and then reprinting by folding over the other side.*

Sorting:

- *Free sorting according to the child's own choice.*
- *Sorting by one attribute e.g. 'let's find all the red ones'.*
- *Sorting by two or more attributes from a simple collection of objects e.g. 'find the blue cars' from an assorted collection of vehicles.*
- *Sorting more than one type by one or more attributes from a mixed collection 'find the big red beads and the shiny black buttons'.*
- *Cooking - sorting ingredients and equipment, things which melt, things which do not, foods we have to chew, liquids or solids, hot or cold, etc.*
- *Art - making pictures by selecting one colour from a mixed box of collage materials, making sets of objects with a variety of materials, dividing paper into sections and sorting handprints by colour into each section.*
- *Sand - sorting objects which have holes, handles, are large or small, etc.*
- *Water - sorting objects which float or sink, sorting objects which hold water and those that do not, sorting the equipment by shape, size or colour.*

- *Construction toys - sorting by colour, shape, size, texture, etc.*
- *Stories/rhymes - choosing all the stories with bears in them, or all the songs with frogs etc.*
- *Imaginative play - sorting all the teaspoons from a collection of spoons, all the cups, finding clothes according to colour/size, sorting all the fruit/vegetables into colours, families, etc.*

Matching:

- *Teacher finds one object, child finds the match.*
- *Matching sequences - red bead, blue bead, red bead, etc.*
- *Matching one cup to one saucer, knife and fork to place, spoon to dish, etc.*
- *Matching apron to activity - art apron, water apron, cooking apron.*
- *Buttoning coats - one button to one hole.*
- *Making patterns and copying them; both on paper and non-permanently with a variety of objects.*
- *Matching by size, shape, texture, taste, etc.*
- *Putting toys back in appropriate places.*

Pattern:

- *Looking for patterns in the environment e.g. brickwork, floor tiles, animal markings, leaves and flowers.*
- *Looking for patterns in wallpapers*
- *Making patterns in painting and collage activities.*
- *Making 3D patterns with bricks, beads and construction.*
- *Copying and continuing patterns on paper and in 3D.*
- *Using computer programs to create and manipulate patterns.*

(Extra activities specific to Reception from the National Numeracy Strategy)

- ***Use a mirror and mosaics to explore patterns***
- ***Use a computer programme to create patterns and symmetry***
- ***Use peg boards, sticky shapes to make repeated patterns***

Ordering:

- *Looking at and talking about pictures which contain varying amounts of objects.*
- *Playing with grading blocks, number pegs, grading jigsaws, beadstairs, stacking cups, etc.*

Learning to Count:

- *Teacher finds one object, child finds the match.*
- *Matching sequences - red bead, blue bead, red bead, etc.*
- *Matching one cup to one saucer, knife and fork to place, spoon to dish, etc.*
- *Matching apron to activity - art apron, water apron, cooking apron.*
- *Buttoning coats - one button to one hole.*
- *Matching by size, shape, texture, taste, etc.*
- *Putting toys back in appropriate places.*
- *Reciting number rhymes.*
- *Reading counting books.*
- *Making rows of objects to count – using language of 1 more, 1 less, how many altogether?*

Extra activities specific to Reception from the National Numeracy Strategy (NNS)

- ***Counting a collection of objects in different arrangements – to keep track of where the count begins and ends***
- ***Count in twos – use pairs to help them***

- **Count in tens – use 100 square**
- **Begin to say every other number on a number track**
- **Estimate a number in a range that can be counted**
- **Combining two groups of objects: count out four cakes. Count out three cakes. How many are there altogether? Count all the cakes) Find totals**
- **Begin to continue counting from where another child finishes**

Numerals:

- *The children can participate in counting exercises (e.g. children who are staying for lunch) and watch the numerals being written down.*
- *Prices can be looked at when out shopping.*
- *House numbers can be talked about and written down.*
- *Telephone digits can be observed.*
- *Drawing the corresponding number symbol next to a group of objects.*

Conservation:

- *Activities of a simple and an incidental, questioning nature - e.g. 'I wonder whose bottle holds the most water?'*

Money:

- *Play with fake money, 'buying' items from a role play shop.*
- *Children can accompany staff to the local shops to purchase items for use in the Nursery and Reception and observe the exchange of money for goods.*

Time:

- *Discussion about how the children's day is divided into 'times' - playtime, story time, drinks time, dinner time, home time, etc.*
- *Discussion about how adults use clocks and watches to help them know what time it is and therefore at what time, according to the clock, we have drinks or go outside, etc.*
- *Free play with watches, clocks, timers etc to help children to recognise the role of number in telling the time and partitioning the day into times for doing certain activities.*
- *Discussion about days of the week, yesterday, tomorrow, last week, next week, etc.*
- *Discussion about the seasons can all help to develop a sense of awareness about time and the passage of time.*
- *Sequence their day using pictures*
- **Read stories: *The Very Hungry Caterpillar by Eric Carle (NNS)***
- ***Can't You sleep Little Bear? By Martin Waddell (NNS)***

Position, direction and movement:

- ***Use language of over, under, above, below whilst using apparatus in PE (NNS)***
- ***Give instructions to other children: go around the stool, go in front of the beam (NNS)***
- ***Describe a walk around the school (NNS)***
- ***Collect and sort objects that will roll, slide and both (NNS)***

Curriculum Planning

Topic & objective planning takes place on half-termly basis. Activity planning occurs on a half-termly, fortnightly, weekly or daily basis. The topic/objective planning & activity planning sheets used by the Nursery & Reception are laid out to identify each of the areas of learning in the 'Early Learning Goals' document. This ensures that Mathematical Development is considered whenever a topic or activity is planned.

Pupil recording and assessment

- All staff make on-going daily observations on pupil progress and **significant achievement**. These observations are recorded on white address label stickers and are transferred into the children's individual Foundation Stage pupil records (green files) on a daily basis. Copies of these stickers are kept in the planning folder in order to aid future planning. This information is used to plan appropriate future activities that will aid the children's development, and is shared with other staff to ensure continuity of care and learning. Work samples (including photographic evidence where appropriate) are also stored in the green Foundation Stage pupil record files.
- Key workers are responsible for making sure that these records are updated regularly, and that, in conjunction with the class teacher, the information is shared with parents and carers on a regular basis.
- The class teacher in both the Nursery and Reception classes, in liaison with the other Nursery Practitioners, will complete a whole class Foundation Stage profile towards the end of each summer term.
- The results of each individual pupil's Foundation Stage Profile will be transferred to the **Individual Yearly Pupil Progress Record**.
- At the end of Reception, the class teacher will also use teacher assessment to assign for each pupil, National Curriculum and/or P levels for Speaking and Listening, Reading, Writing and Numeracy.
- At the end of each academic year, each class teacher will produce a written Foundation Stage school report for parents detailing achievement in all of the six learning areas. There will be an opportunity for parents to discuss this report with their child's class teacher before the end of term.

Resources

A list of specific mathematics resources will be compiled.

Signed:

Headteacher: **Sara J. Harris**

Chairperson: **Eddy Breuer-Weil**

Date: June 2007