The development of childrens mathematical skills education essay

Introduction

Maths teaches us all how to make sense of all the world around us, and for a child developing the ability to calculate, to reason and to solve problems is challenging. Maths helps a child to understand relationships and patterns in both number and space in their everyday lives.

Maths is a powerful means of communication. It is used to provide the means by which we can convey thoughts, ideas, information and ideas and how they can be presented by the use of numbers, charts, drawings and diagrams.

Through their growing knowledge and understanding, children can learn to appreciate the contribution made by many cultures to the development and application of mathematics. Appreciating mathematical principles expressed in art, literature, music and technology adds another dimension to interpreting the world in which we live.

E1

There are two main frameworks for development of mathematics for children. These are the EYFS and the National Curriculum. They cover from birth to 5 years of age as aprt of the EYFS system and 5 to 18 years of age which use the National Curriculum.

Children learn different mathematic skills through seven strands that are related to development.

As part of our strategy to raise pupil attainment, many schools use the ‘

National Curriculum and its

Numeracy Strategy’s Framework for Teaching Mathematics’ and the Mathematical Development framework for the foundation stage.

It is used as a basis for planning teaching and to fulfil the requirements of the National Curriculum for Mathematics. This ensures continuity and progression throughout the school.

Children’s progress is assessed regularly by class teachers. Pupils are assessed in terms of mathematical development as they enter and exit from the Foundation Stage. Children in KS1 and 2 are assessed at the end of each year and in terms 2, 4 and 6 and at the end of Key Stage by standard assessment tests and teacher assessment.

Teachers have a thorough understanding of National Curriculum mathematics and the Mathematical Development Early Learning Goals and use a variety of teaching methods.

The National Numeracy Strategy (NNS) 3 part lesson structure is used in KS1 and KS2 – when the new framework for Numeracy is in place in September 2007 teachers will be encouraged to use a more flexible approach to lesson structure.

Every Child Matters is used In all curriculum areas, and especially in the core subjects, and are continually and consistently teaching the ‘ values’ embedded in ‘ Every Child Matters’ system. The process tries to make children to enjoy mathematics and be enthusiastic about the learning it

Much of the teaching needs to be aimed at developing children’s skills for life and the children themselves need to understand the ‘ reallife’ purpose of

everything that they learn to do and how this can enable them to make a positive contribution to society in the future and achieve personal well-being.

E2

As mentioned above the Primary Framework for Mathematical learning has seven strands. These are:

Counting and Understanding Numbers

Knowing and using number facts

Calculating

Understanding shape

Measuring

Handling Data

Using and Applying Mathematics

Building on their knowledge and experience, children will always develop an understanding of the fundamental patterns in numbers and shapes which are a basis for calculation, measurement and shapes for work in the future. Progress of maths is of an essential part. Eg. in the Foundation Stage children are taught :-

To develop mathematical language

To recognise and recreate patterns

To compare, sort, match, order and count objects and to sequence everyday objects and events

To develop understanding of numbers as labels and for counting

To use vocabulary involved in adding and subtracting

To use mathematical ideas and methods to solve practical problems

An example of Mathematical Development and emphasis in Key Stage One is:-

- Number and mental calculation strategies

- Learning to count in preparation for work on place value and working with large numbers

- Using the four operations of number in relative contexts and problem solving

- Recognising patterns and symmetry

- Developing skills in measuring and estimating

For Key Stage Two, Children will continue to build on their experience from Key Stage One.

In Key Stage Two

children are taught in age grouped sets or mixed sets for children who require more support in order to access the curriculum successfully.

www. surestart. co. uk

The plan is to increase knowledge and the understanding of patterns, the number system, calculating methods, systems of measurement and properties of shapes.

E3, E4 and C1

Within the Foundation Stage, maths is taught in short activities based on ‘ real life’ situations. Children are taught the 4 basics, numbers, shape, space and measurement.

Role-play situations give opportunities for using this knowledge and for their problem solving. Many practitioners use the Early Years Foundation Stage (EYFS) guidelines. In reception maths is beginning to be taught separately by following the NNS.

Children are given daily opportunities to practice and learn mental calculation. They are encouraged to try different methods by praise from the teacher and from one another. Questioning skills are used to good effect to help provide differentiation and to allow all children to be included. Written tasks are also differentiated within a common theme.

www. eyfs. co. uk

There is interactive teaching where the children are encouraged to talk about how they calculate and problem-solve. In this area, children are given many chances to answer questions and to talk about how they got to the

answers. Children are asked to comment on and possibly use different methods.

The children also experience a variety of recording methods such as Oral, Pictorial, graphical, symbolic, diagrammatic, models and Written.

Children learn skills which help them to identify and describe shapes, sizes, positions, directions, and movement which is important in many work situations, such as construction and design. Becoming familiar with shapes and spatial relationships in their environment will help children grasp the principles of geometry in later years. Examples include:-

Identify shapes and sizes. When playing with a child, identify things by their shape and size: “ Pass me a sugar cube.” “ Take the largest cereal box out of the cupboard.”

Build structures using blocks or old boxes. Discuss the need to build a strong base. Ask a child which shapes stack easily, and why.

Hide a toy and use directional language to help a child find it. Give clues using words and phrases such as up, down, over, under, between, through, and on top of.

Play “ I spy”, looking for different shapes. “ I spy something that is round.” “ I spy something that is rectangular.” “ I spy something that looks like a cone.”

www. cbbc. co. uk/mathematics

Other examples include understanding measurements. Measurements to determine the height, length, and width of objects, as well as the area they cover, the volume they hold, etc. We measure time and money. Developing the ability to estimate and to measure accurately takes time and practice.

Keep a record of the daily temperature outside and of a child's outdoor activities. After a few weeks, ask a child to look at the record and see how the temperature affected his or her activities.

Include the child in activities that involve measurements. Have the child measure the ingredients in a recipe. Trade equal amounts of money. How many pennies do you need to trade for a pound?

A child should be helped to develop their own methods of recording and they should also be aware of and experience standard methods of recording at an appropriate stage. They should record their results and told how important it is, and that the children learn to record clearly and logically and when recording on paper.

E5

Maths is a core subject in the National Curriculum. Planning always takes account of the diverse and changing needs of the children. Planning takes place at three connected levels: long, medium and short term.

Long term planning is taken from the Framework which outlines the yearly teaching programmes and key objectives from Reception to Year six.

Medium term plans outline the termly units of work and the main teaching objectives and when you will teach them.

Short term plans are weekly notes on how each lesson will be taught, detailing objectives, tasks, activities and groupings of children for the three main parts of the lesson.

Teachers and practitioners should be adaptable in their planning to meet the needs of the children in the class, and should use objectives from other year groups for children who are less able or to challenge more able children.

Pupil progress should also be recorded and Teacher Assessments collected twice a year.

For example, a Mathematics Co-ordinator analyses SATs results from KS1 and KS2 (and plans targets in Maths to address any weaknesses found in the childs development). Staff will report in writing to parents annually on pupil progress in Mathematics. Homework is set weekly in KS2. For more detail see the Homework Policy.

www. child-development-guide. com

When children are actively involved in learning they gain a sense of satisfaction. It is important that adults working with children also have a positive attitude to maths and that they are confident to play with mathematic concepts in a practical manner.

E6

There are many different strategies which parents and practitioners can use to support childrens understanding of mathematics. Below are a number of different methods. This include role play and also use everyday activities.

For example in cooking, weighing and measuring ingredients, when shopping counting the number of apples you need, etc.

You could ask a child to help you solve everyday number problems.

“ We need six tomatoes to make our sauce for dinner, and we have only two. How many more do we need to buy?”

or “ You have two pillows in your room and your sister has two pillows in her room. How many pillowcases do I need to wash?”

“ Two guests are coming to eat dinner with us. How many plates will we need?”

Other actvities could include discovering things and the many ways in which numbers are used inside and outside your home.

Take a child on a “ number hunt” in your home or neighbourhood. Point out how numbers are used on the television set, the microwave, and the telephone. Spot numbers in books and newspapers. Look for numbers on signs in your neighbourhood. Encourage your child to tell you whenever he or she discovers a new way in which numbers are used.

E7

Parents are children’s first educators and are highly valued in the contribution that they make.

The role that parents have played,:

before children starts in a school, the schoolshould talk to parents about their child;

children should have the chance to spend time with the teacher before starting at a nursery school by having “ Induction Session”.

Giving parents regular opportunities to talk about their child’s progress

Giving free access to their children’s “ Learning Journey” record books .

Encouraging parents to talk to their child’s teachers about any concerns they may have.

Have 2 formal meetings per year (Autumn and Summer term) with parents to discuss the child’s progress and development.

Homework and parental involvement

Parents should be given a leaflet at the start of each year, and this should outline the main objectives. This should give parents the opportunity to ask questions and also help them to understand ways in which they can help children at home. Numeracy workshops can be arranged for parents in response to questionnaires, which form part of our School Self Evaluation.

Year six children may follow an additional ‘ booster class’ in school during the spring term. Homework will be an integral part of this revision programme.

Homework in mathematics should be enjoyed by parents and children. It aims to support learning in school. Parents will continue to be consulted as part of the review process.

All staff who are involved with EYFS should aim to develop good relationships with children and interact with them and take time to listen to the children.

E8

Nurseries or placement settings should aim to make sure that all children have access to a full range of mathematical learning experiences and it should be the placements policy to recognize and provide for those children with specific needs, both those who find mathematical concepts difficult and those who are good at maths.

Nurseries can analyse ability data by gender and also identify any other groups of pupils at risk of underachievement and then possibly agreeing possible action to address any weaknesses.

Recognising diversity is about recognising that children can come from lots of different backgrounds and family structures and this could be from the language they speak, culture and beliefs.

Diversity means responding in a positive manner to differences, valuing all people.

All children are citizens and have rights and entitlements.

Children should be treated fairly regardless of race, religion or abilities. This applies no matter:

what they think or say

what type of family they come from

what language(s) they speak

what their parents do

whether they are girls or boys

whether they have a disability or whether they are rich or poor.

All children have an equal right to be listened to and valued in the setting.

Improving the physical environment – physical aids to access education such as ICT equipment and portable aids for children with motor co-ordination and poor hand/eye skills. New buildings should be physically accessible to disabled pupils and will involve improving access to existing buildings including ramps, wider doors, low sinks, etc

Improving the delivery of information to disabled children at nurserys or schools – The information should take account of pupils' disabilities and parents' preferred formats and be made available

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E9

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