Developing capable, inspired, self motivated, enthusiastic, ambitious and individual citizens.

Weston Mill Community Primary School

MATHS POLICY

Approved and signed by Governors: ……..

Dated: ……..

March 2016

Introduction

This policy reflects the school's values, philosophy and mission statement in relation to the teaching and learning of mathematics. It sets out a framework within which teaching and non-teaching staff can operate and it gives guidance on planning, teaching and assessment. The policy should be read in conjunction with the school's calculation policy, marking policy, homework policy and the National Curriculum Guidelines as set out in the National Curriculum for 2014.

Aims

At Weston Mill Community Primary School we support and encourage our pupils:

- To develop a positive attitude towards mathematics, so that they feel confident with maths and have an 'I can' attitude;
- To develop mathematical language which children can use appropriately;
- To become confident and proficient with number, especially mentally;
- To develop an understanding of geometry and use appropriate resources to accurately draw 2D and 3D shapes;
- To become proficient in the use of measures in common usage;
- To handle data with efficiency and understanding;
- To understand the real life context when learning in Maths.
- To confidently approach investigations and problem solving;
- To model problems with concrete apparatus;
- To use ICT as a tool to enhance learning.
- To become independent learners.

The Principles of Teaching Mathematics

The children (from foundation to year 5) at Weston Mill learn Maths using ***Maths Makes Sense (MMS)*****,** a carefully designed maths programme that uses special vocabulary, physical actions and concrete objects like cups to help them become confident mathematicians.

Maths Makes Sense identifies the key concepts children need to learn to achieve success in Maths. These are known as the **'10 Big Ideas'** - addition, subtraction, equals, multiplication, division, denomination, ratio, infinity, the symbols speak to you and the logic of the language tells you the answer. Children are taught these concepts and use them consistently so that their understanding grows over time and they are able to apply Maths successfully to real life examples.

The teaching cycle used in MMS begins with *direct instruction (DI).* Here the teacher models the language and demonstrates, with the help of a partner, how to use the concrete objects to successfully complete the mathematics task. The use of My Turn Your Turn is evident during direct instruction, with the teacher using the appropriate language which the children in turn copy. The expectation is that the children will not put their hands up to answer questions, instead they will use choral responses such as popcorn where different groups of children say the answers one after another. This allows the less confident children to repeat correct answers and develop their confidence in mathematics.

The next part of the teaching cycle is *guided practice (GP).* During GP, the children replicate what occurred in DI with their own set of resources from the pupil's tool kits. It is important to instantly address any misconceptions that are spotted during this part of the teaching cycle.

The third part of the teaching cycle is *partner teacher (PT).* Each pupil within their pair takes turns to be the teacher or pupil. When acting as the teacher the pupil is expected to use the same language as demonstrated during DI whilst their partner is expected to do the actions using the equipment. The expectation during this part of the teaching cycle is that the class teachers and teaching assistants observe the pairs and annotate the tracking sheet. Any talking they do should be addressed to the partner who is teaching rather that the partner acting out the maths story.

To give children the best chance of becoming confident mathematicians, they need repeated practice with basic number skills. They need to know these skills by heart and to be able to use them easily. The use of maths games as home learning help to develop and consolidate these skills.

Organisation

Children are taught within mixed ability classes, in both Key Stage 1 and 2. Within a class the children are organised into pairs; either working or teaching partners. Teaching partners are mixed ability pairs whereas working partners are similar ability children. The less able children should be sat closest to the front of the classroom where they can be easily supported by the class teacher.

Each block of work consists of five different strands: arithmetic, geometry, data and measure, arithmetic 2 and reasoning. Each lesson is taught on a separate day and the work is recorded separately in books.

Planning

All the teachers, from foundation to year 5, plan from the MMS folders (available as a hard copy in the head teacher's office or electronically on the server with the Generic login – User: teacher Password: maths). Although the lesson plans are already written, the expectation is that teachers will adapt the plans according to the needs of their class. These adaptions will be typed in blue so that changes stand out. The

success criteria for each lesson will be added onto the plan and an extra layer of differentiation may be included. The adaptions could include the use of test base questions (to allow the children the opportunity to apply their skills and knowledge), or the use of 'what else do you know?' and 'what if' questions, where appropriate (to give them the opportunity to develop their reasoning skills).

On week six of Maths Makes Sense lessons, the teachers will plan problem solving tasks/enrichment activities and/or consolidation tasks using the school proforma.

The children in year 6 are currently working on the new National Curriculum 2014 and planning proformas can be found on the server in the maths folder.

In additional to the hour long daily maths sessions, extra maths sessions are planned into the timetable. Extra sessions may include maths skills such as problem solving, times tables, and mental maths. In KS2 times table results are displayed on the times table clouds that hang in the classrooms. (The times tables are taught in the following order to match the 2014 Curriculum expectations: x2, x5, x10, x3, x4, x8, x6, x7, x9, x11, x12.) Ideas for problem solving lessons can be found on the Nrich website http://nrich.maths.org, in the Brain Buster Boxes and in the Rising Stars Reasoning & Problems Solving books.

ICT

Opportunities to use ICT to support teaching and learning in Maths will be planned for and used appropriately. The use of the Fluency Fitness PowerPoints for KS2 and the Individual Practice Games from Abacus are encouraged to practise mathematical fluency. Each teacher will be given the school code and individual password at the beginning of the year so that they can log onto the Abacus website. Gordon's ITPs are also available on the school server.

Cross curricular links

When planning theme lessons, it is important to consider which maths objectives can be applied/consolidated and add this to the medium term overview. For example in year 4, compass skills could be practised by designing a geometric Islamic pattern linked with RE.

Presentation

There are very high expectations for the presentation of work in books.
The children will be expected to draw a margin on the left side of every page. In year one and two, the margin is as wide as a ruler, whilst in KS2 the margin should be two squares wide. In KS2, the children may choose to draw a second vertical line to separate their work from the 'thinking space'. The thinking space should be five squares wide from the right side of their book. The thinking space is to be used for jottings and brief notes to remind them of how to be successful in the learning objective.

At the beginning of each piece of work, the short date is written and underlined with a ruler. From Year 2 the learning objective, in the form of an 'I can statement', is written underneath the date and also underlined with a ruler. When writing letters or words, it is expected that the pupils will write on the horizontal lines in their books and follow the school's handwriting policy. When writing maths stories, the pupils are expected to put each digit and symbol in its own separate square. When writing negative numbers, the negative sign is written at the top of the number to distinguish it from a minus symbol.

The left side margin should have the question number written in it and there should be one square between the margin and the beginning of the written maths story. Children should be praised for good presentation and reminded of the expectations if their presentation is below the required standard.

Marking

Each piece of work should be marked against the learning objective. The children should be given the opportunity to 'traffic light' their work, based upon how well they think they have achieved their objective. The traffic light should be put at the end of their work on the flappy side of their book.

A red traffic light indicates that they have not understood their objective, or have made little progress towards it.

Orange indicates that they have begun to demonstrate that they understand the objective but haven't fully achieved it.

Green indicates that they have achieved the objective.

Underneath the pupil's traffic light, the teacher records their traffic light. Inside the teacher traffic light the letter H, M or I needs to be written to record how much support the pupil has had during the lesson. H – high level of support, M- moderate level of support and I – worked independently from the teacher or teaching assistant.

Assessment and Record Keeping

Assessment is continuous and on-going, with planning being annotated daily and adapted due to Assessment for Learning (AfL). During the final week of each Maths Makes Sense 5-week block, there is an assessment week. This allows the teacher the last opportunity to complete the tracker sheet that is used throughout each block to record which children required a high level of support (H), a moderate level of support (M) or worked independently from the teacher (I). The tracker sheet is given to the maths subject leader once completed for monitoring purposes.

Other forms of assessment are as follows:

- Reception children will be assessed using the base line assessments, foundation stage profiles and follow end of Foundation Stage assessments.
- End of Key Stage SATs will take place in years 2 and 6.
- Rising stars assessments are completed throughout the year in both KS1 and KS2.

Tracking and Interventions

The tracker sheet is used to identify children that require additional support in order to achieve the objectives. The sixth week in each term allows the opportunity for teachers and teaching assistants to provide extra work for the children recorded as requiring moderate or high level of support in the different objectives. Whilst these children are having interventions, the rest of the class will be working on enrichment activities to consolidate their learning and apply their skills. This is a perfect time to plan problem solving activities.

ETT (Extra Teaching Time) will take place during the afternoon for children who have not grasped concepts during the main lesson. These sessions are recorded on ETT feedback sheets and kept alongside maths planning.

By analysing data from the termly tests, the teachers can also identify children that require interventions. These interventions will be recorded on an intervention sheet which will be handed in to the INCo termly.

Targets

Pupil conferencing takes place across the year, to identify areas of development for children and set small targets.

Displays and resources

Each classroom has a maths learning wall which is updated regularly to support the learning of the pupils in the classroom. In MMS classrooms, the board is split up into four different sections (arithmetic, geometry, data & measure and reasoning). The learning wall is backed in blue and/or yellow and given the relevant titles for each of the four sections. The lettering for the titles can be found on the server in the maths folder.

The maths fact of the week should be clearly displayed on the board and practised at the beginning of each lesson, as a minimum.

Also included on the learning wall should be the vocabulary relevant to the block of work currently being taught, the success criteria for the block (when appropriate) and children's work to show WAGOLL (What A Good One Looks Like). Number pair sheets and times table facts, if needed, can also be displayed.

Every MMS classroom has its own set of pupil and teacher resources. There are15 pupil sets of resources per class which contain small whole cups, half cups and quarter cups, fifth and seventh cards, decimetre sticks and degree templates.

In the teacher set there are big versions of whole cups, half cups, quarter cups, fifth cards, place value cards, angle templates, decimetre sticks and ratio sticks.

Parental engagement

The link between home and school is vital if success in mathematics is to continue. In Key Stage 1 and 2 project homework is set and there is an expectation to have a maths link within this. The 2014 curriculum values improving the fluency of mathematics and this is encouraged at Weston Mill.

The subject leaders provide a range of opportunities for parents to keep informed on how they can support their child at home.

Monitoring and Evaluation

Monitoring and evaluation of Mathematics teaching in the school is carried out by the Maths Subject Leaders and the senior leadership team. Planning and books are moderated by the Mathematics Leaders and SLT whilst the children's views are listened to during pupil conferencing. Whenever possible, monitoring is carried out with the link governor for maths.

Role of subject leaders

The subject leaders will be responsible for improving standards of teaching and learning in Mathematics through:-

- Managing the teaching and learning of the MMS provision.
- Tracking pupil progress through tracker sheets and the data tracker.
- Provision of Maths (including intervention programmes).
- Pupil progress meetings.
- The quality of the learning environment.
- Taking the lead in policy development.
- Auditing and supporting colleagues in their CPD.
- Purchasing and organising resources.
- Keeping up to date with Maths developments.

Agreed by Governors on_____

Chair of Governors signature_____

Date approved _____