



# Ombersley Endowed First School

## Mathematics Policy

Mathematics Co-ordinator: - Ruth Douglas-Osborn

Mathematics Governor: - Diane Cornock

Date Policy Agreed: - Autumn 2014      Date of Review: - Autumn 2016

### **Rationale**

Mathematical skills are important in everyday life, it enables children to understand and appreciate relationships and patterns in both number and space in the world around them. This policy is intended to provide clear guidance for the delivery of mathematics throughout the school. It will provide a consistent approach that will enable teachers to plan and assess their teaching of mathematics as well as meeting their statutory obligations.

Our main aim at Ombersley (OEFS) is to engender a positive attitude towards mathematics amongst all our pupils in order to foster self confidence and a sense of achievement that will stay with them.

OEFS is part of the Droitwich Pyramid of schools which work closely to engender continuity throughout the entire school system from Reception to Year 13.

### **Aims**

The knowledge, skills and understanding of Mathematics teaching is based on the National Curriculum (2014) and Statutory framework for the Early Years Foundation Stage (2014)

The National Curriculum for Mathematics aims to ensure that all pupils:

- <sup>35</sup>/<sub>17</sub> become **fluent** in the fundamentals of mathematics through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- <sup>35</sup>/<sub>17</sub> **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- <sup>35</sup>/<sub>17</sub> can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

In addition at OEFS we aim to:-

- <sup>35</sup>/<sub>17</sub> provide a tailored mathematics curriculum in which all children can gain some success and satisfaction.
- <sup>35</sup>/<sub>17</sub> use practical activities, a stimulating environment and an investigative approach to mathematics to promote enjoyment and enthusiasm.
- <sup>35</sup>/<sub>17</sub> promote confidence and competence with numbers and the number system
- <sup>35</sup>/<sub>17</sub> develop skills of mental arithmetic in order to speed up calculations, check answers and foster an understanding of relationships in mathematics.
- <sup>35</sup>/<sub>17</sub> encourage children to be competent users of mathematics' resources, especially the appropriate use of ICT.
- <sup>35</sup>/<sub>17</sub> help children to understand the importance of mathematics in all other curriculum areas and the wider environment.
- <sup>35</sup>/<sub>17</sub> ensure children develop a mathematical vocabulary and understanding of mathematical terms to be able to express themselves fluently
- <sup>35</sup>/<sub>17</sub> give children the opportunities to use and apply their skills throughout the school day and develop a positive attitude to life-long use of maths.

### **Teaching and Learning**

The National Curriculum requires that we provide a broad and balanced curriculum that meets the needs of all pupils and enables pupils to achieve their full educational potential and make progress in their learning.

In the Foundation stage mathematics forms the basis of one of the seven areas of learning as laid out in the requirements and recommendations set out in the Early Years 'Development Matters' EYFS document. All children are given ample opportunity to develop their understanding of Mathematics (see below – Foundation Stage)

At OEFS we adopt a positive approach to mathematics and recognise the importance of motivating the children through the teacher's attitudes, the challenges the children are given and the recognition of their efforts and achievements.

Each class teacher is responsible for the mathematics in their own class in consultation with and guidance from the mathematics co-ordinator.

A mathematics lesson should be taught daily but time allocation is flexible depending on a series of lessons and year group.

In all classes children have a wide range of mathematical abilities. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.

We achieve this through a range of strategies: –

- <sup>35</sup>/<sub>17</sub> Whole class discussions including mental/oral teaching
- <sup>35</sup>/<sub>17</sub> Group and paired work. (Grouping is done according to ability to allow groups to be given different tasks when appropriate. Paired work is sometimes done according to ability but also using Learning Partners).
- <sup>35</sup>/<sub>17</sub> Individual work
- <sup>35</sup>/<sub>17</sub> Guided maths groups to ensure that the teacher spends time with each child
- <sup>35</sup>/<sub>17</sub> Problem Solving
- <sup>35</sup>/<sub>17</sub> Mental Challenges/tests
- <sup>35</sup>/<sub>17</sub> Open Ended activities/ investigations
- <sup>35</sup>/<sub>17</sub> Plenaries and mini plenaries (reviewing the progress and ensuring all children are on task).

We use classroom assistants to support some children, and to ensure that work is matched to the needs of individuals.

The children have the opportunity to use a wide range of resources to develop their learning. Information & Communication Technology (ICT) is commonly used throughout the school in mathematics lessons with each classroom having an Interactive Whiteboard.

We encourage our children to apply their learning to everyday situations. Wherever possible, mathematics is applied in other subject areas to ensure children are applying their knowledge and skills in a cross curricular way. For example measuring in Technology, Science and Geography; patterns in Art, Music and Dance; time and dates in History.

Teachers take advantage of all opportunities in order to link mathematics to other areas of learning and existing knowledge and understanding.

### **Equal Opportunities and Inclusion**

All children have an entitlement to participate fully in mathematics, regardless of gender, race, age or ability, in accordance with the school's Equal Opportunities Policy.

Teaching and learning is monitored to ensure that no group of pupils is disadvantaged. The full participation of all children -

- both girls and boys
- different ethnicity/ faith groups
- those with English as an Additional Language
- those with Special Educational Needs (SEN)
- Gifted and Talented (G&T) children
- Looked After Children(LAC)

and any child disaffected in their learning is encouraged in all mathematics lessons.

The mathematics co-ordinator will monitor attainment and achievement of these pupils.

*Special Educational Needs and Disabilities (SEND)* - Children with SEN are taught within the mathematics lesson and are encouraged to take part where possible. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and differentiation – so that we can take some additional or different action to enable the child to learn more effectively. Assessment takes place half-termly against the National Curriculum and allows us to consider each child's attainment and progress against expected levels. This ensures that our teaching is matched to the child's needs. Where applicable additional and time-limited interventions (normally on a 6 weekly assess and review cycle) will be provided for some pupils who need help to accelerate their progress to enable them to work at or above age-related expectations. Children with very specific needs hindering their progress in mathematics will have specific targets and be provided with highly tailored interventions. These targets are reviewed on a termly basis by the class teacher and key members of staff. Parents and children's views are welcomed in the assessment process.

*Gifted and talented* – we recognise the importance of setting high standards for more able children and ensure the appropriate level of challenge within mathematics lessons. Mathematics lessons include extension activities for those more able pupils. High achievement is rewarded in class and during achievement assemblies. Targets and progress of more-able children is carefully monitored by the class teacher, Head Teacher and Mathematic Co-ordinator.

## **Planning**

In each year group mathematics is taught by the class teacher. Lessons are structured following the appropriate curriculum and are differentiated to meet the needs of the children.

We carry out the curriculum planning in three phases - long term, medium term and short term

*Long Term Planning.* Key Stage 1 and 2 use the programmes of study for mathematics as laid out in the National Curriculum as a basis for implementing the statutory requirements. The Foundation Stage planning is based on the Curriculum for the EYFS, which encompasses ages and stages of development.

*Medium term Planning* shows the area of focus that will be covered during the half term. Class teachers should complete medium term plans which will consist simply of objectives that they plan to teach during the term (based on their understanding of what children need to learn next)

*Short term planning* is completed by the class teacher and shows the development of learning using the focused objectives for each area of focus. Weekly plans should have details of specific learning objectives and expected outcomes for each lesson, and gives details of how the lessons are to be taught. It also includes details of what each group of children will be learning and the success criteria against which progress will be assessed. These plans show differentiation where appropriate and progression over the week in specific areas. Plans are shared with teaching assistants and are annotated and adapted in the course of a unit in response to on-going assessments. Although planned in advance they are adjusted on a daily basis to better suit the arising needs of a class and individual pupils

To assist in planning and teaching the school has invested in Abacus Active Learning for KS1 and lower KS2. However, teachers should use resources which best fits the success criteria – these might come from the published scheme but might come from elsewhere.

## **Foundation Stage**

Work undertaken within the Foundation Stage is guided by the requirements and recommendations set out in the Early Years 'Development Matters' EYFS document. All children are given ample opportunity to develop their understanding of mathematics. Lessons in the Early Years aim to do this through varied activities that allow children to use, enjoy, explore, practise and talk

confidently about mathematics. This involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating, simple addition and subtraction problems; and to describe patterns, shapes, spaces and measures. This is done through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.

Children will become very competent 'counters' so that their fluency with the number system provides a foundation for mathematical understanding

*Numbers:* children count reliably with numbers from 1 to 20, 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 solve problems, including doubling, halving and sharing.

*Shape, space and measures:* 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 the characteristics of everyday objects and shapes and use mathematical language to describe them.

## **Key Stage 1 and 2**

The Programmes of study for mathematics are set out year by year for Key Stages 1 and 2 in the new National Curriculum (2014). The programmes of study are organised in a distinct sequence and structured into separate domains. Pupils should make connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

### *Key Stage 1*

The principal focus of mathematics teaching in Key Stage 1 is to ensure that pupils

develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources (e.g. concrete objects and measuring tools).

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of Year 2, pupils should know the number bonds to 20 and be precise in

using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

### *Key Stage 2*

The principal focus of mathematics teaching in lower Key Stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of Year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling

### **Calculation**

We have a common Calculations Policy which is used across our collaboration of schools to ensure continuity. The Droitwich Calculation Policy has been written by the Numeracy Co-ordinators from the Pyramid of Schools and incorporates the teaching of calculation from Reception to Year 6. The policy was updated in 2014 to incorporate the new National Curriculum. This policy shows individual

methods for stages of progression that build to a compact, efficient method (standard method) for all four operations. This forms the basis for the use of calculation within our school. The calculation policy is available on the school website.

### **Resources**

Resources such as number lines, digit cards, bead strings, dice, counters etc are available in every classroom. Resources suitable for the specific requirements of the curriculum such as calculators for Year 4, sorting equipment for Nursery and Reception are kept in the appropriate classroom. Other resources, such as weighing scales, shapes, Bee bots are kept in a central resource area.

ICT resources are installed on the school computer for all children to access.

All teachers are responsible for the care of Mathematics resources which are overseen and audited by the Mathematics co-ordinator.

### **Display**

In the classrooms there should be, either on display or easily accessible to children, level appropriate resources, particularly concrete and pictorial apparatus to support children to grasp concepts.

Mathematical vocabulary should be displayed so that children use this in the communication of their understanding.

There should be maths work on display in classrooms and in other areas of the school in order to encourage a positive attitude and enthusiasm towards mathematics for all groups of children. There should be an interactive mathematics 'challenge' display which reinforces the current learning in the classroom – this may be in the form of estimating, problem solving challenges, or 'how many.....' questions. These displays should be updated regularly.

### **Assessment**

Assessment is an integral part of teaching and learning and is a continuous process in order to carefully monitor the progress of each pupil. It is the responsibility of the class teacher to regularly assess all the pupils in their class. This is mainly achieved through mini-plenaries, questioning, marking, T.A. Feedback and pupil assessment.

Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs. This feedback should be incisive and regular.

On a daily basis children should self-assess against the learning objective and success criteria, giving them a sense of success. Children should know when they are meeting their targets and be self-assessing against those too.

Pupil's work should be marked in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods.

The assessment of pupil's progress is updated every half term by the Class teacher in order to provide further understanding of the level a child is working at and to inform a more rounded judgement of their abilities. The School Pupil Tracker is used in order that children who are not making good progress over time can be targeted for support in one form or another. The type of support and intensity of that support depends upon the child's needs - it may be a simple strategy within whole class teaching that is needed. Where further support is deemed necessary, children may need to access specific interventions.

Pupil progress meetings are held between the head and class teacher to discuss the progress made by each child. The data also allows the Mathematics Co-ordinator and SLT to oversee the progress of children

### *Statutory Assessment*

EYFS profile assessments must be completed for all children in the final year of the EYFS who will be five years old. We provide parents with a written report of the child's progress against the EYFS ELGs and the opportunity for discussion;

Year 2 SATs are carried out annually.

The profile assessments and SATs must comply with national data submission requirements and be reported to parents at the end of the summer term.

### **Target Setting**

All pupils are set targets in mathematics. These are sent home each half-term to inform parents and carers what their child is learning. Targets are set based on test results and teachers assessments

Parents are informed of their child's progress in mathematics during parent's evenings; in the annual written report in the Spring Term and a Progress Report at the end of the school year.

These include details of their children's progress and areas for development.

**Homework** – This follows the school Policy on Home Learning.

In Key Stage 1 children are asked to complete a Learning Log homework task each fortnight to reinforce the work carried out in the classroom, this will include a numeracy focus every third task throughout the term.

At Key Stage 2, all pupils are expected to contribute to their learning journal on a weekly basis – this will be numeracy based every third week. In addition we may give the children occasional mathematics homework which supplements what they have been learning in the classroom.

Times Tables/ Number facts- with the focus on mental maths, children will be encouraged to learn the appropriate times tables and number facts at home

We expect children in Years 3 and 4 to spend approximately 15–20 minutes per night on home learning.

### **Parental Involvement**

We recognise that parents make a significant difference to children’s progress in mathematics and encourage this partnership. We value this support and keep parents up to date on any developments in this area. We actively encourage parents to help their children in learning mathematical facts and skills, through formal and informal meeting.

The ‘New Curriculum’, mathematics policy is available on the school website, together with links to support homework and mathematical development.

During the year we organise mathematics workshops, curriculum evenings, special events and class visits to which parents are invited. These have included a village Maths Trail, Christmas market, Year 2 SATs meeting and Calculation evening.

Children are given the opportunities to share their maths learning with parents during informal Parents evening and whole school maths weeks.

### **Subject Co-ordinator**

The coordination and planning of the Mathematics curriculum are the responsibility of the subject leader Mrs Douglas-Osborn who also:

<sup>35</sup>/<sub>17</sub> supports colleagues in their teaching, by keeping informed about current developments and by providing a strategic lead and direction for Mathematics;

<sup>35</sup>/<sub>17</sub> advises on in-service training – in line with School Development Plan, identifies INSET needs, plans and delivers INSET

- <sup>35</sup>/<sub>17</sub> advises and supports colleagues in implementing and assessment of Mathematics throughout school
- <sup>35</sup>/<sub>17</sub> evaluates the strengths and weaknesses in Mathematics and indicates areas for further improvement;
- <sup>35</sup>/<sub>17</sub> uses specially allocated regular management time to review evidence of the children's work, and to observe Mathematics lessons across the school.

In order to monitor standards and progress the following systems are in place:

- <sup>35</sup>/<sub>17</sub> At Pupil Progress meetings six times a year the class teacher and Head teacher monitor and evaluate the progress of children in Mathematics.
- <sup>35</sup>/<sub>17</sub> The Mathematics Subject Leader is given time to observe lessons and give oral and written feedback, to monitor planning and also to see children's work.
- <sup>35</sup>/<sub>17</sub> Staff meet regularly to engage in whole school moderation.
- <sup>35</sup>/<sub>17</sub> The progress of pupils with SEN and G&T is reviewed with the Special Needs Co-ordinator (SENCO) each half term.
- <sup>35</sup>/<sub>17</sub> Observations are carried out by the Head teacher/Mathematics Co-ordinator at least annually.
- <sup>35</sup>/<sub>17</sub> A named member of the school's governing body (Diane Cornock) is briefed to oversee the teaching of Mathematics. The Mathematics governor meets regularly with the subject leader to review progress and learning walks are carried out.

### **Review**

The Head teacher and staff will review this policy every two years. The next review will be September 2016

Signed