

# EDWARD WORLLDEGE ORMISTON ACADEMY



## MATHEMATICS POLICY

Date approved by Governors ...April 2018.....

Signed .....

Date for Review .....July 2019.....

## **1. Introduction**

The National Curriculum order for mathematics describes what must be taught over 11 years old. Edward Worlledge Ormiston Academy follows the National Curriculum 2014 which ensures the continuity, progression and coverage in the teaching of Mathematics.

## **2. Aims and Objectives**

The aims and objectives of Edward Worlledge Ormiston Academy with regard to mathematics are:

- policy and provision will be regularly reviewed;
- resources of time, people and equipment are planned and budgeted for;
- cross-curricular links will be highlighted where appropriate;
- planning ensures continuity and progression across the year groups and key stages;
- regular assessments, both formal and informal, will be used to track pupils' progress and allow the targeting of resources where needed.
- teachers will develop and update their skills, knowledge and understanding of mathematics and take advantage of training opportunities which are offered.
- to identify whole academy weaknesses and target specific areas throughout the year group to improve standards.
- to run parent workshops and provide opportunities for parents to work alongside their children to promote the profile of mathematics within our academy.
- to provide visual and informative display boards around the academy.
- to raise the level of attainment for all pupils in mathematics to national expectations.

## **3. Implementation**

### **3.1 Timetabling**

In the early years, the mathematics early learning goal is implemented through a daily 20 minute whole class session, planned and purposeful play and through a mix of adult-led and child-initiated activities.

At Key Stage 1, mathematics is taught in five daily sessions per week, primarily within a mixed ability setting. In Year 1, this consists of a 15 minute mental maths session followed by a 45 minute main session. In Year 2, this consists of a 15 minute mental maths session followed by an hour main session.

At Key Stage 2 mathematics is taught in five daily 90 minute lessons per week (30 minutes of which is allocated to mental maths). It is primarily taught in

class, with a mixed ability setting, except in Year 6 where children are taught in 3 ability-based groups.

All year groups partake in daily Maths Talk sessions.

### 3.2 Differentiation

Within each mixed ability class, the teacher will need to take account of different abilities and will need to differentiate the work accordingly. Regular pupil progress meetings will help children who are struggling, and intervention planned where felt necessary.

### 3.3 Lesson format

The mathematics lessons follow the National Curriculum 2014.

The mental maths part of the lesson should include an introductory counting session followed by mental maths, where teachers follow a termly plan of non-negotiable objectives. Within this allotted time, children will be taught strategies to enable them to solve problems efficiently, and mentally. The remaining time consists of whole class teaching, and individual/paired/group work or investigations.

Each lesson should address a misconception linked to the learning objective(s) being taught, and concrete materials should be available for all children to use. 'Words of the day/week,' need to be displayed for the children to practise using within the lesson(s.)

The teaching of mathematics is in line with the academy's Equal Opportunities Policy, Calculations Policy and Policy for Special Educational Needs.

### 3.4 Teaching and learning

At Edward Worlledge Ormiston Academy we aim to provide a mathematics curriculum that will produce pupils who are numerate, literate, creative, independent, inquisitive, enquiring and confident. To support this we will endeavour to provide a stimulating environment and resources to enable pupils to develop their mathematics skills to their full potential. All staff are aware of the importance of keeping within their year group's learning objectives, and to engage the children in mastering a concept by using concrete materials and visualising pictorially, before moving onto the abstract (Concrete, Pictorial Abstract - CPA). (For further details please see the Calculations Policy).

Our pupils should:

- have a solid concept of the size of number and where it fits into the number system;

- where possible, know by heart, or otherwise be able to use what they know to work out quickly, number facts such as number bonds, multiplication tables, doubles and halves;
- use facts that they know, to work out numbers mentally;
- have access to concrete materials and be able to pictorially demonstrate their answers/working out.
- calculate accurately and efficiently, both mentally and using 'pencil and paper', drawing on a range of calculation strategies;
- make sense of number problems, including non routine problems, and recognise the operations needed to solve them;
- explain their methods through reasoning, using correct mathematical terms;
- judge whether their answers are reasonable and have strategies for checking them;
- suggest suitable units for measuring and make sensible estimates of measurements;
- explain and make predictions from the numbers in graphs, diagrams, charts and tables;
- develop spatial awareness and an understanding of the properties of 2D and 3D shapes.
- to have a clear understanding of money, including value, budgeting, spending and everyday money skills.

Pupils engage in:

- the development of mental strategies;
- written methods;
- practical work;
- investigational work;
- problem solving;
- mathematical discussion;
- consolidation of basic skills and number facts.
- opportunities to carry out contextual activities.

Problem solving and reasoning vocabulary has been disseminated across the academy and all staff should be using it and exposing the children to it. We endeavour at all times to set work that is challenging, motivating, creative and encourages the children to talk about what they have been doing. We aim to give children ownership of their learning by allowing them to choose the level of task they feel they are ready to do, however, we are aware that some children may need guidance with this.

### 3.5 Planning

- For information about the Early Years phase refer to the Early Years Foundation Stage Policy.
- Each year group in Key Stage 1 and 2 follows the teaching programme as laid down in the National Curriculum. All year groups have been provided with Term on a Page, outlining the areas of maths to be covered in each term and for how many weeks.

- Staff are encouraged to use the White Rose Small Steps to help inform their planning.
- Planning should be modified as necessary, these plans to provide all pupils with stimulating and appropriate mathematical experiences to allow them to develop their skills to their full potential.
- Lessons should focus on fluency, reasoning and problem solving, with opportunities for CPA.
- Copies of all short term (weekly) plans should be saved on the system.
- Copies of ½ termly planning can be saved on the network.

### 3.6 Homework/Parental Involvement.

Homework is set on a regular basis at an appropriate level. It will include learning and practising number work, reinforcing class work and/ or investigating and developing topics from class work. Parents and carers are encouraged to participate and support homework activities. Parents are encouraged to discuss with class teachers their children's weaknesses and should be given ideas and activities they can carry out with their child to develop their skills.

### 3.7 Cross Curricular Links

Mathematics skills contribute to learning across the curriculum:

- thinking logically to solve problems;
- assessing information needed to solve problems;
- reasoning skills;
- collaborative work, through group activities;
- communication skills when explaining and describing ideas to the class.

It is vital that mathematical skills are used and developed across the curriculum so that children can see their relevance to life skills:

- recording;
- accessing information presented in diagrams or charts;
- measuring, for example in science and technology;
- shape and pattern, for example in art and design;
- the collection and presentation of data for example in geography and history.
- handling of money and budgeting.

### 3.8 Information and Communication Technology

Pupils within all Key Stages should be given the opportunity to develop and apply their capabilities in I.C.T. within their mathematics studies.

There is now a wide range of mathematical software, much of which has been put onto the network. Information as to where this software can be used within the appropriate programmes of study has been distributed to all teaching staff.

The Education City, Numicon and Mathletics programmes are also available for those pupils experiencing difficulties or who wish to further their mathematics. More general applications of I.C.T. will include the use of word processing for the presentation of work, spreadsheets and other data handling techniques. Opportunities and ideas for embedding ICT through Mathematics are also laid out in the National Curriculum objectives.

### 3.9 Equipment

Each classroom has been provided with Maths resource 'trugs', filled with a variety of resources that the children can use within the lesson. These are to encourage a more hands on experience to the maths lesson. They may not be used every lesson, but all children must have access to them and be able to decide what resource best suits them. Other, larger resources are based in central cupboards in the academy, which every teacher has access to. Teachers are encouraged to create relevant mathematic working walls and displays to aid learning and understanding. These must show examples of children's work and CPA. They must also be updated regularly. All teaching assistants have their own basic support materials or access to them.

## 4. Assessment and Record Keeping

Assessment takes place at three levels, to provide information on pupil progress and to inform future planning and ensure a consistent approach to teacher assessment. Pupils recorded on planning as not meeting a learning objective are identified and opportunities for support created. Assessment is also used to identify gaps in the children's learning so teachers can plan effectively. All assessment data can be accessed by the coordinator, the office and the receiving year group at the end of each academic year in line with end of year expectations.

### 4.1 Short term assessment

Carried out by the teacher of the class/group, it will consist of some or all of the following:

- The annotating of the weekly plans to show those children who have either surpassed or not achieved the day's objective and those who were absent;
- Informal assessment through discussion with or observation of a group or an individual;
- A more formal assessment through the marking of work set.
- At the end of each unit of work, the staff will use the Pupil Asset

Pupils not meeting expected end of year expectations will be reviewed at half termly pupil progress meetings. Interventions will be implemented accordingly, and this information will be collated by the coordinator.

## **5. Roles**

### **5.1 The Coordinator**

- Provides all members of staff with training for assessment / knowledge.
- Supports staff with identifying gaps in learning of children and aiding with planning and resources.
- Provides all members of staff with guidelines and a scheme of work.
- Identifies academy weaknesses and plans effective targets for year groups to improve standards.
- Advises on and informs of the availability of in-service training for staff where appropriate. (This will be in line with the needs identified within the Academy Development Plan and within the confines of the academy budget).
- Meet with the numeracy governor and report to the governing body.
- Advises and supports colleagues in the implementation and assessment of mathematics throughout the academy;
- Assists with the ordering and maintenance of resources required for the teaching of mathematics, within the constraints of the mathematics and academy budget.
- Uses questionnaires to ascertain pupil and staff views.
- Carries out book and planning scrutinies on a regular basis.
- Monitors working walls / displays on learning walks.

### **5.2 The class teacher**

The teacher's role specifically for mathematics is:

- to ensure progression in the acquisition of mathematical skills with regard to the National Curriculum for mathematics;
- to develop mental and counting skills on a daily basis;
- to develop and update skills;
- to identify inset needs in mathematics and take advantage of training opportunities;
- to keep appropriate on-going records;
- to plan effectively for mathematics within year groups, liaising with the coordinator when necessary, and passing on weekly plans where necessary;
- to ensure their lessons are differentiated to meet the needs of the children they are teaching.
- to utilise the skills of their teaching assistants, if any, within the three part mathematics lesson.
- to ensure their methods follow the academy calculations policy.

## **6. The way forward**

An Action Plan will be formulated each year, taking account of:-

- the progress that has been made during the year,
- the results of the current Action Plan,
- what needs to be done to achieve targets already in place.

The Action Plan will be shared with all teaching staff. All long term assessments will be audited to pick out areas of weakness and see where targets are not being met. Findings will be passed on to teaching staff to enable weaknesses to be targeted and eliminated for the future. Findings will be reported to governors at meetings on a regular basis.