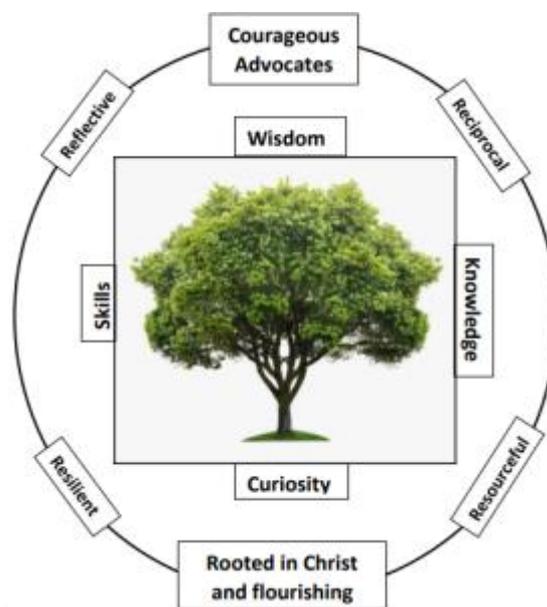




# Mathematics Policy

*'I have come so that they may have life and have it to the full.'* John 10:10



## ***Our Vision Statement***

Our Christian family leads and encourages everyone to:

- Flourish; soar in faith and talents
- Serve others courageously
- Be excited and curious to learn

We do this within our safe, happy, diverse and nurturing Christ centred environment ensuring 'all have life and have it to the full' John 10:10

We are God's children doing God's work



## WHITTLE-LE-WOODS C.E. PRIMARY SCHOOL

### POLICY STATEMENT FOR MATHEMATICS

This policy reflects the school's values and philosophy in relation to the teaching and learning of mathematics. Whittle-le-Woods C.E. School considers mathematics to be a vital part of its whole curriculum and it is taught within a Christian context ensuring the wellbeing of staff and children is at the heart of all lessons.

#### Philosophy

At Whittle-le-Woods school we feel that mathematics is a part of everyday life and work and is therefore an essential life skill. It provides a means of communication and helps the child make sense of the world. It also develops powers of logical thinking, accuracy and spatial awareness and offers pupils intellectual excitement and an appreciation of its essential creativity.

#### **Examples of how we can Use our God given talents to benefit others in Maths**

Children will use their mathematical ability to learn how to save their money so they can donate this to charity.

Children will use their monetary skills to create a mini business that will benefit our local community eg Fiver Challenge style activity

When learning about time, children create a timetable of their own activities to ensure they have time to help others.

Younger children can use their talent for sorting to tidy up their rooms and other areas within the home

Children can play card games with a maths element to connect with their relatives.

#### Aims

Using the Programmes of Study from the National Curriculum, the Lancashire framework for teaching Mathematics and White Rose Maths (EYFS, Y5 &6), along with Maths No Problems Scheme (Reception to Year 4) it is our aim to:

- ♣ become fluent in the fundamentals of mathematics, including 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.
- ♣ reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- ♣ 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.

#### Key Skills

We undertake to promote the following skills:

- Communication
- Application of number
- Information technology
- Working with others
- Improving own learning and performance
- Problem solving
- Develop conceptual understanding

#### National Curriculum Mathematics

At the Foundation Stage (Nursery & Reception), teachers follow EYFS materials, moving onto Problem solving, Reasoning and Numeracy within the Primary Framework. At KS1 and KS2, the

2014 primary curriculum will be taught to all year groups. Years- 1 to 4 follow the Maths No Problem scheme. Years 5 & 6 use a selection of materials to follow their curriculum eg Lancashire Scheme, White Rose Maths, etc. Children will not be moved onto the next year's objectives as they will complete a breadth of activities showing they can use and apply their skills, using rich and sophisticated problems.

#### Organisation of Mathematics within our School

Each class teacher is responsible for the mathematics in their class in consultation with and with guidance from the mathematics subject leader.

The approach to the teaching of mathematics within the school is based on four key principles:

- a mathematics lesson every day
- a clear focus on minimal direct instructional teaching and interactive oral work with the whole class
- an emphasis on collaborative discussion
- opportunities to use and apply their knowledge in every lesson

The knowledge, skills and understanding in the programmes of study identify the main aspects of mathematics in which pupils make progress:

At Foundation Stage in:

- counting
- understanding and using numbers
- calculating simple addition and subtraction problems
- to describe shapes, spaces, and measures

At Key Stage 1 and 2, they are divided into the following strands:

- Number and Place Value
- Addition and Subtraction
- Multiplication and division
- Fractions (including decimals)
- Measurement
- Geometry: Properties of Shapes
- Geometry: Position and direction
- Statistics

However, these are not all covered in every year group.

At all stages, teaching should ensure that appropriate connections are made between the sections and that the strand of **using and applying mathematics** is always included. These aspects are developed using mathematical ideas as set out in Breadth of study in the programmes of study and resources in the Primary Framework and EYFS at the Foundation stage.

#### Principles of Teaching and Learning in Mathematics

Through careful planning and preparation, we aim to ensure that throughout the school children are given opportunities for:

- practical activities and mathematical games
- problem solving
- developing an understanding of how maths is used in every day life
- individual, paired, group and whole class discussions and activities
- open and closed tasks
- a range of methods of calculating e.g. mental, jotting or formal
- working with computers as a mathematical tool
- Use of the outdoor environment

- Homework (set weekly) that supports the children's learning either as a pre teaching activity or to consolidate learning

Following the guidance of the Primary Framework, children are encouraged to use mental strategies before resorting to a written algorithm. The children are encouraged to record and communicate their mathematics in a variety of ways. They will develop informal or non-standard methods of calculation and are encouraged to compare and discuss different methods of calculation. By the end of upper KS2, the children will have progressed to efficient standard written calculations, when appropriate, as outlined in the school's document on the progression through written calculations. All children are encouraged to work tidily and neatly when recording their work. Journaling is used in Year 1 -4 to show their many methods. When using squares, one square should be used for each digit. The following exercise books are used for recording:

- Foundation and KS1 : workbooks, plain paper leading on to 1cm squares
- Year 3 : 1cm squares
- Year 4 : 1cm squares – gradual move to 7mm squares if appropriate
- Year 5 & 6 : 7mm squares, gradual move to 5mm squares if appropriate

Differentiation may be incorporated into mathematics lessons and can be done in various ways:

- stepped activities which become more difficult and demanding but cater for the less able in the early sections.
- common tasks which are open ended activities/investigations where differentiation is by outcome.
- resourcing which provides a variety of resources depending on abilities e.g. counters, cubes, 100 squares, number lines, mirrors.
- Grouping according to ability so that the groups can be given different tasks when appropriate. Activities are based on the same theme and usually at no more than three levels. (Occasionally, greater differentiation needed (usually 5 levels) in upper Key Stage two with number activities – this will encourage a breadth and depth of the area covered **not** moving on to next year group's work)

#### The Development of Independent Learning in Mathematics

Opportunities are provided within mathematics for children to develop the skills of independent learning through investigation and problem solving. Teaching strategies to promote independent learning include whole class and smaller group teaching. In addition, children are encouraged to learn on an individual basis. Emphasis is placed on questioning and reasoning.

#### Time Allocation

Each class teacher organises a daily lesson of between 45 and 60 minutes for mathematics, except at the Foundation Stage when arrangements are more flexible. The time may be divided into smaller time spans to be taught throughout the day. Gradually, during the year, the class will work towards a mathematics lesson. All Key stage 1 and 2 classes also have additional sessions (between 15 -30 minutes) three times a week where basic arithmetic skills are practised and consolidated.

#### Progression and Continuity Planning

Lessons in Year 5 & 6 are planned by the teacher using school's planning format. They are monitored periodically by the mathematics subject team. These plans, produced on a weekly or unit basis, are developed from the new maths curriculum documents produced by the Lancashire maths team or using other materials such as White Rose or Classroom secrets. All plans take into consideration the needs of our children. Reception and Years 1 to 4 follow the prescriptive sessions within the Maths No Problem scheme. Annotations are commonly used to ensure the needs of the whole class are met. Pre-teaching and interventions sessions are common place so that all children can access all lessons.

### The Role of the Co-ordinator

The co-ordinator for mathematics has oversight of the whole school curriculum plan for mathematics. They ensure that all N.C. programmes of study are being covered and that there is continuity and progression from the Foundation stage through to the end of KS2. The Numeracy Governor works alongside the mathematics subject leader in overseeing the mathematics curriculum. She visits the school to talk with teachers and to observe some daily mathematics lessons. She reports back to the Governors' curriculum committee on a regular basis.

The subject leader is also responsible for supporting and liaising with staff on topics and themes within mathematics. She, along with the mathematics staff team, is responsible for the resources in accordance with the school's budget allocation for mathematics. Together they arrange the storage and organisation of resources. She formulates a subject development plan which feeds into the overall school strategic plan and school improvement plan, in consultation with other teachers. An action plan for numeracy is formulated on an annual basis.

### Monitoring

The subject leader undertakes some classroom observations. They may focus on a specific aspect of teaching and learning or on the maths lesson in general. Ofsted criteria are also used as a guide. The observation schedule is completed and discussed with the class teacher, highlighting any areas of development as appropriate. Scrutiny of pupils' work is carried out termly, varying the focus during the year, depending on the whole school's need or following analysis of data or lesson observations or book scrutinises. Displays in the classroom and around school are monitored.

### Evaluation

The subject leader evaluates the mathematics curriculum and the quality of teaching and learning as part of the monitoring process. This is to ensure that children's standards of achievement are raised and that they reach their full potential.

### Marking the Children's Work

Children's work is marked by the class teacher in accordance with the whole school marking policy. Positive comments are included on pieces of work whenever possible, as well as comments which direct children to the next stage of learning. This can also be done through conversation with the child – if this is the case, then a D or VF will be recorded. It has been recognised that children make the most progress with in-lesson marking. However, exercises which involve routine practice with support and guidance from the teacher can be marked by the children themselves. Where appropriate children in Years 5 and 6 can be encouraged to check computational exercises with a calculator. This can foster independence in the children, who can seek help if they are unable to locate and correct the errors. Any work that is incorrect will be highlighted to the child in a way to help them feel positive about the way that they attempted the question. Every answer that is not correct is actually a valuable lesson learnt.

It is accepted that not all work will be recorded on paper. For example, in the early years recording may take the form of concrete materials and therefore be of a non-permanent nature. Teachers will record the tasks and outcomes of pupil's work appropriately.

### Assessment

Teachers will make regular assessments of each child's progress. The techniques used will range from observation and talking to children through to questioning and marking children's work. Maths KLIPs sheets are the recommended way of formally assessing the children (Lancashire Maths Team) in Year 5 & 6. These assessments will inform future planning and are carried out in line with the school's assessment policy. In Years 1-4 assessment is completed on a topic by topic basis as unlike the Lancashire Maths Scheme, each part of the curriculum is not returned to in the same format as it is with the Lancs Scheme. Therefore using the KLIPs would not give an accurate picture of the child's ability. Teachers use their own judgment along with

tests within Maths No Problem workbooks. Termly NFER tests have also been introduced to help to confirm teacher assessments.

### Children with Special Educational Needs

Most children with SEN are taught within the daily mathematics lesson and are encouraged to take part when and where possible. Where applicable, children's ILPs incorporate suitable objectives from the Primary Framework and teachers keep these objectives in mind when planning work.

Additional support staff support groups or individual children, working collaboratively with the class teacher. Feedback is given orally or is recorded on plans. Within the daily mathematics lesson teachers not only provide activities to support children who find mathematics difficult but also activities that provide appropriate challenges for children who are high achievers in mathematics.

A small number of KS1 and 2 children have maths lessons in an additional room with a different staff member (incl. SENDco) than their class teacher. This allows for one to one provision where their maths needs can be fully assessed and catered for. Class teacher and SENDco have regularly discussions regarding progress.

### Homework

It is our school policy to provide parents and carers with opportunities to work with their children at home. These activities may only be brief, but are valuable in promoting children's learning in mathematics. Activities are sent home on a regular basis in line with the school's homework policy, the exercises becoming more formal as the children get older.

### Cross Curricular Links

We believe that individual teachers should seek out opportunities for drawing mathematical experience out of a wide range of children's activities. Many curriculum areas give rise to mathematics, encouraging the development of mathematical skills and the using and applying of mathematics. In addition, mathematics can be developed within PSHE and to promote the key skills and thinking skills outlined in the National Curriculum. It can also promote pupils' spiritual, moral, social and cultural development.

### Incorporation of computing within Mathematics

Computing is an important aspect of the mathematics curriculum. Children will apply and use mathematics when they solve problems using technology. For example, they will develop skills in data handling and their work in control includes the measurement of distance and angles. When using computer models and simulations, they will manipulate numbers and identify patterns.

### Excellence in Mathematics

We aim to promote success within mathematics by displaying children's work and celebrating their achievements. We provide appropriate challenges for children who are high achievers. The curriculum expects children to access rich and sophisticated problems.

### Recording and Reporting

Teachers will keep their own records of each pupil's progress and make bi-annual comments to form part of the pupil's curricular record. In Yr5 & 6, the bullet points on the KLIPs document will be considered to see which best fits the child for teacher assessment (emerging, developing or secure) for their year group. Teachers are developing accurate ways of assessing pupils' progress without the need for testing.

Teacher assessment of a "best fit" level in mathematics will be reported to parents at the end of each key stage. In addition, National Tests at the end of Key Stage 1 and Key Stage 2 will be undertaken and results reported to parents. In year 3, 4 and 5 optional standard assessments will be carried out and results will be used to inform subsequent teachers of children's

attainments, for target setting and to guide future planning. At the end of every term, teachers are required to submit data to the headteacher, Maths & English subject leaders so progress can be tracked, both individually and in various groups (eg gender, SEN, FSM, etc) Results are discussed with the class teacher and used to decide on next steps with children, besides identifying children with special needs.

Reports are completed at mid-point and before the end of the summer term and parents are given the opportunity to discuss their child's progress on three separate occasions. Teachers use the information gathered from their assessments to help them comment on individual children's progress.

#### Parental Involvement

Parents in the classroom are an extremely useful resource, bringing their own strengths which can be shared with the children. Consequently, we encourage parents to help within classrooms and this is by arrangement with individual teachers. All parents are invited into school twice yearly to look at their children's work and an open evening is held once a year. Parents are also invited to assist with homework.

When significant changes are made to the mathematics curriculum, parents are informed either through a meeting or by letter. We occasionally hold maths workshop evenings to explain teaching methods.

#### Health and Safety

All health and safety aspects are taken into consideration and guidelines are followed in accordance with the school's health and safety policy.

#### Staffing and Resources

Provision is made for the mathematical development of staff through Inset and also through County Courses, as appropriate.

All teachers organise an area within the classroom for mathematical resources which is easily accessible to all children. Some additional resources are stored centrally in the junior teaching room.

An up to date list of resources is attached in the Appendix.

Policy updated –March 2022