

# Hindley J and I School



## Mathematics Policy

**Written: October 2015**

**Review date: September 2018**

\_\_\_\_\_ **Signed on behalf of the school** \_\_\_\_\_ **date**

\_\_\_\_\_ **Signed on behalf of the governors** \_\_\_\_\_ **date**

POLICY FOR MATHEMATICS

The policy is underpinned by the school's core value:  
***'Believe and Achieve'***

It should be read in conjunction with the following school policies:

- Written Calculation Policy,
- Marking, Presentation and Feedback Policy,
- SEND Policy,
- Equal Opportunities Policy.

(available on the school's website)

## **Rationale**

Mathematics is important in everyday life. It is integral to all aspects of life and with this in mind we endeavour to ensure that children develop a positive and enthusiastic attitude towards Mathematics that will stay with them.

The 2014 National Curriculum order for Mathematics describes in detail what pupils must learn in each year group. Combined with the Mental to Written Calculation Policy, this ensures continuity and progression and high expectations for attainment in Mathematics.

It is vital that a positive attitude towards Mathematics is encouraged amongst all of our pupils' in order to foster confidence and achievement in a skill that is essential in our society. At Hindley Junior and Infant School we use the new National Curriculum for Mathematics (2014) as the basis of our Mathematics programme. We are committed to ensuring that all pupils achieve mastery in the key concept of Mathematics, appropriate for their age group, in order that they make genuine progress and avoid gaps in their understanding that provide barriers to learning as they move through education. Assessment for Learning, an emphasis on investigation, problem solving and the development of mathematical thinking and rigorous approach to the development of teacher subject knowledge are therefore essential components of the Hindley Junior and Infant approach to this subject.

## **Principles**

- policy and provision are evaluated and reviewed regularly;
- resources of time, people and equipment are planned, budgeted for and detailed when appropriate in the School Improvement Plan;
- Subject Leader for Mathematics, teachers engage in joint professional development;
- through use of external consultant support to optimise the quality of teaching in Mathematics;
- the governing body discharge their statutory responsibility with regard to Mathematics;
- planning of Mathematics ensures continuity and progression across all year groups and key stages.

## 1 Aims

We aim to provide the pupils with a Mathematics curriculum and high quality teaching to produce individuals who are numerate, creative, independent, inquisitive, enquiring and confident. We also aim to provide a stimulating environment and adequate resources so that pupils can develop their mathematical skills to the full.

Our pupils should:

- 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

### Provision

Pupils are provided with a variety of opportunities to develop and extend their Mathematical skills, including:

- guided group work,
- paired work,
- whole class teaching,
- individual work.

Pupils engage in:

- the development of mental strategies,
- written methods,
- practical work,
- investigational work,
- problem solving,
- mathematical reasoning,
- consolidation of basic skills and number facts,
- Maths games (e.g., Mathletics).

We recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced. We use accurate mathematical vocabulary in our teaching and children are expected to use it in their verbal and written explanations. Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts. It is important that time is found in other subjects for pupils to develop their mathematical skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric

patterns in technology and art, and for the collection and presentation of data in history and geography. We endeavour at all times to set work that is challenging, motivating and encourages the pupils to think about how they learn and to talk about what they have been learning. Additional enrichment opportunities are provided for pupils to further develop mathematical thinking e.g. through cooking, music, and Maths investigations and games. Teachers plan **problem solving** and investigational activities every week to ensure that pupils develop the skills of mathematical thinking and enquiry.

To provide adequate time for developing Mathematics. Maths is taught daily and discretely. Maths lessons may vary in length but will usually last for 45 - 60 minutes in Key Stage 1 and 2.

### **A Typical lesson**

A 'typical' lesson, although staff are encouraged to move away from this approach, in Year 1 to 6 will often have the following components:

➤ **oral and mental work across the range of Mathematics.**

This will involve work to rehearse, sharpen and develop mental and oral skills.

➤ **main teaching session**

This will include both teaching input and pupil activities and a balance between Whole class, guided grouped and independent work, (groups, pairs and individual). Work effectively differentiated and offering appropriate challenge. Sometimes the focus for this session is new learning, at other times pupils may be practicing, to master the application of a concept they have learned earlier. The focus of this session may vary for different children depending on their learning needs.

➤ **mini-plenary**

Teachers check pupils' understanding systematically and effectively in lessons, offering clearly directed and timely support.

Within lessons and over sequences of lessons teachers plan a coherent teaching and learning programme based on the model:

Revisit -> Review -> Teach -> Practise -> Apply

## **2 Teaching, learning and assessment of Mathematics**

The school uses a variety of teaching and learning styles in Mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in Mathematics.

Teachers demonstrate deep knowledge and understanding of the subjects they teach. They use questioning highly effectively and demonstrate understanding of the ways pupils think about subject content. They identify pupils' common misconceptions and act to ensure they are corrected. In accordance with the new guidance from the DfE, the most able pupils will be assessed for 'mastery', to do this teachers will enrich, deepen and extend the most able pupils.

When scrutinizing pupils' work in Maths books, the Subject Leader will pay particular attention to:

- pupils' effort and success in completing their work, both in and outside lessons, so that they can progress and enjoy learning across the curriculum
- how pupils' knowledge, understanding and skills have developed and improved
- the level of challenge and whether pupils have to grapple appropriately with content, not necessarily 'getting it right' first time, which could be evidence that the work is too easy
- how well teachers' feedback, written and oral, is used by pupils to improve their knowledge, understanding and skills. Inspectors should note the clarification points set out in Part 1 about pupils' work and marking.

### **3 Mathematics curriculum planning**

Teachers plan lessons very effectively, making maximum use of lesson time and coordinating lesson resources well. Mathematics is a core subject in the new Curriculum and we use the 2014 Year group expectations in Maths as the basis for implementing the statutory and non-statutory requirements.

The 2014 Maths curriculum is divided into strands: Number and Place Value; Addition and Subtraction; Multiplication and Division; Fractions; Measurement; Geometry – Property of Shapes; Geometry – Position and Direction; Statistics.

We carry out the curriculum planning in Mathematics in the form of short-term weekly plans. However, the 2014 Maths Curriculum gives teachers a detailed outline of what they will be teaching in the long term.

Teachers' planning and approach to teaching and learning in maths is informed by guidance in the 'Singapore Maths' Teachers' Guides for each year group, making particular use of the 'concrete → pictorial → symbolic' approach to conceptual development.

Our short-term weekly plans are devised from the year group overviews and key learning documents. It is the class teacher who completes the weekly plans for the teaching of Mathematics. These weekly plans list the specific, more streamlined learning objectives, from the 2014 Maths Curriculum. The class teacher keeps these individual plans.

Teachers note (using icons in Appendix 1) on their daily/weekly planning how the evidence will be recorded for that lesson, for example: photographic evidence, pupils' books, learning receipts etc.

Teachers will record on their planning how they will be assessing progress for groups of pupils in their daily/weekly planning. There are 3 types of progress: Explicit new learning; consolidation and developing in confidence and practice, and application. These are displayed in classrooms so that teacher and other adults can refer to them with pupils during the lesson.

## **4 Early Years**

We follow EY curriculum guidance for Mathematics. However, we are committed to ensuring the confident development of number sense and put emphasis on mastery of key early concepts. Pupils explore the 'story' of numbers to ten and the development of models and images for numbers as a solid foundation for further progress. Teachers use the 'Singapore Maths' concrete – pictorial – abstract/symbolic approach to conceptual development, based on research by Jerome Bruner.

## **5 Contribution of Mathematics to teaching in other curriculum areas**

At times, there may be opportunities to develop skills and understanding of Mathematics across the curriculum, equipping all pupils with the necessary skills to make progress.

### **English**

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we regularly encourage children to read and interpret problems in order to identify the Mathematics involved. The children explain and present their work to others during plenary sessions. Younger children enjoy stories and rhymes that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

### **Computing (ICT)**

ICT is used in various ways to support teaching and motivate children's learning. Each classroom has a PC connected to an interactive whiteboard. All teachers are provided with a laptop and an I-pad to support their planning and provision and are encouraged to use ICT to enhance teaching and learning in Mathematics where appropriate. The school is equipped with mini-notebooks. The school subscribes to 'Mathletics' and 'MyMaths' to facilitate further practice of key skills online and at home.

### **Spiritual, moral, social and cultural development**

The teaching of Mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results. The teaching of Mathematics promotes tolerance of and respect for people of all faiths, cultures and lifestyles through effective spiritual, moral, social and cultural development of pupils.

## **6 Teaching Mathematics to children with SEND**

At our school we teach Mathematics to all children, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our Mathematics teaching we provide learning opportunities that enable all pupils to make progress.

When progress falls significantly outside the expected range, the child may have special educational needs. We are a Dyslexia Friendly School supporting Inclusive education, therefore we use a range of strategies, for example, 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. This ensures that our teaching is matched to the child's needs. Wave 3 material (2006 Framework), such as: Overcoming Barriers, Pitch and Expectations, What I can do in Mathematics and Securing Levels documents, Numicon, has given teachers the opportunity to identify any problems children are experiencing with certain objectives, as well as providing resources such as: lesson ideas; interactive activities, assessment for learning opportunities and prior knowledge questions, plus much more, to enable the children to overcome any barriers that might be affecting in their learning of a particular topic.

Through the Accelerated Learning Team, intervention is clearly directed, timely and focused. Pupils targets in Mathematics may include, areas identified by the Learning Mentor.

We enable pupils to have access to the full range of activities involved in learning Mathematics. Where children are to participate in activities outside the classroom, for example, a Maths trail, we carry out a risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

## **7 Assessment**

We have three assessment points yearly where teachers use a range of assessment information, including tests, to make a judgement about a child's attainment and progress. However, we also have a mid-point review of progress and attainment, where pupil targets are reviewed and assessment information entered into the school's tracking systems.

### **Formative Assessment**

Teachers integrate the use of formative assessment strategies such as: highly effective questioning, clear learning objectives, the use of success criteria (Steps to Success) and incisive feedback. As a school, we have decided to put an emphasis on teaching the 5 strands of Place Value at the outset of a lesson.

Ready Steady Number sessions helps support rigorous and regular assessment of age-related tables and basic skills in Maths. Pupils, from Year 2 to 6 take their 'Times Table Challenge' when they believe they have secured (or mastered) their age-related tables and division facts. If they pass the challenge – set by the Maths leader - they are rewarded with a wrist band.

The school's 'Assessment' and 'Marking, Feedback and Presentation' policies inform high quality feedback and pupils' response to it in Maths and other subjects.

## Summative Assessment

EY	EY BASELINE	EY ASSESSMENT	EY ASSESSMENT		EY ASSESSMENT	SUMMER PUMA TEST
Y1	RS PROGRESS TEST 1 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES AUTUMN PUMA TEST RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 3 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES SPRING PUMA TEST RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 5 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES SUMMER PUMA TEST RS MENTAL MATHS RS ARITH. TESTS
Y2	RS PROGRESS TEST 1 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES NATIONAL TESTS RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 3 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES NATIONAL TESTS RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 5 RS MENTAL MATHS RS ARITH. TESTS	MATHS BOOKS PUPIL TARGETS PHOTO FILES NATIONAL TESTS RS MENTAL MATHS RS ARITH. TESTS
Y3-Y5	RS PROGRESS TEST 1 RS MENTAL MATHS RS ARITH. TESTS	BOOKS PUPIL TARGETS PHOTO FILES AUTUMN PUMA TEST RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 3 RS MENTAL MATHS RS ARITH. TESTS	BOOKS PUPIL TARGETS PHOTO FILES SPRING PUMA TEST RS MENTAL MATHS RS ARITH. TESTS	RS PROGRESS TEST 5 RS MENTAL MATHS RS ARITH. TESTS	BOOKS PUPIL TARGETS PHOTO FILES SUMMER PUMA TEST RS MENTAL MATHS RS ARITH. TESTS
Y6	RS PROGRESS TEST 1 RS MENTAL MATHS RS ARITH. TESTS	BOOKS PUPIL TARGETS PHOTO FILES PUMA TEST NATIONAL TESTS	RS PROGRESS TEST 3 RS MENTAL MATHS RS ARITH. TESTS	BOOKS PUPIL TARGETS PHOTO FILES SPRING PUMA TEST NATIONAL TESTS	NATIONAL TESTS	2016 NATIONAL TESTS

Table above extracted from school's Marking, Presentation and Feedback policy.

### 8 Marking and Feedback in Maths

Teachers provide pupils with incisive feedback, in line with the school's assessment policy, about what pupils can do to improve their knowledge, understanding and skills. The pupils use this feedback effectively.

See Page 3-7 in Marking, Presentation and Feedback Policy.

### 9 Resources

Resources and teaching strategies reflect and value the diversity of pupils' experiences and provide pupils with a comprehensive understanding of people and communities beyond their immediate experience.

A bank of essential Mathematics resources including Numicon and Cuisenaire rods are kept in each classroom. Each class teacher has a variety of textbooks which can be used to assess pupils in their Maths work. Pupils' are asked to draw – next to the learning objective - the mathematical symbol of the resource they used in their learning.

## **10 Involving Parents and Carers**

We value the support that parents and carers give to the children at Hindley Junior and Infant School. However we are aware that since the implementation of the 2014 Maths Curriculum, parents and carers are less confident with the methods of calculation that we use at school. We aim to include parents and carers in their child's Maths learning by:

- Reporting termly progress in order for parents and carers to see how their child is progressing in this subject;
- Keeping parents fully informed of developments in Mathematics via the school website, parent/carer questionnaires, parent booklets, curriculum workshop evenings;
- Running 'Inspire' sessions for the parents and carers of new EY pupils;
- Discussing children's individual progress at parents' evenings/afternoons (x3 per year).

Information about what is being taught in each year group in Maths is shared with parents and carers, including by meeting the statutory requirement to make curriculum information available on the school's website;

- Contacting parents promptly if their child is experiencing significant difficulties in this subject;
- Home school learning opportunities – 'Mathletics' and 'MyMaths' allow parents to engage with school to the benefit of their child's learning. There is a range of links to Maths games on the Maths page of the school website.
- Teachers set challenging homework, in-line with the schools policy, provides opportunities for children:
  - to practice and consolidate learning appropriate to the age and stage of pupils,
  - to deepen understanding,
  - to prepare pupils very well for work to come,
  - to share their mathematical work with their family.

## **11 Role of the Subject Leader**

Leaders focus on consistently improving outcomes for all pupils in Maths, including disadvantaged pupils, pupils with special educational needs, the most able and low attainers. They are uncompromising in their ambition.

Their actions have secured substantial improvement in progress for disadvantaged pupils.

Ensures teachers understand the requirements of the National Curriculum and helps them to plan lessons. Leads by example by setting high standards in their own teaching.

Facilitates professional development that encourages, challenges and supports teachers' and Support assistant's improvement. They feel deeply involved in their own professional

development. As a result, teaching is highly effective across the school.

The maths leaders have a deep, accurate understanding of the school's effectiveness informed by the views of pupils, parents and staff. They use this to keep the school improving by focusing on the impact of their actions in Maths;

Attends CPD provided by external consultants and other providers;

Promotes pupils' spiritual, moral, social and cultural development and, within this, the promotion of fundamental British values, are at the heart of Maths work.

## Appendix 1



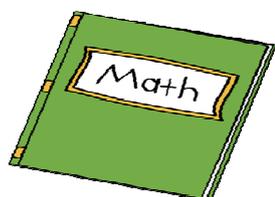
Photographic Evidence



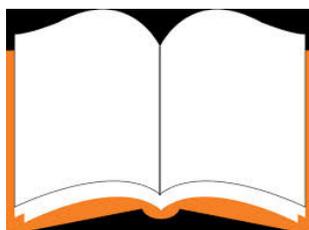
Learning Receipt



I-pad Profile



Pupil's books



Floor books



Steps to Success



Jotters



TA feedback

Key Changes for Governors:

3 aims of the New 2014 Maths Curriculum are:

- become **fluent** in the fundamentals of mathematics,
- **reason** mathematically,
- solve problems.

The 2014 Maths curriculum strands include:

- Number and Place Value
- Addition and Subtraction
- Multiplication and Division
- Fractions
- Measurement
- Geometry – Property of Shapes
- Geometry – Position and Direction
- Statistics
- Algebra and Ratio & Proportion (Y6 only)

As a school, we have decided to put an emphasis on teaching the **5 strands** of Place Value at the outset of a lesson:

- Comparing and Ordering
- Reading and Writing numerals
- Partitioning and Recombining
- Positioning numbers on an empty numberline/track
- Rounding.

Ready Steady Number sessions helps support rigorous and regular assessment of age-related tables and basic skills in Maths.

Pupils in Years 2 to 6 take their 'Times Table Challenge' Pupils, from Year 3 to 6. If they pass the challenge – set by the Maths leader - they are rewarded with a Bronze, Silver, Gold and Platinum wrist band.

Teachers planning to contain icons indicating where the evidence from that lesson will be recorded.

3 types of progress: Explicit new learning; Consolidation and developing in confidence and practice, and Application.