

LONS INFANT SCHOOL



Mathematics Policy

Contents:

Statement of intent

1. [Legal framework](#)
2. [Roles and responsibilities](#)
3. [Early years provision](#)
4. [The national curriculum](#)
5. [Cross-curricular links](#)
6. [Teaching and learning](#)
7. [Planning](#)
8. [Assessment and reporting](#)
9. [Resources](#)
10. [Equal opportunities](#)
11. [Monitoring and review](#)

Statement of intent

Lons Infant School recognises that maths is both a key skill within school, and a life skill to be utilised through everyday experiences. A high-quality maths education provides a firm foundation for understanding how maths is used in everyday life and activities, developing pupils' ability to reason mathematically.

Through the teaching of maths, we aim to develop:

- A positive attitude towards maths and an awareness of the relevance of maths in the real world.
- A process of enquiry and experiment.
- An ability to solve problems and think logically in order to work systematically and accurately.
- An ability to work both independently and in cooperation with others.
- Competence and confidence in pupils' maths knowledge, concepts and skills.
- An appreciation of the creative aspects of maths and an awareness of its aesthetic appeal.

Signed by:

_____ Headteacher Date: _____

_____ Chair of governors Date: _____

1. Legal framework

1.1. This policy has due regard to statutory guidance including, but not limited to, the following:

- DfE (2013) 'National curriculum in England: Mathematics programmes of study'
- DfE (2021) 'Statutory framework for the early years foundation stage'

2. Roles and responsibilities

2.1. The subject leader is responsible for:

- Preparing policy documents, curriculum plans and schemes of work for the subject.
- Reviewing changes to the national curriculum and advising on their implementation.
- Monitoring the learning and teaching of maths, providing support for staff where necessary.
- Ensuring the continuity and progression from year group to year group.
- Encouraging staff to provide effective learning opportunities for pupils.
- Helping to develop colleagues' expertise in the subject.
- Organising the deployment of resources and carrying out audits of all maths-related resources.
- Liaising with teachers across all phases.
- Communicating developments in the subject to all teaching staff.
- Leading staff meetings and providing staff members with the appropriate training.
- Organising, providing and monitoring CPD opportunities in the subject.
- Ensuring common standards are met for recording and assessing pupil performance.
- Advising on the contribution of maths to other curriculum areas, including cross-curricular and extra-curricular activities.
- Collating assessment data and setting new priorities for the development of maths in subsequent years.

2.2. The classroom teacher is responsible for:

- Acting in accordance with this policy.
- Ensuring progression of pupils' mathematical skills, with due regard to the national curriculum.
- Planning lessons effectively, ensuring a range of teaching methods are used to cover the content of the national curriculum.
- Liaising with the subject leader about key topics, resources and support for individual pupils.
- Monitoring the progress of pupils in their class and reporting this on an annual basis to parents.
- Reporting any concerns regarding the teaching of the subject to the subject leader or a member of the senior leadership team (SLT).
- Undertaking any training that is necessary in order to effectively teach the subject.

2.3. The special educational needs coordinator (SENCO) is responsible for:

- Liaising with the subject leader in order to implement and develop maths throughout the school.
- Organising and providing training for staff regarding the maths curriculum for pupils with special educational needs and disabilities (SEND).
- Advising staff how best to support pupils' needs.
- Advising staff on the inclusion of mathematical objectives in pupils' individual education plans.
- Advising staff on the use of teaching assistants in order to meet pupils' needs.

3. Early years provision

3.1. Activities and experiences for pupils will be based on the seven areas of learning and development, as outlined in the DfE's 'Statutory framework for the early years foundation stage'.

3.2. Provision for early years pupils focusses on four specific areas:

- Literacy

- Maths
 - Understanding the world
 - Expressive arts and design
- 3.3. Activities will provide pupils with the opportunity to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems, and describing shapes, spaces and measurements.
- 3.4. All activities will adhere to the objectives set out in the framework.
- 3.5. During the early years foundation stage, pupils will be taught to:
- Count with numbers beyond 10, counting objects, actions and sounds, and will link numerals with its cardinal number.
 - Understand the 'one more than/ one less than' relationship between consecutive numbers.
 - Explore the composition of numbers to 10, comparing them.
 - Automatically recall number bonds for number 1-10.
 - Recognise, create and describe patterns.
 - Use mathematical language to describe everyday objects and shapes, and be able to select, rotate and manipulate shapes in order to develop spatial reasoning skills.
 - Compare length, weight and capacity.

4. The national curriculum

- 4.1. The national curriculum is followed and provides a full breakdown of the statutory content to be taught within each unit.
- 4.2. In Year 1, pupils will be taught to:
- **Number and place value**
 - Count to 100, forwards and backwards, beginning with 0 or 1, from any number.
 - Count, read, and write numbers from 1 to 100.
 - Count in multiples of 2, 5, and 10.
 - Identify one more and one less from a number.

- Identify and represent numbers using objects and pictures (using a number line) and use language of: equal to, more than, less than (fewer), most, least.
- Read and write numbers from 1 to 20 in numerals and words.
- **Addition and subtraction**
 - Read, write, and interpret statements involving addition, subtraction, and equals signs.
 - Represent and use number bonds and related subtraction facts within 20.
 - Add and subtract one and two-digit numbers to 20, including 0.
 - Solve one-step problems which involve addition and subtraction.
- **Multiplication and division**
 - Solve one-step problems using multiplication and division, calculating the answer using concrete objects and pictorial representations.
- **Fractions**
 - Recognise, find and name a half as 1 of 2 equal parts.
 - Recognise, find and name a quarter as 1 of 4 equal parts.
- **Measurement**
 - Compare, describe and solve practical problems for lengths and heights, weight, time, capacity and volume.
 - Measure and begin to record lengths and heights, weight, time, capacity and volume.
 - Recognise and know the value of different denominations of coins and notes.
 - Sequence events in chronological order using language.
 - Recognise and use language relating to dates, including days of the week, weeks, months, and years.
 - Tell the time to the hour and half past the hour, and draw the hands on a clock face to show these times.
- **Properties of shapes**
 - Recognise and name common 2D and 3D shapes.
- **Position and direction**
 - Describe position, direction and movement, including whole, half, quarter and three-quarter turns.

4.3. In Year 2, pupils will be taught to:

- **Number and place value**
 - Count in steps of two, three and five from 0, and in 10s from any number, forwards and backwards.
 - Recognise the place value of each digit in a two-digit number.

- Identify, represent and estimate numbers using different depictions, including the number line.
- Compare and order numbers from 0 to 100, using $<$, $>$ and $=$ signs.
- Read and write numbers 1 to 100 in numerals and words.
- Use place value and number facts to solve problems.
- **Addition and subtraction**
 - Solve problems with addition and subtraction using concrete objects and pictorial representations.
 - Apply increasing knowledge of mental and written methods.
 - Recall and use addition and subtraction facts to 20, and derive and use related facts up to 100.
 - Add and subtract numbers using concrete objects, pictorial representations, and mentally – including a two-digit number and 1s, a two-digit number and 10s, two two-digit numbers, and adding three one-digit numbers.
 - Show that the addition of two numbers can be done in any order and subtraction of one number from another cannot.
 - Recognise and use the inverse relationship between addition and subtraction, and use this to check calculations and solve missing number problems.
- **Multiplication and division**
 - Recall and use multiplication and division facts for the 2, 5, and 10 multiplication tables.
 - Recognise odd and even numbers.
 - Calculate mathematical statements for multiplication and division within the multiplication tables and write them using \times , \div , and $=$ signs.
 - Show that multiplication of two numbers can be done in any order, and division of one number by another cannot.
 - Solve problems involving multiplication and division using materials, arrays, repeated addition, mental methods, and multiplication and division facts.
- **Fractions**
 - Recognise, find, name, and write fractions of a length, shape, set of objects or quantity.
 - Write simple fractions and recognise their equivalence, e.g. $\frac{1}{2}$ and $\frac{2}{4}$.
- **Measurement**
 - Choose and use appropriate standard units to estimate and measure length/height in any direction, mass, temperature, and capacity to the nearest appropriate unit.
 - Compare and order lengths, heights, mass, volume/capacity, and record the results using $>$, $<$ and $=$.

- Recognise and use symbols for pounds (£) and pence (p), and combine amounts to make a particular value.
 - Find different combinations of coins that equal the same amounts of money.
 - Solve simple problems in a practical context, e.g. giving change.
 - Compare and order intervals of time.
 - Tell and write the time to five minutes, including quarter past/to the hour, and draw the hands on a clock face to show these times.
 - Know the number of minutes in an hour and the number of hours in a day.
- **Properties of shapes**
 - Identify and describe the properties of 2D shapes, including the number of sides, and line symmetry in a vertical line.
 - Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.
 - Identify 2D shapes on the surface of 3D shapes.
 - Compare and sort common 2D and 3D shapes using everyday objects.
 - **Position and direction**
 - Order and arrange combinations of mathematical objects in patterns and sequences.
 - Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line, distinguishing between rotation as a turn, and in terms of right angles for quarter, half and three-quarter turns.
 - **Statistics**
 - Interpret and construct simple pictograms, tally charts, block diagrams and tables.
 - Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
 - Ask and answer questions about totalling and comparing data.

5. Cross-curricular links

5.1. Wherever possible, the maths curriculum will provide opportunities to establish links with other curriculum areas.

5.2. English

- Mathematical terminology is used, where appropriate.
- Maths-based texts are sometimes used in English lessons and in guided reading sessions.

5.3. Science

- Pupils' data collection and analysis skills are further developed through the conduction of physical experiments, using units of measurement, calculating averages and interpreting results.
- Pupils record their finding using charts, tables and graphs.

5.4. Humanities

- Data analysis, pattern seeking and problem-solving skills are developed through the teaching of geography.
- Pupils' understanding of time and measurements of time are developed through discussions of historical events.

5.5. ICT

- Pupils are encouraged to use electronical devices, gaining confidence throughout their school experience.
- ICT will be used to enhance pupils' maths skills through the use of online resources.

6. Teaching and learning

- 6.1. Pupils will be taught to describe key characteristics and associated processes in common language, as well as understand and use technical terminology and specialist vocabulary as set out in the scheme of work.
- 6.2. Pupils will undertake independent work, and have the opportunity to work in groups and discuss work with fellow classmates.
- 6.3. Lessons will allow for a wide range of mathematical, enquiry-based research activities, including the following:
 - Questioning, predicting and interpreting
 - Pattern seeking
 - Collaborative work
 - Problem-solving activities
 - Classifying and grouping

- 6.4. The classroom teacher, in collaboration with the subject leader, will ensure that the needs of all pupils are met by:
- Setting tasks which can have a variety of responses.
 - Providing resources of differing complexity, according to the ability of the pupils.
 - Setting tasks of varying difficulty, depending on the ability group.
 - Utilising teaching assistants to ensure that pupils are effectively supported.
- 6.5. A maths mastery approach is taken to the curriculum, in which fluency comes from deep knowledge and practice. This means that structured questioning is used to ensure that pupils develop fluent technical proficiency and think deeply about the underpinning mathematical concepts.
- 6.6. Focus is put on the development of deep structural knowledge and the ability to make connections, with the aim of ensuring that what is learnt is sustained over time.
- 6.7. At Lons Infant School, we do not prioritise between technical proficiency and conceptual understanding, and we aim to develop these in parallel.

7. Planning

- 7.1. All relevant staff members are briefed on the school's planning procedures as part of their staff training.
- 7.2. At Lons Infant School we follow the White Rose Mathematics Scheme of work and the small steps of learning will be followed by the class teachers.
- 7.3. Throughout Lons Infant School, maths is taught as a discrete lesson and as part of cross-curricular themes when appropriate.
- 7.4. Teachers will use the key learning content in the DfE's statutory guidance 'National curriculum in England: mathematics programmes of study', published in 2014.

- 7.5. Lesson plans will demonstrate a balance of interactive and independent elements used in teaching, ensuring that all pupils engage with their learning.
- 7.6. There will be a clear focus on direct, instructional teaching and interactive oral work with the whole class and targeted groups.
- 7.7. Long-term planning will be used to outline the units to be taught within each year group.
- 7.8. Medium-term planning will be used to outline the vocabulary and skills that will be taught in each unit of work, as well as highlight the opportunities for assessment.
- 7.9. Medium-term plans will identify learning objectives, main learning activities and differentiation.
- 7.10. Medium-term plans will be shared with the subject leader to ensure there is progression between years.
- 7.11. Short-term planning will be used flexibly to reflect the objectives of the lesson, the success criteria and the aims of the next lesson.
- 7.12. Short-term planning is the responsibility of the teacher. This is achieved by building on their medium-term planning, taking into account pupils' needs and identifying the method in which topics could be taught.
- 7.13. All lessons will have clear learning objectives, which are shared and reviewed with pupils.
- 7.14. Home learning will be set on a weekly basis and will consolidate that week's lesson objectives.
- 7.15. Home learning may take a variety of formats, including mental maths tasks, games and worksheets.

8. Assessment and reporting

- 8.1. Pupils will be assessed at the end of each unit.

- 8.2. In EYFS, the end of unit checkpoints from White Rose Maths will be used to assess the children's understanding of the concepts taught.
- 8.3. An EYFS Profile will be completed for each pupil in the final term of the year in which they reach age five.
- 8.4. The progress and development of pupils within the EYFS is assessed against the early learning goals outlined in the 'Statutory framework for the early years foundation stage'.
- 8.5. Throughout the year, KS1 teachers will use the end of block summative assessments from White Rose Maths in order to gauge whether pupils have achieved the key learning objectives.
- 8.6. Formative assessment will be undertaken in various forms, including the following:
 - Talking to pupils and asking questions
 - Discussing pupils' work with them
 - Marking work against the learning objectives
 - Pupils' self-evaluation of their work
 - Classroom tests and formal exams
- 8.7. Formative assessment, which is carried out informally throughout the year, enables teachers to identify pupils' understanding of subjects and inform their immediate lesson planning.
- 8.8. In terms of summative assessments, the results of end-of-year assessments will be passed to relevant members of staff, such as the pupil's future teacher, in order to demonstrate where pupils are at a given point in time.
- 8.9. Parents will be provided with a written report about their child's progress during the Summer term every year. These will include information on the pupil's attitude towards maths, understanding of mathematical terminology, investigatory skills and the knowledge levels they have achieved.

- 8.10. Verbal reports and written mid-year reports will be provided at parent-teacher interviews during the Autumn and Spring terms.
- 8.11. The progress of pupils with SEND will be monitored by the SENCO.

9. Resources

- 9.1. The subject leader is responsible for the management and maintenance of maths resources, as well as for liaising with the school business manager in order to purchase further resources.
- 9.2. Maths resources will be stored in the maths cupboard or in individual classrooms.
- 9.3. A working maths wall will be utilised and updated regularly, in accordance with the area of maths being taught at the time.
- 9.4. Maths equipment and resources will be easily accessible to pupils during lessons.
- 9.5. The subject leader will undertake an audit of maths equipment and resources on an annual basis.

10. Equal opportunities

- 10.1. All pupils will have equal access to the maths curriculum.
- 10.2. Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all maths lessons.
- 10.3. Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.
- 10.4. All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

- 10.5. Lons Infant School aims to provide more academically-able pupils with the opportunity to extend their mathematic thinking through extension activities such as problem solving.

11. Monitoring and review

- 11.1. This policy will be reviewed on an annual basis by the subject leader.
- 11.2. The subject leader will monitor teaching and learning in the subject at Lons Infant School, ensuring that the content of the national curriculum is covered across all phases of pupils' education.
- 11.3. Any changes made to this policy will be communicated to all teaching staff.