



Longford Primary Academy

Member of staff responsible: A. Gittus

Date policy written: Summer 2020

Date to be reviewed: Autumn 2021

Mathematics Policy

At Longford, children are encouraged to enjoy mathematics and become enthusiastic mathematicians by developing their skills, knowledge and understanding through practical experiences which have relevance and purpose in everyday situations. It is important that children develop the skills of numeracy to become lifelong learners. They should be able to apply these skills in different situations across the curriculum and in daily living outside school.

Aims and Objectives

- To become fluent in the fundamentals of mathematics through varied and frequent practice of increasingly complex problems over time.
- To develop the ability to recall and apply knowledge rapidly and accurately.
- To develop the ability to solve problems through decision making and reasoning in a range of contexts.
- To develop mathematical language through speaking and listening, practical activities and recording work.

Teaching and Learning

We want pupils to acquire a deep, long-term, secure and adaptable understanding of the subject. We allow a majority of pupils to access the curriculum at the same pace. Differentiation is through scaffolding to allow children to access the work. Lessons and resources are shaped to allow children to get deep conceptual and procedural knowledge. All children will access fluency, problem solving and reasoning activities (for some this may be oral and become written when they are ready to do so).

In mixed age year groups all children will be exposed to their year group expectations. Where possible, mixed classes will be composed of EXS and GDS pupils. This will allow for more sophisticated problem solving and reasoning. The other class will have EXS and WTS pupils who will be exposed to their year group expectations.

The use of open-ended investigations provides excellent opportunities for differentiated outcomes. We use teaching assistants to support and extend children's learning.

Nursery & Reception: Maths is taught as a whole class daily lesson and guided maths sessions take place each day. Maths games are played weekly across the phase and there are mathematical opportunities offered daily throughout the learning environment, both inside and outdoor.

Year 1-6: There is an hourly maths lesson, which includes basic skills revision.

Morning skills sessions may also be used to practise mental arithmetic and consolidate learning.

(See *Maths Yearly Overview – Appendix 1*)

Planning

The National Curriculum (September 2014) is the basis for implementing the statutory requirements for Mathematics. The White Rose Scheme of Work is used by teachers to ensure coverage of objectives. Pupils who grasp concepts rapidly will be challenged through being offered deeper problems before being taught any new content. Those who are not sufficiently confident will consolidate their understanding through additional practice before moving on.

Basic Maths skills

We place a strong emphasis on the teaching of basic Maths skills, knowledge and understanding.

- See *Appendix 2* for overview of the teaching of Times-tables. Children should understand the times tables facts and related division facts. They should be able to explain methods used and patterns identified, using mathematical language. Informal half-termly assessments take place within the group/class.
- Children are given daily opportunities to practise their mental arithmetic. This may take place within the daily maths lesson or during skills sessions.
- The teaching of time is taught throughout the year to as well as in discrete units. Each class has a timekeeper for the day who wears the class watch. These pupils are questioned at relevant time intervals to consolidate the telling of time on an analogue clock.

Cross-Curricular Links

The teaching of Mathematics contributes significantly to children's understanding of other curriculum areas. Links are planned and taught appropriately.

Marking and Feedback of Mathematics

Children's work is marked and feedback given according to the school's agreed marking policy. Morning Skills sessions are utilised to address misconceptions and secure learning. They are also used for pre-teach. This allows children to keep-up not catch-up.

Resources

Everyday basic mathematical resources are kept within each classroom for access freely. Other mathematical resources are stored centrally in the Maths store cupboard. If new or additional resources are required then these can be ordered by the Mathematics coordinator subject to budget.

Assessment

Assessment takes place in line with the school's agreed assessment policy. Assessment is regarded as an integral part of teaching and learning and is a continuous process. Teachers assess children's progress using Sheffield Assessment Key Concept Grids and their attainment is recorded half termly. Children may also carry out end of unit mini assessment from White Rose.

Each term pupil progress meetings are held with the Senior Leadership Team and class teachers where attainment and progress of each class is discussed and additional needs are identified.

Monitoring

Teaching staff monitor their pupils through observation, discussion, teacher assessment, marking work and testing.

The teaching of Mathematics is monitored through: lesson observations, scrutiny of work, scrutiny of planning, in-school and Locality moderation and tracking children's progress on DC pro.

Inclusion

All children have equal access to the Mathematics curriculum. Our school strives to meet the needs of pupils with special educational needs, with disabilities, those who are very able, gifted and talented and those learning English as an additional language.

Further guidance can be found in the school's SEND and Inclusion Policy and the More Able, Gifted and Talented Policy.

Linked policies – Calculation policy

Authorised by:



Chair of governors



Vice Principal

Appendix 1 - Yearly overview for Mathematics

Year 1 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtractions (within 20)				Number: Place Value (within 50) (Multiples of 2, 5, 10 to be included)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10 to be included)			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time		Consolidation

Year 2 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	
Autumn	Number: Place Value			Number: Addition and Subtraction					Measurement: Money		Number: <u>Multiplication</u> and Division		
Spring	Number: Multiplication and <u>Division</u>		Statistics		Geometry: Properties of Shape			Number: Fractions			Measurement: Length and Height	Consolidation	
Summer	Position and Direction			Problem solving and efficient methods		Measurement: Time		Measurement: Mass, Capacity and Temperature			Investigations		

Year 3 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement: Money	Statistics		Measurement: Length and Perimeter			Number: Fractions		Consolidation
Summer	Number: Fractions			Measurement: Time			Geometry: Property of Shapes		Measurement: Mass and Capacity			Consolidation

Year 4 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement : Length and Perimeter	Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement : Area	Fractions				Decimals			Consolidation
Summer	Decimals		Measurement: Money		Measurement : Time	Statistics		Geometry: Property of Shape			Geometry: Position and Direction	Consolidation

Year 5 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division		Perimeter and Area		Consolidation
Spring	Number: Multiplication and Division			Number: Fractions						Number: Decimals and Percentages		Consolidation
Summer	Number: Decimals				Geometry: Properties of Shapes			Geometry: Position and Direction	Measurements: Converting Units		Measurement : Volume	Consolidation

Year 6 Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition, Subtraction, Multiplication and Division				Fractions				Geometry: Position and Direction	Consolidation
Spring	Number: Decimals		Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Consolidation
Summer	Geometry: Properties of Shapes		Problem solving			Statistics		Investigations				Consolidation

Appendix 2 -Teaching of Times-tables at Longford

Year 1

Autumn 1 & 2	Count in 2's up to 24, linking with even numbers and supporting doubles. Count in multiples of 10 in order up to 120.	<p>Teaching methodologies:</p> <ul style="list-style-type: none"> ○ Count pairs of objects ○ Count straws bundled in tens ○ Sing counting songs ○ Hundred square ○ Number lines ○ Pictorial representations on display ○ Rolling Numbers
Spring 1 & 2	Focus on counting in multiples of 5 up to 60, linking with knowledge of counting in 10s. Continue to develop fluency of counting in 2's and 10's.	
Summer 1	Count in multiples of 10, 2 and 5 in order with growing fluency.	
Summer 2	Count in multiples of 10, 2 and 5 in order fluently.	

Year 2

Autumn 1	Consolidate counting in steps of 2, 5 and 10 in order from 0 up to 12x.	<p>Teaching methodologies:</p> <ul style="list-style-type: none"> ○ Counting objects in groups of 2, 5, 10 & 3 ○ Sing counting songs ○ Hundred square ○ Number lines ○ Array with concrete resources ○ Pictorial representations on display ○ Rolling Numbers
Autumn 2	Count in steps of 2 and 5 from 0 up to 12x fluently. Recall multiples of 10 up to 12x10 in any order, including missing numbers and related division facts with growing fluency.	
Spring 1	Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts. Recall multiples of 10 up to 12x10 fluently.	
Spring 2	Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts. Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts with growing fluency.	
Summer 1	Count in multiples of 3 to 12x3 in order from 0. Recall multiples of 2 up to 12x2 in any order, including missing numbers and related division facts fluently. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts with growing fluency.	
Summer 2	Count in multiples of 3 to 12x3 in order from 0 with growing fluency. Recall multiples of 5 up to 12x5 in any order, including missing numbers and related division facts fluently.	

Year 3

Autumn 1	Count in multiples of 3 to 12x3 in order from 0 fluently.	<p>Teaching methodologies:</p> <ul style="list-style-type: none"> ○ Counting objects in groups of 3, 4 and 8 ○ Hundred square ○ Number lines ○ Array with concrete resources ○ Pictorial representations on display ○ Rolling Numbers
Autumn 2	Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts with growing fluency. Count in multiples of 4 to 12x4 in order from 0 with growing fluency. Introduce (relating to x4) and begin to count in multiples of 8 from 0 to 12x8.	
Spring 1	Recall multiples of 3 up to 12x3 in any order, including missing numbers and related division facts fluently. Count in multiples of 4 to 12x4 in order from 0 with fluently. Count in multiples of 8 to 12x8 in order from 0 with growing fluency.	
Spring 2	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts with growing fluency. Count in multiples of 8 to 12x8 in order from 0 fluently.	
Summer 1	Recall multiples of 4 up to 12x4 in any order, including missing numbers and related division facts fluently. Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts with growing fluency.	
Summer 2	Recall multiples of 8 up to 12x8 in any order, including missing numbers and related division facts fluently.	

Year 4

Autumn 1	Recall multiples of 3,4 and 8 up to $12\times$ in any order, including missing numbers and related division facts fluently. Fluently count in 6's in order up to 12×6 , using multiples of 3 to support.	Teaching methodologies: <ul style="list-style-type: none">○ Hundred square○ Number lines○ Pictorial representations on display○ Rolling Numbers
Autumn 2	Recall multiples of 6 in any order, including missing numbers and related division facts with growing fluency. Fluently count in 7's in order up to 12×7 .	
Spring 1	Recall multiples of 6 in any order, including missing numbers and related division facts fluently. Recall multiples of 7 in any order, including missing numbers and related division facts with growing fluency.	
Spring 2	Recall multiples of 7 in any order, including missing numbers and related division facts fluently. Fluently count in 9's in order up to 12×9 . Fluently count in 11's in order up to 12×11 .	
Summer 1	Recall multiples of 9 in any order, including missing numbers and related division facts with growing fluency (using $10\times$ and adjusting by 1 group to find $9\times$ as a strategy) Recall multiples of 11 in any order, including missing numbers and related division facts fluently. Fluently count in 12's in order up to 12×12 .	
Summer 2	Recall multiples of 9 in any order, including missing numbers and related division facts fluently. Recall multiples of 12 in any order, including missing numbers and related division facts with growing fluency (using $10\times$ and adjusting by adding 2 more groups).	

Year 5

Autumn 1	Recall multiples of 12 in any order, including missing numbers and related division facts fluently. Recall multiples of all times tables up to 12×12 in any order, including missing numbers and related division facts with growing fluency.	Teaching methodologies: <ul style="list-style-type: none">Pictorial representations on display• Rolling Numbers
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Resources to support the delivery of times tables

Rolling numbers training video - <https://www.youtube.com/watch?v=AdjqJd6zz40&safe=active>

Counting stick method - <https://www.youtube.com/watch?v=yXdHGBfoqfw&safe=active>

Times table rock stars - <https://trockstars.com/login>

Topmarks - <https://www.topmarks.co.uk/maths-games/hit-the-button>

Please also use resources available on school system - Percy Parker, Primary games, Number fun songs.