Ashbourne Primary School

Maths Scheme of Learning

Our Maths Intent

Maths at Ashbourne Primary School develops competent, confident and creative mathematicians.

Our work is underpinned by our vision 'Excellent effort always matters'. Our Three Golden Threads run through our entire curriculum and our PRAISE aims are at the heart of every lesson. Our focus on the removal of barriers to learning is firmly embedded into all areas of the maths curriculum.

At Ashbourne Primary School, children are given the opportunity to experience maths in its rich variety. Our Maths curriculum aims to provide our children with a deep understanding of the fundamentals of mathematics, for example number sense and operations, so they can demonstrate fluency and can use mathematical skills to solve everyday problems. Children's understanding is deepened by using practical equipment, a range of representations and models. The curriculum at APS promotes proficiency and fluency in arithmetic skills which gives children the confidence to apply their learning in reasoning and problem solving situations. We intend that children master the skills at every stage of Maths. Whilst at APS, children will have the opportunity to enjoy and demonstrate their maths learning outside lessons through mathematical challenges such as problem solving mornings and external competitions. Maths at APS encourages children to work both independently and collaboratively and to practice their skills across the curriculum.

At Ashbourne Primary School in Maths we:

- Use and follow the Maths Scheme of Learning consistently across all year groups.
- Use and follow the Maths National Curriculum across all year groups.
- Use the Ready to Progress criteria in years 1-6 to make effective use of the National Curriculum to develop primary school pupils' mastery of mathematics.
- Follow the White Rose Scheme of Learning for all Maths lessons in Years 1-6.
- Follow the NCETM Mastering Number program and the White Rose Scheme of Learning for Maths lessons in Reception.
- Follow the NCETM Mastering Number program for Maths Skills in Years 1-5.
- Use the White Rose Flashback 4 as the daily maths starter activity to recap previous learning and address any gaps in children's understanding.
- Include Maths blocks across the year on Yearly Overviews.
- Complete half-termly Medium Term Plans which include the Maths block(s) being taught, daily WALTs, the focus for Maths Skills and NFER/SATs gaps & priorities from the previous round of assessments.
- Complete weekly Maths planning which includes Flashback 4, WALT, teaching points/key questions, differentiated task, extension/challenge for GD (where appropriate) and a plenary.
- Ensure that children working below age related expectations are adapted (differentiated) for.
- Provide extensions and tasks that challenge greater depth pupils (where appropriate).
- Support inclusion and manageable steps for all children.
- Complete the Maths mark book daily to identify work to praise/share as well as noting children who will need specific intervention, general misconceptions or further practice needed.
- Assess children's knowledge and understanding in daily Maths lessons, by completing the end of block assessments and through formal assessment points in Autumn, Spring and Summer.
- Track equity of Teacher and TA time for all groups of children (also discussed at pupil progress meetings).
- Use Times Table Rockstars in Years 2-6 to secure children's times table knowledge.
- Refer to the Calculations Policy to ensure consistency and progression in calculation methods across year groups.
- Deliver targeted daily Maths interventions.

Lesson Structure

Mathematics is a compulsory lesson for all primary school pupils and it's taught daily in Key Stage 1 and Key Stage 2 for at least one hour. Our lesson sequence has 4 parts: Flashback 4: Retrieval – New learning modelled – Shared practice fluency, reasoning and problem solving – Individual practice and assessment. Every lesson will have a clear and child-friendly WALT that the teacher will unpick at the start of the lesson. As stated in our Marking and Feedback policy, the children will mark their own work where appropriate and make corrections in green pen.

Maths in EYFS

In EYFS, maths teaching is focussed on developing a strong foundation in number sense and early mathematical concepts through play-based and practical experiences. Children work towards the Early Learning Goals (ELG), which include having a deep understanding of numbers to 10, counting reliably, and beginning to use simple addition and subtraction. Teaching emphasises practical activities using concrete resources such as tens frames, Numicon, counters, and everyday objects to explore patterns, shapes, and measures. Children are encouraged to compare quantities, recognises and describe shapes, and use mathematical language in meaningful contexts. Through interactive games, songs, and real-life problem-solving, pupils build confidence and fluency, preparing them for the transition into Key Stage 1.

Mathematics ELG Number: *Have a deep understanding of number to 10, including the composition of each number; - subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including doubling facts.*

Mathematics ELG: Numerical Patterns: *Verbally count beyond 20, recognising the pattern of the counting system; - compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.*

Maths in Key Stage 1 & Key Stage 2

Key Stage 1 – Years 1 & 2

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the 4 operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

Lower Key Stage 2 – Years 3 & 4

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the 4 operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word-reading knowledge and their knowledge of spelling.

Upper Key Stage 2 – Years 5 & 6

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio.

At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them.

By the end of year 6, pupils should be fluent in written methods for all 4 operations, including long multiplication and division, and in working with fractions, decimals and percentages.

White Rose Scheme of Learning

At Ashbourne Primary School, we use the White Rose Scheme of Learning in all year groups to inform our planning, teaching and learning. This evidence based approach scheme of learning aims to provide 'World class education for everyone, everywhere'.

Our rationale for using the White Rose Scheme of Learning:

- Progressive scheme of learning for children aged 4-16
- Supports the Maths curriculum to ensure inclusion and manageable steps for all children
- Logical teaching sequence
- Provides a narrow & clear focus
- Ensures knowledge is retained
- Objectives are broken down into small steps that build on prior learning
- Scheme of learning for each block includes guidance, key questions, vocabulary and potential misconceptions
- Practical resources for each block to offer alternative ways to complete a lesson
- Supports a mastery approach – 'mathematical literate pupil'
- Can be used flexibly and is adaptable to meet the needs of all children
- Assessments at the end of each block (assess, plan, do, review)
- Professional development opportunities (e.g. CPD webinars)
- Reduce teacher workload (planning, resources, scaffolds, overviews etc)
- Consistent approach to the teaching of Maths across all classes
- Evidence based approach to the teaching of Mathematics and a successful scheme of learning

Maths Skills

In addition to a daily, one hour Mathematics lesson, at Ashbourne Primary, children in Years 1-6 benefit from an additional Maths Skills session. Years 1-5 use the NCETM Mastering Number programme for their Maths Skills sessions. Mastering Number is a maths programme by the NCETM and the Maths Hubs Network designed to give children a deep understanding of numbers and strong fluency with calculation. It focuses on good number sense — understanding how numbers work, how they're connected, and being flexible and confident with them.

Year 1 and Year 2

Children in Years 1 and 2 take part in short, fluency sessions four times per week (typically 10–15 minutes), in addition to their main maths lesson. These sessions are planned centrally and include teacher guides and materials to support interactive and engaging teaching. A central manipulative used is the rekenrek (a small abacus-like tool) to help pupils visualise and manipulate numbers. Teachers are supported by professional development through online training with NCETM and their local Maths Hub, and participation in a teacher community to share best practice.

The programme aims to ensure that by the end of Year 2:

1. Fluency and flexibility with number facts
    - Pupils can recall and use additive facts (e.g., number bonds) quickly and accurately.
    - They are able to *see relationships between numbers* and use this knowledge to solve simple calculations efficiently.
2. Good number sense
    - Pupils understand how numbers are composed and decomposed (breaking numbers into parts and recombining them).
    - They can compare quantities and recognise patterns in numbers.
3. Confidence and mathematical language
    - Sessions build *confidence*, mathematical vocabulary, and ability to talk about reasoning and relationships between numbers.

Year 3

Embedding Mastering Number is an NCETM-led continuation and consolidation phase aimed at helping schools *sustain and deepen* the impact of their early-years number work and extend this into Year 3. It builds on the foundations of good number sense and fluency developed through Mastering Number in Reception and KS1, by supporting Year 3 teachers and maths leaders to continue fluency work with pupils.

The main focus in Year 3 is to secure and embed pupils' fluency in additive number facts and ensure they can apply flexible number thinking as they move further into Key Stage 2 maths. This is achieved by continuing short, regular fluency sessions that build on prior learning.

Year 3 teachers deliver short (≈10–15 minute) additional fluency sessions, usually four days each week. These sessions use centrally provided Mastering Number materials and are *in addition* to the regular maths lesson.

Maths Skills (continued)

Year 4 and Year 5

Mastering Number at KS2 is an NCETM & Maths Hubs programme designed to build on the earlier Mastering Number work in Reception, Year 1 and Year 2 and Embedding Mastering Number in Year 3. It continues daily fluency work into upper Key Stage 2 (Years 4 and 5) with a focus on multiplicative relationships — especially multiplication and division facts and reasoning — to develop confident, flexible number sense.

The goal for Years 4 and 5 is to ensure pupils:

- Develop automatic recall and flexibility with multiplication and division facts.
- Build strong number sense around multiplicative concepts (e.g. factors, multiples, patterns).
- Gain fluency and confidence in applying facts and strategies across mathematics. NCETM
- This helps them transition smoothly into more complex KS2 topics and later secondary mathematics.

Teachers use centrally-designed materials to deliver five short sessions per week focussed on multiplicative fact practice, reasoning and connections. These are in addition to the main maths lessons and are designed to be repeatable and engaging.

Teachers (especially Lead Teachers for Year 4 and Year 5) participate in online and local Maths Hub sessions to deepen understanding and refine implementation of the materials. They collaborate with colleagues within their schools and across other schools to share practice.

Year 6

In Year 6, the maths skills lesson is a short, focused session designed to consolidate and strengthen key mathematical skills so pupils can work fluently, accurately and confidently, particularly in preparation for SATs and transition to secondary school.

The lesson aims to:

- Secure core arithmetic fluency.
- Develop efficient calculation strategies.
- Improve accuracy, speed and confidence.
- Enable pupils to apply number facts flexibly across mathematical contexts.
- Recap mathematical concepts taught in previous years (where needed/identified)

Teachers deliver 15–30 minute sessions daily. These are in addition to the maths lesson. The lessons are fast-paced, highly focused and responsive to pupils' needs.

Times Table Rockstars

At Ashbourne Primary, we subscribe to Times Tables Rock Stars; a carefully sequenced programme of daily times tables practice. Each week concentrates on a different times table, with a recommended consolidation week for rehearsing the tables that have recently been practised every third week or so. Times Tables Rock Stars is used by our pupils from Year 2 through to Year 6.

Children have the opportunity to showcase their achievements on Times Tables Rock Stars with Rock Status badges:

- Rock Star: Less than 3 seconds per question
- Rock Legend: Less than 2 seconds per question
- Rock Hero: Less than 1 second per question

Magma Maths

Magma Maths is a digital learning platform designed to help teachers deliver and assess mathematics in real time—especially in primary and secondary schools.

Magma Maths is essentially an interactive teaching and assessment tool. It allows teachers to:

- Set maths questions digitally
- See student answers instantly
- Track understanding during the lesson

At Ashbourne Primary School, Magma Maths is used to deliver some Maths sessions. The children can access the task set by the teacher using the iPads. Teachers can assign sets of questions tailored to the lesson and to the individual child. During the lesson, the teacher can instantly see who understands and who needs further input. As children submit their answers, the teacher can see their responses in real time meaning misconceptions are addressed immediately and the lesson pace can be adjusted.

Maths Assessment

Maths Assessment in EYFS:

Children in Reception are assessed against the Early Learning Goal for 'Number' and 'Numerical Pattern' on the EYFS profile at the end of the year. Teachers make a judgement on whether the children are 'expected' or 'emerging'. Children's Mathematics is assessed 3 times throughout the year (baseline, December, March) before being assessed against the ELG. During these assessment points, children will be assessed 'on track' or 'not on track' to meet the ELG. Teachers use their professional judgement and knowledge of the children to make these assessments.

Maths Assessment in KS1 and KS2:

We assess the children's Mathematics against the National Curriculum objectives at 3 assessment points during the year (December, March and July). We use the NFER summative assessments in Years 1, 3, 4 and 5. We use SAT papers in Years 2 and 6. These standardised tests, used by many schools across the UK, provide valuable insights into how well pupils are developing in core subjects. The results help our teachers tailor lessons to meet the needs of each child, ensuring they receive the right level of support and challenge. Each child's individual score for their Maths test is converted to a scaled score which informs the teacher whether this child is working at, towards, below or above age related expectations.

Assessments are moderated termly by our Moderation Team and then a Data Analysis is completed by the Headteacher. From our termly assessments, we can see any gaps in learning and prioritise interventions and support for the following term.

Formative assessments take place day to day. These are made by the class teacher about a child's attainment and progress and go on to inform planning, teaching and learning. These judgements are made through Flashback 4, talking and listening to the children, observations and daily marking and completion of our 'Marking and Feedback Books'. Children should have a good awareness of themselves as learners and what their next steps are. Our daily assessments ensure children know and understand their 'next steps' through discussion with the teacher, marking, feedback and targets.

In the Summer term, children in Year 2 sit the non-statutory Maths SATs paper. Children in 6 sit the statutory KS2 Maths SATs papers.

Informing Parents:

An annual report is given to parents each July which includes information about the curriculum in Maths and an individual assessment of strengths and areas for development. Parents are informed as to whether their child is working within, towards, below or exceeding expectations for their age and year group. Parent/Teacher Consultations are also held in the Autumn and Spring Terms, which include giving feedback on progress in English.

Report Cards are completed after the December and March assessment points. These report cards offer a clear summary of a child's attainment in the core subjects (Reading, Writing, and Maths) as well as information about their attendance.

Multiplication Tables Check

The multiplication tables check (MTC) is statutory for all year 4 pupils. The purpose of the MTC is to determine whether pupils can recall their times tables fluently up to 12, through a set of 25 timed questions. This skill is essential for future success in mathematics, and the check will help schools identify pupils who have not yet mastered this and provide additional support.

The MTC is an onscreen check consisting of 25 times table questions. Children will be able to answer 3 practice questions before taking the actual check. They will then have 6 seconds to answer each question. On average, the check should take no longer than 5 minutes to complete.

Table 1 shows the upper and lower limits for the number of items from each multiplication table that can be included in each check form.
There is an emphasis on the 6, 7, 8, 9 and 12 multiplication tables because these have been determined to be the most difficult multiplication tables.

5.2.1 Table 1 – Multiplication table limits in the MTC

Multiplication Table	Minimum number of items in each form	Maximum number of items in each form
1	Not applicable	Not applicable
2	0	2
3	1	3
4	1	3
5	1	3
6	2	4
7	2	4
8	2	4
9	2	4
10	0	2
11	1	3
12	2	4

Maths Interventions

Our termly data analysis informs our interventions for the following term. Children identified as needing extra support with Maths after an assessment point are placed into intervention groups and given targeted support. The intervention is determined by what the children's next steps are and any gaps in their learning.

Planning

Class Teachers work from a medium-term plan, which then feeds into a weekly plan. Links may be made with other areas of the curriculum. The Maths coordinator collects MTPs at the beginning of each half-term and will feedback to staff where necessary.

Planning is a flexible document and is used by the teacher and for the children to ensure at least good progress is made by all.

Maths Monitoring

Maths is monitored regularly across school through learning walks, lesson observations, book scrutinies, pupil voice, data analysis, planning reviews, assessments of key skills, moderation, evaluation of teaching resources and identifying teacher CPD and support.

Maths Medium-Term Plan Template

Year ? Term/Year Maths MTP

	Monday	Tuesday	Wednesday	Thursday	Friday	Ready to Progress Criteria	Maths Skills What is being taught?	NFER or SATs Gaps/Priorities
Week 1 **Date?** **Focus/Block?**								
Week 2 **Date?** **Focus/Block?**								
Week 3 **Date?** **Focus/Block?**								
Week 4 **Date?** **Focus/Block?**								
Week 5 **Date?** **Focus/Block?**								
Week 6 **Date?** **Focus/Block?**								

Maths Weekly Planning Template

Ashbourne Primary School

Maths Planning

Unit:	**Week:**	**Year group:**	**Date:** **Term:**
PP:		**BLW:** **WTS:** **GDS:**	

	Starter	**Teaching**	**Work/resources**	**Plenary**
Monday	Flashback 4	**WALT:**	LC: MC: GD extension:	
Tuesday	Flashback 4	**WALT:**	LC: MC: GD extension:	
Wednesda	Flashback 4	**WALT:**	LC: MC: GD extension:	
Thursday	Flashback 4	**WALT:**	LC: MC: GD extension:	
Friday	Flashback 4	**WALT:**	LC: MC: GD extension:	

Maths Displays

Each classroom will have a Maths Working Wall which supports current learning in mathematics, changes frequently and is used actively during lessons.

Purpose of a maths working wall:

- Helps children remember methods and vocabulary.
- Acts as a reference during independent work.
- Shows learning progression over time.
- Encourages problem-solving and mathematical reasoning.
- Supports pupils who need visual or scaffolded guidance.

Key features of a maths working wall:

- Current learning focus
  Shows the topic pupils are working on (e.g., fractions, multiplication, shape).
- Key vocabulary
  Important mathematical terms children need to understand and use.
- Strategies and methods
  Step-by-step examples, modelled methods from the teacher, and worked examples.
- Visual aids
  Diagrams, number lines, tens frames, bar models, place value charts, etc.
- Success criteria / learning steps
  Explains what children need to do to achieve the learning goal.
- Pupil contributions
  Examples of children's work, solutions, or reasoning added as learning develops.

Maths Events

We host a Mathematic themed event every half-term at Ashbourne Primary:

- Autumn Term: Primary Maths Challenge
- Spring Term: World Maths Day
- Summer Term: TTR Rock Wrangle

Yearly overviews

Reception Maths LTP 2025-2026

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Autumn 1	Baseline Assessments	Baseline Assessments	Mastering Number 1 Subitising Subitising within 3 SSM (Fri) Pattern	Mastering Number 2 Counting, ordinality and cardinality Focus on counting skills SSM (Fri) Pattern	Mastering Number 3 Composition Explore how numbers are made of ones. Focus on composition of 3 and 4. SSM (Fri) Pattern	Mastering Number 4 Subitising Subitise objects and sounds SSM (Fri) Pattern	Mastering Number 5 Comparison Comparison by sets “just by looking”. Use the language of comparison “more than and fewer than”. SSM (Fri) Pattern
Autumn 2	Mastering Number 6 Counting, ordinality and cardinality Focus on counting skills. Focus on the ‘five-ness of 5’ using one hand and the die pattern for 5. SSM (Fri) 2D Shape	Mastering Number 7 Comparison Comparison of sets – by matching. Use the language of comparison, more than, fewer than, an equal number. SSM (Fri) 2D Shape	Mastering Number 8 Composition Explore the concept of ‘whole’ and ‘part’ SSM (Fri) 2D Shape	Mastering Number 9 Composition Focus on the composition of 3,4 and 5 SSM (Fri) 2D Shape	Mastering Number 10 Counting, ordinality and cardinality Practise object counting skills Match quantities to numerals within 10 Verbal counting beyond 20. SSM (Fri) 2D Shape	SSM Pattern	SSM 2D shape

Spring 1	Mastering Number 11 Subitising Subitise within 5 focussing on die patterns. Match numerals to quantities within 5. SSM (Fri) 3D shape	Mastering Number 12 Counting, ordinality and cardinality Counting – focus on the ordinality and the staircase pattern See that each number is onemore than the previous number SSM (Fri) 3D shape	Mastering Number 13 Composition Focus on 5 SSM (Fri) 3D shape	Mastering Number 14 Composition Focus on 6 and 7 as '5 and a bit' SSM (Fri) 3D shape	Mastering Number 15 Composition Compare sets and use language of comparison 'more than, fewer than' an equal number to' SSM (Fri) 2D/3D shape	Mastering Number 16 Counting, ordinality and cardinality Focus on the 'staircase' pattern and ordering numbers SSM (Fri) 2D/3D shape	N/A	
Spring 2	Mastering Number 17 Comparison Focus on ordering numbers to 8 Use language of 'less than' SSM (Fri) Taller/Shorter	Mastering Number 18 Composition Focus on 7 SSM (Fri) Taller/Shorter	Mastering Number 19 Composition Doubles – explore how some numbers can be made with equal parts SSM (Fri) Longer/Shorter	Mastering Number 20 Composition Sorting numbers according to attributes – odd and even numbers SSM (Fri) Longer/Shorter	SSM Capacity and mass	N/A	N/A	N/A

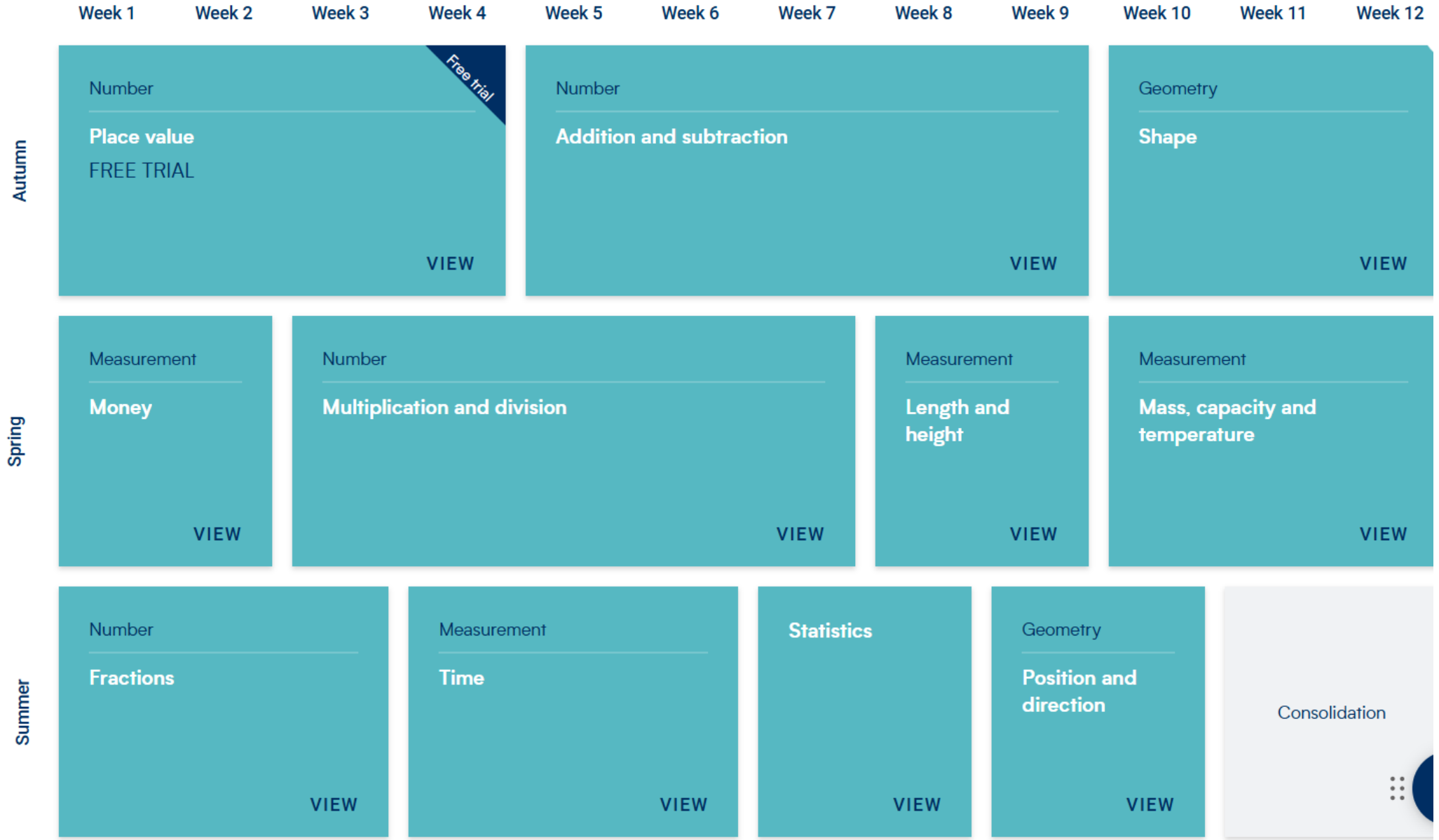
Summer 1	Mastering Number 21 Counting, ordinality and cardinality SSM (Fri) Heavy/Light	Mastering Number 22 Subitising SSM (Fri) Heavy/Light	Mastering Number 23 Composition SSM (Fri) Pattern	Mastering Number 24 Composition SSM (Fri) Pattern	Mastering Number 25 Comparison SSM (Fri) Pattern	SSM Length and Height	N/A	N/A
Summer 2	Mastering Number 26 Subitising Subitise to 5 Introduce the rekenrek (Fri) Consolidation	Review and assess Automatic recall of bonds to 5 (Fri) Consolidation	Review and assess Composition of numbers to 10 (Fri) Consolidation	Review and assess Comparison (Fri) Consolidation	Review and assess Number patterns (Fri) Consolidation	Review and assess Counting (Fri) Consolidation	N/A	N/A

Yearly overviews

Year 1:

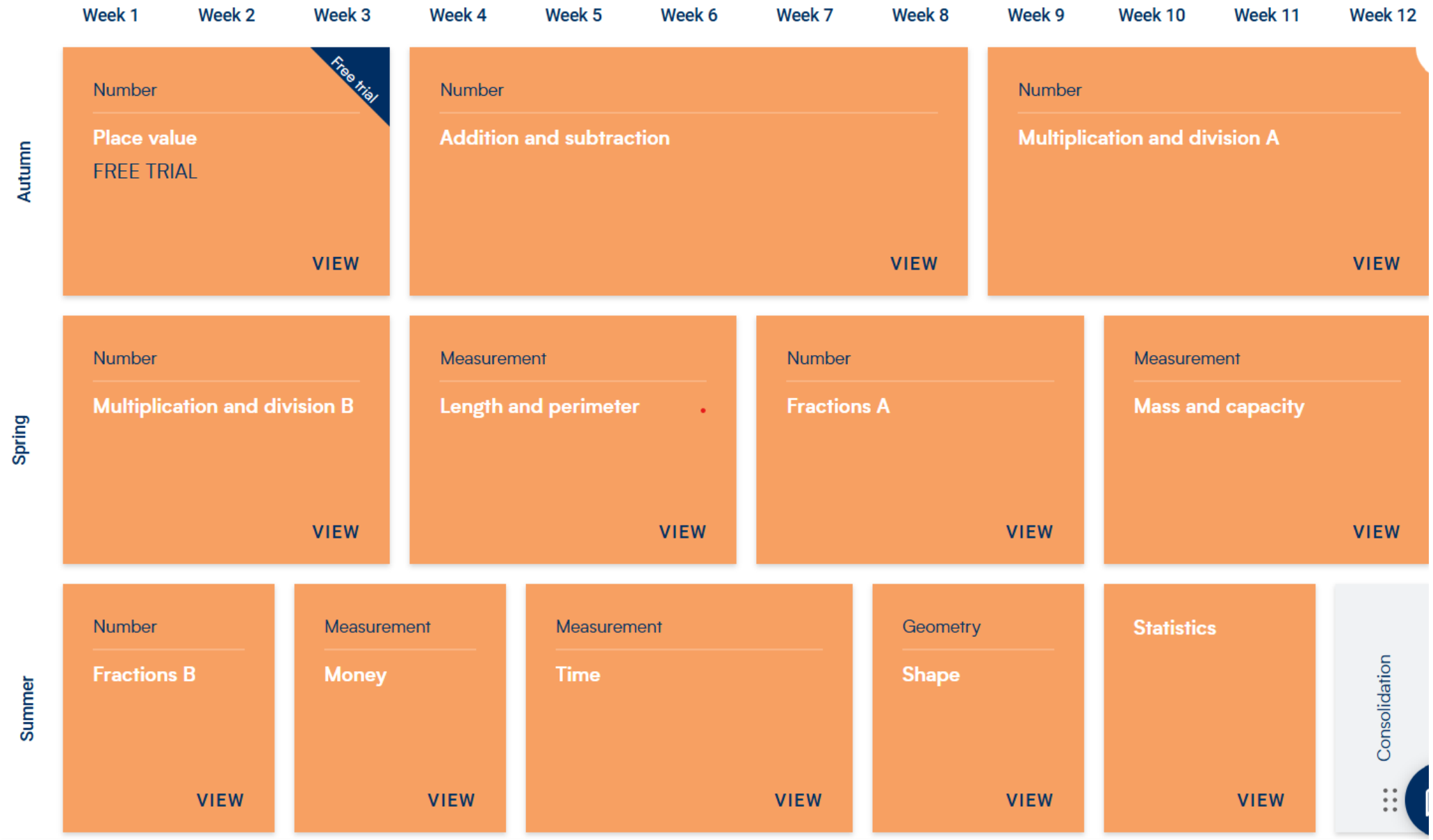
Yearly overviews

Year 2:



Yearly overviews

Year 3:



Yearly overviews

Year 4:

Yearly overviews

Year 5:

Yearly overviews

Year 6:

EYFS Curriculum

At Ashbourne Primary School, we use Development Matters (Non-statutory curriculum guidance for the early years foundation stage) as our guidance throughout the year before assessing against the Early Learning Goals.

<table>
<tr><th>3 – 4 years</th><th>Reception</th><th colspan="2">Early Learning Goals</th></tr>
<tr><td rowspan="2">Fast recognition of up to 3 objects, without having to count them individually (‘subitising’).
Recite numbers past 5.
Say one number for each item in order: 1,2,3,4,5.
Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).
Show ‘finger numbers’ up to 5.
Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.
Experiment with their own symbols and marks as well as numerals.
Solve real world mathematical problems with numbers up to 5.
Compare quantities using language: ‘more than’, ‘fewer than’.
Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: ‘sides’, ‘corners’; ‘straight’, ‘flat’, ‘round’.
Understand position through words alone – for example, “The bag is under the table,” – with no pointing.
Describe a familiar route.
Discuss routes and locations, using words like ‘in front of’ and ‘behind’.
Make comparisons between objects relating to size, length, weight and capacity
Select shapes appropriately: flat surfaces for building, a triangular prism for a roof etc.
Combine shapes to make new ones – an arch, a bigger triangle etc.
Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like ‘pointy’, ‘spotty’, ‘blobs’ etc.
Extend and create ABAB patterns – stick, leaf, stick, leaf.
Notice and correct an error in a repeating pattern.
Begin to describe a sequence of events, real or fictional, using words such as ‘first’, ‘then...’</td><td rowspan="2">Count objects, actions and sounds.
Subitise.
Link the number symbol (numeral) with its cardinal number value
Count beyond ten.
Compare numbers
Understand the ‘one more than/one less than’ relationship between consecutive numbers.
Explore the composition of numbers to 10.
Automatically recall number bonds for numbers 0–10.
Select, rotate and manipulate shapes in order to develop spatial reasoning skills.
Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.
Continue, copy and create repeating patterns.
Compare length, weight and capacity.</td><th>Number</th><th>Numerical Patterns</th></tr>
<tr><td>Have a deep understanding of number to 10, including the composition of each number.
Subitise (recognise quantities without counting) up to 5.
Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.</td><td>Verbally count beyond 20, recognising the pattern of the counting system.
Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other Quantity`.
Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally</td></tr>
</table>

National Curriculum Objectives by Year Group – Key Stage 1

	Year 1
NUMBER Place value	• count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number • count, read and write numbers to 100 in numerals; count in multiples of 2s, 5s and 10s • given a number, identify 1 more and 1 less • identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least • read and write numbers from 1 to 20 in numerals and words
NUMBER Addition and subtraction	• read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs • represent and use number bonds and related subtraction facts within 20 • add and subtract one-digit and two-digit numbers to 20, including 0 • solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? − 9
NUMBER Multiplication and division	• solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
NUMBER Fractions	• recognise, find and name a half as 1 of 2 equal parts of an object, shape or quantity • recognise, find and name a quarter as 1 of 4 equal parts of an object, shape or quantity

MEASUREMENT	• compare, describe and solve practical problems for:
	  ○ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]
	  ○ mass/weight [for example, heavy/light, heavier than, lighter than]
	  ○ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]
	  ○ time [for example, quicker, slower, earlier, later]
	• measure and begin to record the following:
	  ○ lengths and heights
	  ○ mass/weight
	  ○ capacity and volume
	  ○ time (hours, minutes, seconds)
	  ○ recognise and know the value of different denominations of coins and notes
	  ○ sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening]
	• 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

GEOMETRY
Properties of shape
	• recognise and name common 2-D and 3-D shapes, including:
	  ○ 2-D shapes [for example, rectangles (including squares), circles and triangles]
	  ○ 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]

GEOMETRY Position and direction	• describe position, direction and movement, including whole, half, quarter and three-quarter turns
	Year 2
NUMBER Place value	• count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward • recognise the place value of each digit in a two-digit number (10s, 1s) • identify, represent and estimate numbers using different representations, including the number line • compare and order numbers from 0 up to 100; use <, > and = signs • read and write numbers to at least 100 in numerals and in words • use place value and number facts to solve problems

NUMBER
Addition and subtraction
	• solve problems with addition and subtraction:
	  ○ using concrete objects and pictorial representations, including those involving numbers, quantities and measures
	  ○ applying their increasing knowledge of mental and written methods
	• recall and use addition and subtraction facts to 20 fluently, 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
	  ○ 2 two-digit numbers
	  ○ adding 3 one-digit numbers
	• show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 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

NUMBER Multiplication and division	• recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers • calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs • show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot • solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
NUMBER Fractions	• recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity • write simple fractions, for example $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$
MEASUREMENT	• choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels • compare and order lengths, mass, volume/capacity and record the results using >, < and = • recognise and use symbols for pounds (£) and pence (p); 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 involving addition and subtraction of money of the same unit, including giving change • compare and sequence 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
GEOMETRY Properties of shape	• identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line • identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces • identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid] • compare and sort common 2-D and 3-D shapes and everyday objects
GEOMETRY 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 and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise)
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 categorical data

National Curriculum Objectives by Year Group – Lower Key Stage 2 (Years 3 & 4)

	Year 3
NUMBER Place value	• count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number • recognise the place value of each digit in a 3-digit number (100s, 10s, 1s) • compare and order numbers up to 1,000 • identify, represent and estimate numbers using different representations • read and write numbers up to 1,000 in numerals and in words • solve number problems and practical problems involving these ideas

NUMBER
Addition and subtraction
	• add and subtract numbers mentally, including:
	  ○ a three-digit number and 1s
	  ○ a three-digit number and 10s
	  ○ a three-digit number and 100s
	• add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction
	• estimate the answer to a calculation and use inverse operations to check answers
	• solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

NUMBER Multiplication and division	• recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables • write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods • solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects
NUMBER Fractions	• count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 • recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators • recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators • recognise and show, using diagrams, equivalent fractions with small denominators • add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$] • compare and order unit fractions, and fractions with the same denominators • solve problems that involve all of the above
MEASUREMENT	• measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) • measure the perimeter of simple 2-D shapes • add and subtract amounts of money to give change, using both £ and p in practical contexts • tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks • estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight • know the number of seconds in a minute and the number of days in each month, year and leap year

	• compare durations of events [for example, to calculate the time taken by particular events or tasks]
GEOMETRY Properties of shape	• draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them • recognise angles as a property of shape or a description of a turn • identify right angles, recognise that 2 right angles make a half-turn, 3 make three-quarters of a turn and 4 a complete turn; identify whether angles are greater than or less than a right angle • identify horizontal and vertical lines and pairs of perpendicular and parallel lines
STATISTICS	• interpret and present data using bar charts, pictograms and tables • solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables

	Year 4
NUMBER Place value	• count in multiples of 6, 7, 9, 25 and 1,000 • find 1,000 more or less than a given number • count backwards through 0 to include negative numbers • recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s) • order and compare numbers beyond 1,000 • identify, represent and estimate numbers using different representations • round any number to the nearest 10, 100 or 1,000 • solve number and practical problems that involve all of the above and with increasingly large positive numbers • read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value
NUMBER Addition and subtraction	• add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate • estimate and use inverse operations to check answers to a calculation • solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why
NUMBER Multiplication and division	• recall multiplication and division facts for multiplication tables up to 12 × 12 • use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers • recognise and use factor pairs and commutativity in mental calculations • multiply two-digit and three-digit numbers by a one-digit number using formal written layout • solve problems involving multiplying and adding, including using the distributive law to multiply two-digit numbers by 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects
NUMBER Fractions (including decimals)	• recognise and show, using diagrams, families of common equivalent fractions • count up and down in hundredths; recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10 • solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number • add and subtract fractions with the same denominator • recognise and write decimal equivalents of any number of tenths or hundreds

	• recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ • find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths • round decimals with 1 decimal place to the nearest whole number • compare numbers with the same number of decimal places up to 2 decimal places • solve simple measure and money problems involving fractions and decimals to 2 decimal places
MEASUREMENT	• convert between different units of measure [for example, kilometre to metre; hour to minute] • measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres • find the area of rectilinear shapes by counting squares • estimate, compare and calculate different measures, including money in pounds and pence • read, write and convert time between analogue and digital 12- and 24-hour clocks • solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days
GEOMETRY Properties of shape	• compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes • identify acute and obtuse angles and compare and order angles up to 2 right angles by size • identify lines of symmetry in 2-D shapes presented in different orientations • complete a simple symmetric figure with respect to a specific line of symmetry
GEOMETRY Position and direction	• describe positions on a 2-D grid as coordinates in the first quadrant • describe movements between positions as translations of a given unit to the left/right and up/down • plot specified points and draw sides to complete a given polygon
STATISTICS	• interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs • solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs

National Curriculum Objectives by Year Group – Upper Key Stage 2 (Years 5 & 6)

	Year 5
NUMBER Place value	• read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit • count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000 • interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0 • round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000 • solve number problems and practical problems that involve all of the above • read Roman numerals to 1,000 (M) and recognise years written in Roman numerals
NUMBER Addition and subtraction	• add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) • add and subtract numbers mentally with increasingly large numbers • use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
NUMBER Multiplication and division	• identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers • know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers • establish whether a number up to 100 is prime and recall prime numbers up to 19 • multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers • multiply and divide numbers mentally, drawing upon known facts • divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context • multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 • recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}) • solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes • solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign • solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
NUMBER Fractions (including decimals and percentages)	• compare and order fractions whose denominators are all multiples of the same number • identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths • recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$] • add and subtract fractions with the same denominator, and denominators that are multiples of the same number • multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams • read and write decimal numbers as fractions [for example, $0.71 = \frac{71}{100}$] • recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

	• round decimals with 2 decimal places to the nearest whole number and to 1 decimal place • read, write, order and compare numbers with up to 3 decimal places • solve problems involving number up to 3 decimal places • recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100', and write percentages as a fraction with denominator 100, and as a decimal fraction • solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25
MEASURMENT	• convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] • understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints • measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres • calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2), and estimate the area of irregular shapes • estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water] • solve problems involving converting between units of time • use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling
GEOMETRY Properties of shape	• identify 3-D shapes, including cubes and other cuboids, from 2-D representations • know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles • draw given angles, and measure them in degrees (°) • identify: • angles at a point and 1 whole turn (total 360°) • angles at a point on a straight line and half a turn (total 180°) • other multiples of 90° • use the properties of rectangles to deduce related facts and find missing lengths and angles • distinguish between regular and irregular polygons based on reasoning about equal sides and angles
GEOMETRY Position and direction	• identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed
STATISTICS	• solve comparison, sum and difference problems using information presented in a line graph • complete, read and interpret information in tables, including timetables

	Year 6
NUMBER Place value	• read, write, order and compare numbers up to 10,000,000 and determine the value of each digit • round any whole number to a required degree of accuracy • use negative numbers in context, and calculate intervals across 0 • solve number and practical problems that involve all of the above
NUMBER Addition, subtraction, multiplication and division	• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context • divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • use their knowledge of the order of operations to carry out calculations involving the 4 operations • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • solve problems involving addition, subtraction, multiplication and division • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
NUMBER Fractions (including decimals and percentages)	• use common factors to simplify fractions; use common multiples to express fractions in the same denomination • compare and order fractions, including fractions >1 • add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions • multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$] • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$] • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, $\frac{3}{8}$] • identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places • multiply one-digit numbers with up to 2 decimal places by whole numbers • use written division methods in cases where the answer has up to 2 decimal places • solve problems which require answers to be rounded to specified degrees of accuracy • recall and use equivalences between simple fractions, decimals and percentages, including in different contexts
NUMBER Ratio and proportion	• solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts • solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison • solve problems involving similar shapes where the scale factor is known or can be found • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples
NUMBER	• use simple formulae

Algebra	• generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with 2 unknowns • enumerate possibilities of combinations of 2 variables
MEASURMENT	• solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate • use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places • convert between miles and kilometres • recognise that shapes with the same areas can have different perimeters and vice versa • recognise when it is possible to use formulae for area and volume of shapes • calculate the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]
GEOMETRY Properties of shape	• draw 2-D shapes using given dimensions and angles • recognise, describe and build simple 3-D shapes, including making nets • compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles
GEOMETRY Position and direction	• describe positions on the full coordinate grid (all 4 quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes
STATISTICS	• interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average