Ambleside Academy's Mathematics Programme Outline

Quality of Education: Mathematics at Ambleside Academy for 'Ambleside's Masters of Mathematics'

At Ambleside Academy, we follow a homegrown **inclusive** approach known as **Ambleside's Masters of Mathematics.** This is a blended approach incorporating **Maths Mastery** which is underpinned by White Rose. Our approach incorporates clear expectations for the Quality of Education in mathematics. This promotes our pupils being taught in **small steps** to give them the best possible chance of **mastering mathematics** whilst **building self-confidence and resilience.** We believe that the **Ambleside's Masters of Mathematics** approach will equip our pupils with the skills they require to confidently use mathematics as part of their **everyday life**.

The Delicious Mathematician Diet at Ambleside Academy

Long Term Overview

At Ambleside our mathematics Long Term Overviews mirrors White Rose's Long Term Schemes of Work along with the Calculation Policy. It ensures **consistency** throughout our pupils' learning journeys from Early years straight through to end of key stage two. This approach promotes pupil success by **developing connected pieces of knowledge** as it **builds on prior learning** each year, **deepening their understanding** of mathematics.

Pupils are to be taught in **small steps** as this has proven to **develop their mathematical competence** by supporting their understanding and allowing **opportunities for pupils to practice**. This in turn, **increases their confidence** and allows opportunity for pupils to master mathematics by **keeping up rather than catching up.**

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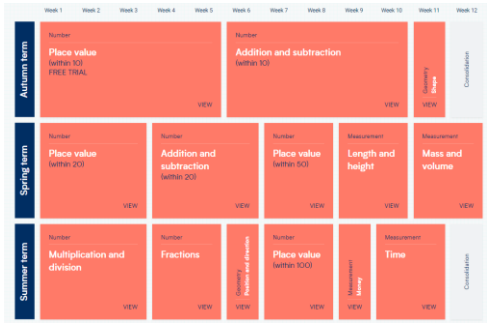
Long Term Overview

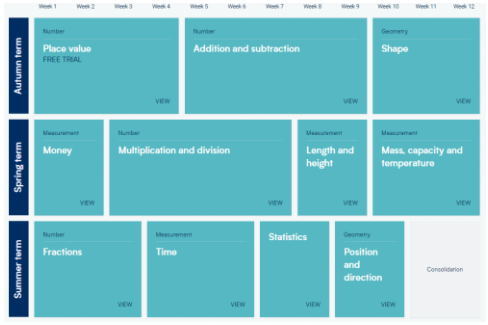
Our Long Term Overviews are categorised by year groups, highlighting the repetition of units throughout the learning journey.

EYFS

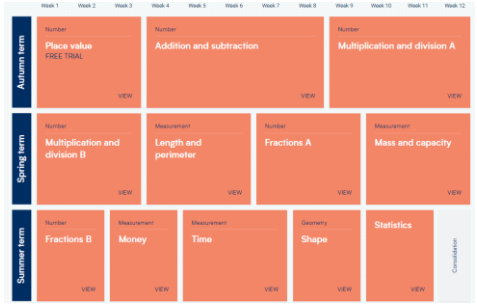
Year 1



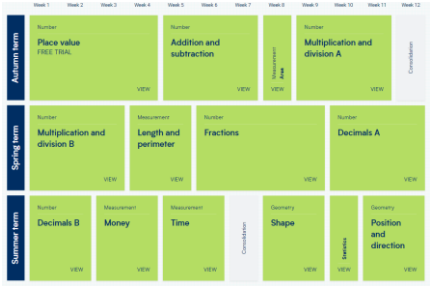
Year 2



Year 3

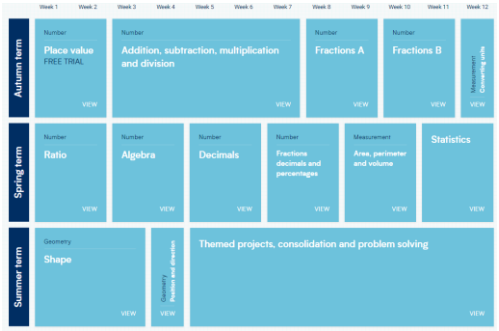


Year 4



Year 5

Year 6



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Unit Maps and Medium Term Plans

Our **Unit Map** is detailed version of the individual units that **sit inside the Long Term Overviews**. These long term units have been broken down into **small steps** that link to the **National Curriculum objectives**. This Unit Map document is then used to create half termly **Medium Term Plans** which is further broken-down to clearly indicate which small step will be taught to our pupils in each lesson.

Snippets of Exemplar Year 6 Unit Map and Medium Term Plan

Unit Map

	Small Step	National Curriculum – Place Value - Year 6
Step 1	Numbers to 1,000,000	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 2	Numbers to 10,000,000	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 3	Read and write numbers to 10,000,000	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 4	Powers of 10	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 5	Number line to 10,000,000	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 6	Compare and order any integers	**I can** read, write, order and compare numbers up to 10,000,000 and determine the value of each digit **I can** solve number and practical problems that involve the above
Step 7	Round any integer	**I can** sound any whole number to a required degree of accuracy **I can** solve number and practical problems that involve the above
Step 8	Negative numbers	**I can** use negative numbers in context, and calculate intervals across zero **I can** solve number and practical problems that involve the above

Medium Term **Plan**

		ARE	Purple adapted (year 2)
Week 1 WC 4.9.23 Place value	Monday	Numbers to 1,000,000 (one million)	Numbers to 100
	Tuesday	Numbers to 10,000,000 (ten million)	Count objects to 100 by making 10s - pictorial representations
	Wednesday	Read and write numbers to 10,000,000 (ten million)	Recognise tens and ones – pictorial representations
	Thursday	Number line to 10,000,000 (ten million)	Use a place value chart
	Friday	**Quiz lesson (revisit/recap)**	**Quiz lesson (revisit/recap)**
Week 2 WC 11.9.23 Place value	Monday	Power of 10 (X & ÷ by 100 and 1000)	Partition numbers to 100 - bar model Write numbers to 100 in expanded form
	Tuesday	Power of 10 (X & ÷ by 100 and 1000)	Partition numbers to 100 – addition number sentences
	Wednesday	Round any integer	Write numbers to 100 in expanded form
	Thursday	Round any integer	10s on a number line to 100
	Friday	**Quiz lesson (revisit/recap)**	**Quiz lesson (revisit/recap)**

Short Term Plan – The lesson

Our **short term plans** are the **day to day lessons** that are delivered by teaching staff. These lessons are **designed to be interactive** using various teaching slides such as Smart Notebook, Active Inspire and PowerPoint. We know that our pupils respond best to **interactive learning** as it allows for **practical elements to be embedded** within the lesson which leads to gaining a **deeper understanding** of mathematics.

These comprehensive slides are prepared in advance, allowing teaching staff to focus on delivering high quality lessons. These carefully planned, comprehensive lessons include:

- A **flashback** warmup to give our pupils another opportunity to **practise** units again in a **new context**
- A **range of representations** including concrete resources, pictorial and abstract examples to support pupils' conceptual comprehension
- **Fluency** to develop our pupils' core understanding
- **A range of varied fluency** examples and questions to allow for practise in different contexts
- Allotted **mathematical thinking** time along with **stem sentences** to support our pupils to discuss and articulate answers.
- **Common misconceptions** that are **identified, discussed** and **dissected** by taking pupils along a **logical-thinking path** of answering questions until we conclude that the initial idea will not work.
- **Specific vocabulary** to support our pupils understand and decipher which mathematic concept to use
- Allotted **pupil talk intervals** to give them time to **talk in pairs or small groups** about their learning, this enables pupils to **clarify, explore and consolidate**
- **Reasoning/ problem solving** that links to a **real-life context** where applicable. This helps our pupils see how mathematics is applied in the real world and develops their 'cultural capital' with their experiences of the world.

Most importantly, each lesson has pockets of time interwoven throughout to enable frequent **monitoring of progress**, through the use of **regular formative assessment**

A Snapshot of the Weekly Diet at Our Academy

Weekly Timetable

Our weekly teaching timetable is designed in a bespoke way, consisting of **four days of new learning**. The content covered is taken from the **National Curriculum Objectives** as set out in our Medium Term Plan. This four day approach allows for one day per week to be dedicated to a **'flexi-lesson'**. Flexi-lessons are designed around class needs and focus on where in the learning journey they are. These Flexi-lessons permit emphasis to be put on pupils **securing mathematical knowledge** before moving on and not just 'getting through curriculum content'. Flexi-lessons can come in the form of a **revisiting/ recapping** lesson, to ensure pupils are secure with what has been taught and that the said knowledge has been **committed to their long term memory**.

Flexi-lessons can also be delivered as a **quiz lesson**. Quiz lessons are designed to give pupils another opportunity to **practise securing learnt arithmetic methods and strategies** which are also fundamental to being able to access other aspects of mathematics. Part of the quiz lessons focus on

revisiting previously taught units in the form of **reasoning and problem solving**. This gives our pupils another opportunity to practise applying previously learnt mathematic knowledge to solve problems **after time passed** or **in a different context**. Modelled questions/ answers along with pupils' work are presented in a **test format** to give our pupils weekly opportunity to familiarise themselves and **practice test style questions**. This further prepares them for their termly summative assessments.

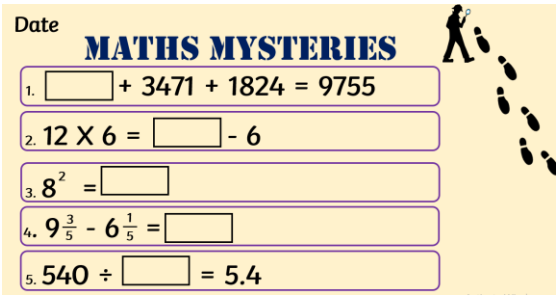
We believe that this bespoke weekly timetable structure is crucial to support our pupils with mastering mathematics as it shines a light on **what they know and remember**. This enables **knowledge gaps** to be swiftly identified and addressed which further supports our pupils to **keep up now rather than trying to catch up later**.

Additional and *Essential Ingredients* for 'Masters of Mathematics' Success at Ambleside Academy

Moreish Maths Mysteries

Maths Mysteries is a large part of our Ambleside's Masters of Mathematics approach. It supports our pupils to **consolidate their arithmetic skills** by **practising little and often**. Pupils are exposed to mixture of five different arithmetic questions twice a day with one being in the form of an **in-depth adult led recap of strategies and stem sentences** session to help further embed the methods into pupils' long term memories. As the year progresses and more units are covered, the mixture of questions continues to vary to allow practise of new learning.

An Exemplar Year 5 Maths Mysteries slide



Appetising Times tables

Times tables practise is also a key part of our Ambleside's Masters of Mathematics approach. Not only is this to further prepare our pupils to be successful in the end of key stage arithmetic assessments and the Year 4 Multiplication Tables Check (which all feature a lot of multiplication and division) but also because we believe that **knowing times tables by heart**, **frees up** pupils' brains to focus on other aspects of mathematics and solving problems.

Times tables are also taught in **small gradual steps**. For this, we follow the National Curriculum which guides us with when a new times tables should be introduced and focused on in each year

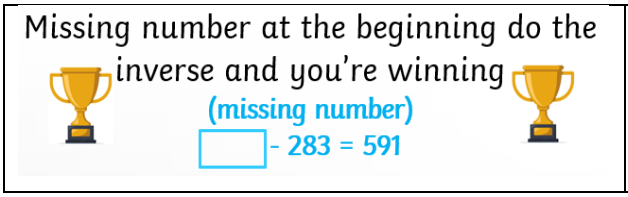
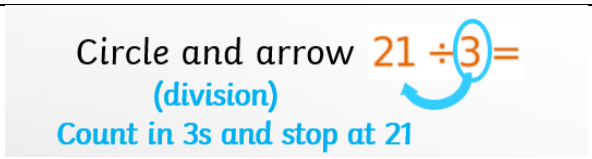
group. This gradual approach supports our pupils so that by the end of Year 4 they should be competent with times tables up to 12 X 12.

Our approach supports our pupils learn and practise times tables in a range of ways. A few are listed below:

- Rote counting
- Times games which require them to answer quick-fire times table facts
- Interactive times table game
- Regular practice within Maths Mysteries
- A weekly ten question times table quiz to monitor progress from Year 3 onwards
- Identifying sequences and patterns
- Modelling and encouraging pupils to **use what they know to help them with what they don't**. For example, "I know that 7 X 10 equals 70. Therefore, 7 X 9 must equal 7 less than 70 which is 63"
- Opportunities to **practise, practise, practise**

Sticky Sayings

To support our pupils with arithmetic methods and strategies we have whole school 'Sticky Sayings'. We have found this supports our pupils to identify the question type and the correct method to use.

High expectations at Ambleside and Progress for All

Our approach imitates elements of the Maths Mastery approach with mixed ability whole class teaching. We adapt by meeting our pupils' individual needs while keeping the whole class learning at the same pace. For pupils who rapidly grasp the concept, there would be an emphasis on further deepening their knowledge. However, for pupils who require more support, there would be a range of possible options available for them, including adult support, a variety of concrete resources, pictorial representations, small group interventions or one to one support etc. We are responsive to our pupils' needs in the classroom to promote all pupils achieving the same learning but vary in the depth of learning. At Ambleside, we pride ourselves on exposing pupils to more as soon as they have secured the foundations that came before. In securing the foundations, our staff break learning down into smaller manageable chunks whilst still exposing them to the same skill.

The Assessment and Moderation Process at Ambleside Academy

Fluidity of Pupils based on individual learning needs within a session

We pride ourselves in the accuracy of assessment at Ambleside. In each classroom we are equipped with two adults which allows for sharp assessment for learning. An adult leads the room giving focussed, formative feedback to pupils acknowledging what they have done well and next steps for learning needed. The pupils are guided in terms of additional resources where needed or to a focused adult support in addition. The second adult offers further teaching content and specific feedback a pupil may require in order to ensure that all knowledge is secure.

Adapted Learning for pupils who are working significantly below the expected standard

At Ambleside Academy, learning is **tailored** based on our **pupils' needs**, what they know/ remember and what their **next step of learning** is. The lowest 20% of pupils across the cohort, receive a **bespoke curriculum** offer which ensures the **foundations** of learning that they require to make next steps of progress are secured. We use **Bsquared as an effective assessment tool** to show the smaller steps of progress that these pupils make. At our Academy, we also have enhanced provision classes for our non-verbal and verbal pupils with more complex needs. For these pupils we also offer a bespoke curriculum that is **specifically tailored** to **meet their needs**.

NTS Testing and Accuracy of Assessment across school for consistency

In addition to this, we use the **National Test-style Standardised Assessments** (NTS) for our termly **summative assessments** for Years one through to six. We chose NTS because they measure termly performance against thousands of pupils nationally. They further prepare our pupils for their End of Key Stage Assessments as they **written by experienced National test authors** who have extensive knowledge of assessment and teaching.

Striving for school Success and Outward Facing

Ambleside Academy Moderation

We value the importance of moderations and run termly Moderation Mathematics Triads to quality assure that assessments across our school are accurate and consistent. Staff bring NTS Tests, The pupils Mathematics books and their expert knowledge of their pupils ready present their judgement.

Maths Hub

Ambleside Academy is part of the Maths Hub Mastery Programme. This is supporting us establish mastery approaches so that our pupils can develop deep knowledge, understanding and confidence in maths.

Local Authority Moderation

Staff across our academy attend local authority moderation events to ensure we maintain high standards and are accurate in our assessments.

We have a Key Stage One local authority moderator working within our school staffing. This ensures that we keep Up to Date with current training and helps us ensure that our pupils can be the best that they can be.