

Lydney C of E Primary School

'A caring Christian community where every child achieves a love of life and of learning.'

Mathematics

Trust, Friendship, Respect, Forgiveness, Courage, Truthfulness

Intent

“Mathematics has beauty...It's not a boring place to be, the mathematical world. It's an extraordinary place; it's worth spending time there.”

Marcus du Sautoy

The basis of our approach to teaching maths is a belief that all children can find enjoyment and achieve in mathematics. The development of a growth mind-set underpins our teaching of maths at all levels.

We believe that the special power of Mathematics lies in its capacity not just to describe and explain, but also to predict and suggest possible answers to problems. It is not only taught because it is useful, but it should also be a source of inspiration and wonder. Across our school, we want children to see that Mathematics provides a unique way of viewing and making sense of the world.

Our aim is to produce mathematicians who:

- Demonstrate fluency in the fundamentals of maths, including a well-developed and embedded sense of number place value, and a solid grasp of key number facts (e.g. multiplication and division facts, number bonds, in line with programmes of studies for each year group)
- Acquire the ability to think and reason logically, exploring and looking for patterns and relationships within their mathematics, and using their findings to develop their thinking and solve problems.
- Are confident in applying their skills to solve problems, selecting specific maths skills /operations to do so, and breaking down increasingly complex problems into a series of smaller steps in order to solve.
- Are confident in using the language of mathematics, including mathematical terms and vocabulary, enabling them to articulate their thinking clearly and to communicate information and ideas.

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- Display a positive attitude towards Maths, and an enjoyment of the subject, which will enable them to use their Mathematical skills, knowledge and understanding with confidence, regardless of sex, race and ability.

Through Mathematics, our curriculum helps children develop transferable skills such as team-working, critical thinking, problem-solving, presenting data and reasoning. These skills are vital to children's development as learners and have a wider application in their general lives outside and beyond school. The White Rose Scheme of Work is the vehicle through which we deliver a mastery approach to maths. It enables pupils to meet the end of key stage attainment targets outlined in the National Curriculum and the aims of the scheme align with those in the National Curriculum.

At Lydney C of E School, we strive to be **inclusive** and achieve this in Maths lessons by actively promoting a 'can do' attitude to maths, where all staff and students believe that everyone can achieve. All classes encourage a 'growth mindset' and understand that mistakes are celebrated and students understand 'the power of yet' when tackling maths problems. By providing opportunities for children to investigate, prove, pattern spot and make connections, we aim for Mathematics to be **creative** and **inspiring**, enabling all children to develop important mathematical skills in interesting and diverse ways. To **nurture** our children, Maths should be enjoyable and an opportunity for students to ask questions freely and to work together to problem solve and reason.

The school values are promoted throughout maths lessons; **Courage**, when developing new skills and trying something new; **Respect** for mathematicians and their work, and for each other when mastering new learning; **Forgiveness** when class members make mistakes; **Trust** when supporting each other in investigations, **Truthfulness** when asking mathematical questions or when finding the work difficult and **Friendship** when taking turns and treating each other as we would like to be treated.

How does Mathematics meet our curriculum drivers?

Our Christian values of **trust, friendship, respect, forgiveness, courage and truthfulness** are golden threads interwoven throughout the teaching and learning of Maths here at Lydney C of E. Our Mathematics curriculum is based around 5 drivers that underpin positive learning attitudes and the development of the whole child.

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Belonging: Our whole class approach to teaching means that children are not excluded from learning according to ability. Children are encouraged to work together in investigative activities, and when developing new concepts through use of practical equipment. Children are encouraged to discuss their maths learning, and this is a key part of our ethos for learning in maths.

Well-being: From the outset, we encourage a positive outlook to maths learning, with a great focus on developing a growth mindset. Children understand the importance of using mistakes as a learning tool, and are familiar with messages such as “the power of yet”, which ensures confidence to have a go.

Spirituality: As part of our Week of Inspirational maths, children have opportunities to explore maths in exciting contexts which encourage wonder and interest in the wider aspects of mathematics. Through links to topic work, children are encouraged to look at the world around them with a mathematical eye. E.g. Fibonacci’s work on number patterns linked to pattern in nature and space, mathematics through the work of Artists such as Miro, Kandinsky, Mondrian, Gaudi, patterns and rhythms in music etc.

World Aware: Children are encouraged to make links to the real world when studying different areas of maths and teachers highlight real-world application and try to provide realistic contexts for the children’s maths work. As part of our extra-curricular maths days, children will be exposed to maths in different cultures, using the Kingscourt multicultural maths resources.

Possibilities: Maths opens up an infinite world of possibilities! Through reasoning activities and open-ended problem solving, children are encouraged to be pattern spotters, and to predict possibilities and suggest the ways forward. They are encouraged to look at and present mathematical concepts in a variety of representations.

Implementation

At Lydney C of E School, we use a concrete/pictorial/abstract approach to learning at all levels. We use the White Rose Maths scheme (and associated workbooks) as our main vehicle for achieving mastery in mathematics and delivering our curriculum aims. This is supplemented by other materials to develop further fluency and reasoning opportunities, and to develop a progressive approach to learning multiplication facts.

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All classes deliver regular “Maths Meetings”, where children re-visit and rehearse areas of maths that are not currently being taught, and which embed and rehearse key ideas for each year group. Our ambition is for every child to have as many opportunities a day as possible to experience maths, which include maths mastery lessons, maths meetings, morning maths activities, fluency sessions, multiplication practice, counting, chanting and alike.

How is Maths taught at Lydney Church of England School?

We follow a mastery approach to teaching mathematics, focusing on developing a deep understanding of maths for all children.

EYFS:

Children have access to maths activities and exploration every day, as well as regular planned adult-led maths sessions. The focus of these sessions is planned using the White Rose Maths Scheme for EYFS, which supports children in meeting their Early Learning Goals for Mathematics by the end of the year. These lessons are practical, with children becoming familiar with a range of manipulatives, with a high emphasis on vocabulary and exploration. Alongside the planned sessions, maths learning is enhanced throughout the classroom environment to encourage use of maths learning in their child-initiated play. Children also have frequent opportunities throughout the day for incidental maths learning through counting, number songs, stories, chanting and alike.

KS1:

Children have a daily maths lesson centred on developing mastery. The curriculum is delivered using the White Rose Maths scheme as the main vehicle for planning and progression.

Regular “maths meetings” are also delivered, where children re-visit and rehearse areas of maths that are not currently being taught, and which embed and rehearse key ideas for each year group. Teachers in KS1 and EYFS are also a part of the Mastering Number Programme and use these materials to support the development of number fluency in their classes.

Other materials such as nrich, “get the buzz” and similar are sometimes used to enhance opportunities for reasoning in different contexts, and to provide low threshold / high ceiling opportunities for problem solving.

A times tables termly planner (third space learning) provides a breakdown of learning for multiplication and division facts. Children also have a yearly overview for Key Instant Recall Facts (KIRFs), the teaching and learning of which is embedded into the school day.

KS2:

Children have a daily maths lesson centred on developing mastery. The curriculum is delivered using the White Rose Maths scheme as the main vehicle for planning and progression.

Regular “maths meetings” are also delivered, where children re-visit and rehearse areas of maths that are not currently being taught, and which embed and rehearse key ideas for each year group. Other materials such as nrich, “get the buzz” and similar are sometimes used to enhance opportunities for reasoning in different contexts and to provide low threshold / high ceiling opportunities for problem solving.

From Year 3 onwards, we use times tables rockstars as part of developing quick recall of all multiplication and division facts by the end of year 4. A times tables termly planner (third space learning) provides a breakdown of learning for multiplication and division facts. Children also have a yearly overview for Key Instant Recall Facts (KIRFs), the teaching and learning of which is embedded into the school day.

Regular maths homework is set in KS2 (and KS1 when appropriate). It is usually based around the learning from that week to help consolidate students’ knowledge and understanding.

Inclusion, Quality First Teaching, Support and Assessment:

A ‘can do’ attitude is adopted by both staff and students in Mathematics sessions and the belief is that everyone can achieve and succeed in Maths. Children are encouraged to persevere and learn from mistakes.

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White Rose Maths is intended to promote inclusion within classrooms because it emphasises full-class instruction and mixed-ability grouping. Children who are slower to grasp key concepts are encouraged to use practical equipment to demonstrate and consolidate their learning, and this is a key part of our approach from EYFS to Y6. Some children will need a higher level of adult support to access the teaching material and to demonstrate their learning and this is indicated on work through the use of marking codes.

All children are given opportunities to develop a deeper mathematical understanding through the reasoning and problem-solving activities that are embedded throughout the White Rose Scheme of learning and workbooks. Some students will require a more structured / taught approach to this, while some children will be able to explore and investigate more independently.

We use pre-teaching and same day intervention flexibly, according to formative assessment. In some unusual circumstances (e.g. children joining the school in later years where specific gaps are identified, or children with a specific need identified through my plan + / EHCP provision), particular interventions such as Numicon or "Breaking Barriers" may be used.

When a child is working at a level significantly different to that of their peers, a more personalised yet ambitious maths curriculum is planned for by the class teacher (following discussion with the subject lead) and is tailored towards meeting the identified student's specific needs.

At Lydney C of E, we recognise that all maths teachers are SEND maths teachers and we plan for and deliver inclusive maths lessons, using manipulatives, scaffolds, questioning and support where appropriate to enable all students to access the learning and to achieve.

Formative assessment is a key part of Maths lessons at Lydney C of E School and teachers observe, listen to and question their students to check understanding and to move learning forward. Teachers record maths objective judgements on our school tracking system Insight. From Year 2 onwards, teachers use PUMA assessments three times a year to help inform their age-related expectation judgements.

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Extra-Curricular Provision

Every year, we use A Week of Inspirational Maths (youcubed.org) to kickstart our learning for the year, which focuses on fun maths opportunities that promote open-ended thinking and investigations. It also focuses on a growth mindset foundation for maths learning.

Regularly throughout the year there will also be whole school maths events, either linked to topic work or other events. (e.g. NSPCC Number Day, multicultural maths, Maths in Art etc.)

After-school Maths Clubs (either for targeted students or groups of learners) are also facilitated by Teachers and Teaching Assistants at different points throughout the year.

How do we develop the skills of reading, writing and speaking and listening through Geography?

The White Rose Maths Scheme gives a high level of importance on the development of maths language, and it has been a key element of developing a mastery approach to our teaching. There is a cumulative and progressive pathway to developing and using correct mathematical terminology. Children are expected to use this language and use full mathematical sentences from the outset. Through the use of the pupil workbooks, children are encouraged to read and comprehend problems that are represented in a variety of presentations.

Impact

The impact and measure of our Mathematics curriculum at Lydney C of E School is to ensure that our students are equipped with the necessary skills and knowledge to enable them to succeed in the next phase of their maths education and to go forth as confident, numerate young people into the world. We hope they will have developed a passion and fascination with the mathematical world that will stay with them throughout their lives.

By the end of Key Stage 2:

- Children will become quick and fluent in using number facts.
- Children will develop an embedded understanding of place value on which to build a solid grasp of number.
- Children will become efficient in using calculation procedures in all four operations.

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- Children will be confident in using correct mathematical terminology.
- Children will be able to apply their mathematical understanding in solving problems across a range of scenarios and situations.
- Children will be aware of maths as an important part of the world that they live in.
- Children will develop a love of mathematics that will stay with them throughout their lives.
- Children will become resilient mathematicians.

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