



The Southfield Trust

The Lindfield School

Curriculum Policy for

Maths

The Lindfield School strives to provide a positive, safe and caring community where students are happy, confident and successful.

We recognise and respect each student as an individual, celebrate their successes, raise their self esteem and prepare them for their future by building on their strengths.

We aim to develop students' independence and empower them to become responsible young adults with the ambition to be lifelong achievers.



Mathematics is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.

A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject. (National Curriculum 2013)

“The book of nature is written in the language of Mathematics” – Galileo



“Mathematics knows no races or geographic boundaries; for mathematics, the cultural world is one country.” —David Hilbert



Core Values of the Lindfield School

To give students the skills to:

- pursue a love of learning into adult life
- communicate confidently and effectively
- develop their independence in order to succeed in adult life
- form and maintain appropriate positive relationships
- promote their own physical and emotional health & well-being

Subject Aims

At The Lindfield School we acknowledge the importance of Maths to function in our daily lives and the vital role it plays in helping students to learn to be independent and skilled adults. Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas to tackle a range of practical tasks and real life problems. All students will have equality of opportunity regardless of age, gender, ethnicity or level of disability.

We aim to:

- develop mathematical skills and knowledge and quick recall of basic facts
- promote confidence and competence with numbers and the number system
- develop the ability to solve problems through decision-making and reasoning in a range of contexts
- develop a practical understanding of the ways in which information is gathered and presented
- explore features of shape and space, and develop measuring skills in a range of contexts
- develop an appreciation of the creative aspects of maths and awareness of its aesthetic appeal
- understand the importance of mathematics in everyday life
- learn outside the classroom in a range of settings, including working on mathematical problems in the school grounds

Outline of the Curriculum

Key Stage 3:

<u>Year 7</u> <ul style="list-style-type: none">• Basic Number• Fractions• Symmetry• Negative Numbers• More about Number• Perimeter and area• Statistical Representation• Basic Algebra• Further Number Skills	<u>Year 8</u> <ul style="list-style-type: none">• Ratios, speed and proportion• Patterns• Averages• Percentages• Transformations• Probability• Equations and inequalities• Angles• Circles• Scale and drawing
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Key Stage 4:

<u>Year 9</u> <ul style="list-style-type: none">• Basic Number• Fractions• Negative Numbers• More about Number• Perimeter and area• Statistical Representation• Basic Algebra• Further Number Skills	<u>Year 10</u> <ul style="list-style-type: none">• Ratios, speed and proportion• Patterns• Averages• Percentages• Equations and inequalities• Graphs• Angles• Circles• Scale and drawing
<u>Year 11</u> <ul style="list-style-type: none">• Probability• Transformations• Constructions• Units• Pythagoras• Revision + Entry Level tests• Revision and exams• Entry Level in Year 11• Possible GCSE Qualification in Year 11	

Teaching & Learning

One of the key guiding principles of the maths department at the Lindfield School is that all students have the right to be challenged mathematically and learn in a safe, enjoyable and engaging environment. The basis of teaching and learning maths at the Lindfield School is to help students overcome their learning barriers and to help them use mathematics relevant to their needs in life. We aim to encourage students to explore and solve practical mathematical problems and reflect on their own learning. Our maths department uses a variety of approaches to teaching that enable all types of learners access to the Entry level, and where appropriate, the GCSE curriculum.

In order to provide students with active and stimulating learning experiences, a variety of teaching and learning opportunities are adopted:

- students may work individually on a task, in pairs or in a small group, depending on the nature of the activity
- activities are planned to encourage the full and active participation of all
- staff differentiate tasks in order to meet the needs of all abilities
- staff place a strong emphasis on correct use of mathematical language; this is supported by key vocabulary being displayed
- staff value students' oral contributions and create an ethos in which all students feel they can contribute

The programs of study are delivered in an age appropriate context at a level appropriate to the abilities of each student. Learning experiences provided by the teacher will have a balance between investigative work, practical problem solving and 'pure' mathematical activities. Topics are covered using the most effective medium for each student in order to facilitate students to reach their full potential in this subject.

Students will expand their knowledge of mathematics for use in everyday life. They will deepen and broaden their knowledge, skills and understanding in the following six attainment areas of the mathematics program taught (which follows the changes to the GCSE and Entry Level exams):

- Number
- Algebra
- Ratio, proportion and rates of change
- Geometry and measures
- Probability
- Statistics

All students are encouraged to learn key vocabulary and use these words in a mathematical and everyday context. Applying their newly learned knowledge to various real life situations is paramount.

Assessment

On entry to the school, data will be transferred from primary schools relating to prior attainment levels in maths. This may be in the form of a KS2 Scaled Score (80 to 120, 100 being “expected level” for an 11 year old) if the student participated in a SAT exam. Where there is no Scaled Score, the student will have a Teacher Assessment. In Year 7 students will also sit a Cognitive Ability Test (CAT) which will provide information about the student’s ability with verbal reasoning, non-verbal reasoning, spatial awareness and quantitative ability. This data will help inform planning for the curriculum content to be delivered to the students.

Throughout each term, students will be assessed through work completed and questioning and at the end of each term, students will answer a quiz which will gauge their recall and understanding of the topic studied. Classroom Monitor will record their understanding of each objective.



At the end of Year 10 students will sit an exam to help consolidate their pathway for Entry Level or GCSE in Year 11. All students will sit the Entry Level exam and some will also sit a GCSE. In Year 11 GCSE pathway students will sit a mock paper in order to provide experience and confidence for the student under exam conditions and inform areas of strength and development. In Term 3 of Year 11 students will start sitting the maths Entry Level Certificate. This ranges from Level 1 to Level 3 (highest). The GCSE Foundation exam ranges from 1 to 5 (highest).

It should be noted that the 2017 reforms have resulted in both the Entry Level and GCSE qualifications becoming more demanding.

Marking & Feedback

Marking indicates where a student has achieved academic and/or social success and comments made will be made in direct reference to the objectives a student has been working towards. These comments or keywords lead the student to improvements in their work.

Through marking, students should be given the enthusiasm to continue to do their best and to strive to improve their performance. All work should be acknowledged, valued, appreciated and recorded, as this encourages a desire to improve standards.

All work will be marked in pen ensuring it is easily distinguishable from students' own writing. Students can also mark their own and each other's work. Students will be given some opportunities to self and peer mark to a specific focus. This can be differentiated according to students' age or ability.

Students' work will be annotated with the following codes:

- S:** Spoken
- P:** Photographed
- I:** Independent work
- R:** Recorded (audio/video etc)
- A:** Aided work
- L:** Looked at (observation)
- Sh:** Shares

Equality & diversity within the subject

We aim to provide an equal opportunities curriculum in which no student is discriminated against as a consequence of ethnicity, social background, and special needs, in line with our equality and diversity policies.

We value the diversity of all learners and aim to draw on their skills, knowledge, experiences and understanding to enhance the learning experience.

As part of our inclusive strategies we use a range of differentiation strategies which could include:

- additional classroom support – in maths we have two maths specialist teaching assistants
- adapted or specific resources – to remove learning barriers a large proportion of maths work is on worksheets so students do not spend large amounts of time copying work out
- peer support
- content selection – each year the scheme of work is adapted to the needs of the year group
- reducing or increasing time for activities – we ensure that a topic is understood before moving on
- setting clear rules in regards to how people should be treated
- challenging any negative attitudes
- treating all students fairly and equally

- creating an all-inclusive culture for students
- avoiding stereotypes in examples and resources
- using resources with multicultural themes.
- actively promoting multiculturalism in lessons
- planning lessons that reflect the diversity of the classroom
- ensuring all students have equal access to opportunities and participation
- making sure that learning materials do not discriminate against anyone and are adapted where necessary, e.g. large print
- using a variety of teaching and assessment methods

Links to SMCS

Spiritual

- awe and wonder of mathematics including infinity, number sequences, symmetry and patterns

Moral

- the use and misuse of data
- the use and abuse of statistics in the media

Social

- working collaboratively in experimental and investigative areas of maths
- economic understanding in everyday life including saving, opening accounts and the dangers of loan sharks
- how mathematics is used to communicate climate change

Cultural

- symmetry, number systems and mathematical thinking from other cultures
- the development of symbols and pattern in different cultures including tessellations
- the cultural and historical roots of mathematics
- foreign currencies and different modes of trade around the world

Links to Investors in Careers

- banking, personal finance, understanding pay/ salary, rent, mortgage, loans. interest
- engineering, construction, building, carpentry, bricklaying, fencing
- statistician, office clerk
- gaming industry – digital and physical
- IT – Apple Store visit

Links to Children's Rights

Article 32 (child labour)

Governments must protect children from economic exploitation and work that is dangerous or might harm their health, development or education. Governments must set a minimum age for children to work and ensure that work conditions are safe and appropriate.

These issues are discussed throughout the year through topics such as fair trade and financial maths. In financial maths, not only do we work with learning about money, but this is developed into currency conversion, interest rates, how loans and credit cards work, rent and mortgages and comparison between deals. This enables pupils to develop financial literacy and independence which protects their rights and helps them realise how UNICEF works to help children in other countries to protect them from economic exploitation.

Links to LOTC

- Supermarket – pricing, offers, weights, capacities (measurements), money, change, use by dates
- Journeys – understanding speed, distance, time
- Data collection – traffic surveys, pulse rates
- Visit to the Apple Store