Maths Policy

Successful – Confident – Responsible

ACER ACADEMY MISSION STATEMENT
To be inclusive
To provide nurturing/caring environments.
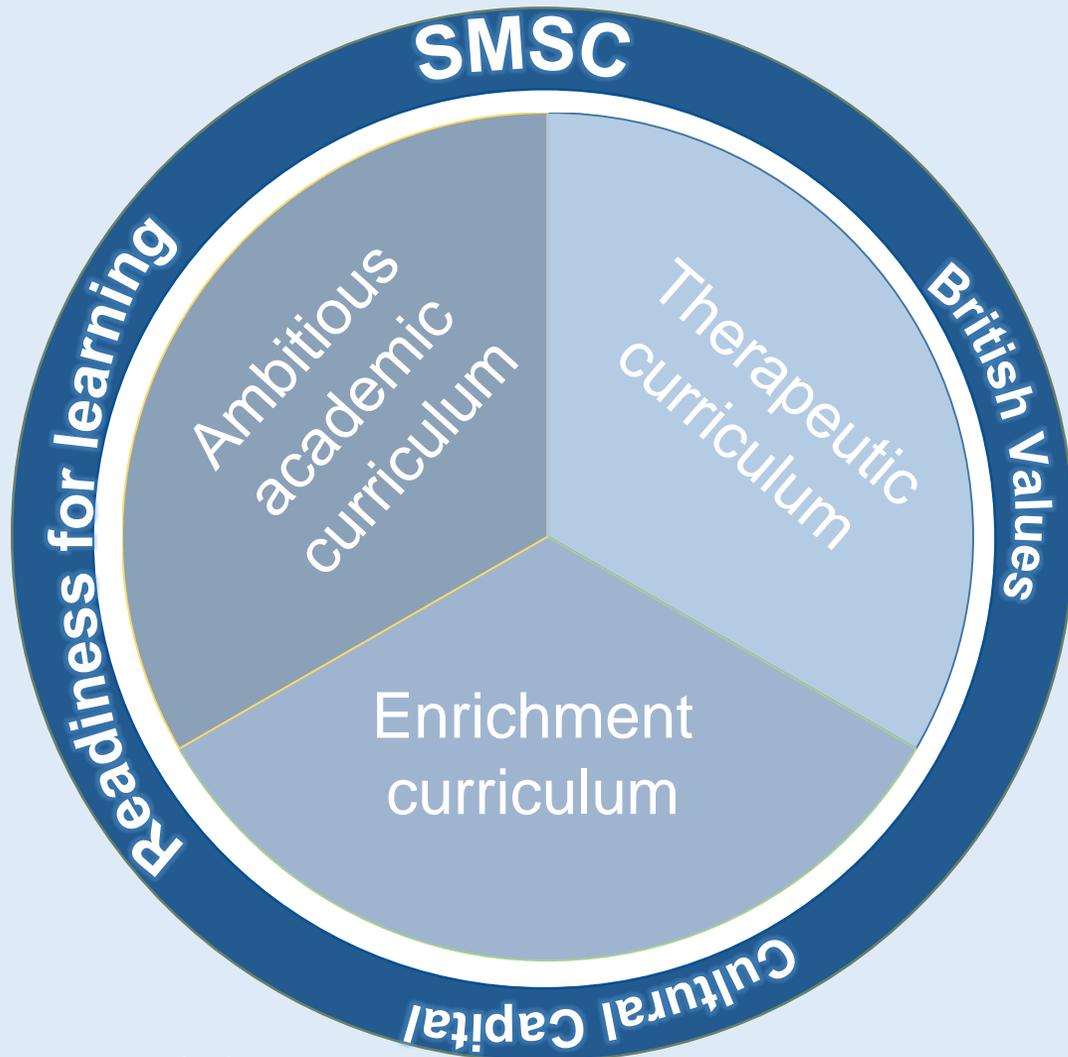For children to feel safe.
To work with integrity and a strong moral compass.
To have the highest expectations and standards.

Policy developed by:	
Policy to be reviewed:	
Summary of changes	New policy

Main aims of the Acer curriculum

Provide an **ambitious academic curriculum** so that students can access a wide range of qualifications and vocational options that can support and impact on their further education and their employability.

The enrichment curriculum at Acer Academy provides pupils with diverse opportunities to prepare for success in 21st-century Britain. We aim to bridge gaps with socially advantaged peers by offering experiences beyond the classroom, including inspiring visitors, assemblies, clubs, and extracurricular activities linked to subjects. These opportunities broaden horizons, develop essential skills, and foster confidence, ensuring pupils are well-equipped for life's challenges and opportunities.

We offer a therapeutic curriculum to support our students' holistic development, fostering emotional well-being alongside academic progress. By integrating therapeutic approaches into our curriculum, we create a nurturing environment where students can thrive socially, emotionally, and academically.

To ensure that our students are in the best position to be ready to access and participate in their academic lessons. To develop our students' **cultural capital**, for us this is providing students with the opportunities to experience people, places and things that contribute towards the essential knowledge that pupils need in order to be educated citizens. To promote pupils' physical health and personal development which includes the spiritual, moral, cultural, mental development of pupils at the school in order to prepare our students for the opportunities, responsibilities and experiences of later life

11/12/2025

The guiding principles of our curriculum

Inclusion focus

- All students should see themselves celebrated through the curriculum. This is done through recognising and celebrating role models that reflect the diverse range of our school population.

Appropriate content

- The curriculum content has been chosen specifically for it's appropriateness for our students, this is driven by rigorous assessments of student starting points across all areas of the curriculum and the context of our school community

Locality

- Where fitting, the curriculum content will have a focus upon teaching students about their locality and influential figures with a link to their local area to create cultural capital for our students.

Evidence informed curriculum design

- Our curriculum is evidence informed through rigorous application of the best practice and the science of learning.

Curriculum intent

- The intent for the Maths curriculum is laid out in the Curriculum framework and progression mapping documents. These are the things that we intend our students will study over their time at Acer. The progression mapping documents detail the steps of progress that we want our children to achieve.

- As a SEND school the starting points for our students is varied even within classes. We cannot define simply, the educational outcomes of all our students by cohort. This has to be very individualised based on their starting points.

- Planning a coherent curriculum; everything is taught for a reason and will facilitate both the current and a future topic. It is based on the principles of mastery including fewer topics in greater depth in order to develop proficiency with core content

- Ensuring that the curriculum documents the facts, concepts, methods and strategies that make up the planned curriculum. These are curated and developed using academic research and best practice.

- Planning the curriculum in order to make connections within and between the maths. This creates opportunities to link concepts, structures and so support fluency and deepen conceptual understanding; and

- Providing opportunities to promote mathematical thinking and develop mathematical habits of mind are explicitly built into the curriculum in order to develop problem solving strategies

Curriculum Intent

Acer Academy Maths Curriculum

Week numbers: 1–36

Year 7
- Number: Place value, ordering and rounding (1–2)
- Number: Four operations (3–4)
- Algebra: Sequences (5–6)
- Statistics: Averages and range (7)
- Number: Rounding & estimation (8)
- Number: Fractions, decimals and percentages (9–12)
- Geometry & Measure: Perimeter and area (13)
- Algebra: Algebraic notation (14–15)
- Number: Directed Number (16–17)
- Statistics: Graphing Data (18–20)
- Number: Properties of number (21–23)
- Number: Fractions and percentages of amounts (24–25)
- Algebra: Expressions and equations (26–27)
- Number: Speed, distance, time (28–30)
- Number: Add and subtract fractions (31–33)
- Geometry & Measure: Angles and polygons (34–36)

Year 8
- Ratio, Proportion & rates of change: Ratio
- Algebra: Algebraic Manipulation
- Number: Multiply and divide fractions
- Geometry & Measures: Symmetry and reflection
- Ratio, Proportion & rates of change: Proportion and scale
- Number: Percentages
- Algebra: Co-ordinates and graphs
- Geometry & Measures: Area, volume and density
- Algebra: Equations and inequalities
- Statistics: Interpret and represent data
- Geometry & Measures: Angles in parallel lines and polygons
- Algebra: Indices
- Number: Standard Form
- Probability: Tables and probability
- Geometry & Measures: Circles
- Statistics: Graphs and charts
- Algebra: Sequences

Year 9
- Number: Properties of number
- Geometry & Measures: Area and volume
- Number: Percentages
- Algebra: Equations, inequalities and formulae
- Number: Fractions
- Ratio, Proportion & rates of change: Rates
- Number: Standard form
- Algebra: Straight line graphs
- Ratio, Proportion & rates of change: Ratio and proportion
- Number: Maths and money
- Geometry & Measures: Constructions and congruence
- Algebra: Algebraic manipulation
- Geometry & Measures: Pythagoras' theorem
- Algebra: Non-linear graphs
- Probability: Sets and probability
- Geometry & Measures: Transformation
- Algebra: Simultaneous equations
- Geometry & Measures: Trigonometry

Year 10
- Number: Percentages
- Algebra: Algebraic manipulation
- Ratio, Proportion & rates of change: Ratio and scale
- Number: Percentages Work with fractions
- Algebra: Equations, inequalities and formulae
- Number: Non-calculator methods
- Geometry & Measures: Perimeter, area and volume
- Algebra: Quadratic expressions and equations
- Probability: Probability
- Number: Rounding and estimation
- Geometry & Measures: Angles
- Algebra: Straight line graphs
- Statistics: Interpret and represent data
- Algebra: Non-linear graphs
- Geometry & Measures: Vectors
- Statistics: Graphs and diagrams
- Number: Factors and powers
- Geometry & Measures: Pythagoras' theorem and trigonometry
- Algebra: Simultaneous equations

Year 11
- Geometry & Measures: Area & volume
- Ratio, Proportion & rates of change: Ratio and proportion
- Algebra: Sequences and proof
- Number: Standard form
- Geometry & Measures: Similarity and congruence
- Probability: Set rotation and venn diagrams
- Geometry & Measures: Work with circles
- Algebra: Functions and graphs
- Geometry & Measures: Angles, bearings and trigonometry
- Ratio, Proportion & rates of change: Rates
- Geometry & Measures: Construction and loci
- Algebra: Equations and formulae
- Geometry & Measures: Transformation
- Revision and consolidation

Breadth and Depth of the Curriculum

Number	Measurement	Geometry	Statistics
• Place Value • Addition and Subtraction • Multiplication and Division • Fractions • Decimals and Percentages • Algebra • Ratio and Proportion	• Using measures • Time • Money • Perimeter, Area and Volume	• Properties of 2D shapes • Properties of 3D shapes • Position and Direction • Angles and Lines	• Statistics

Key Concepts in Maths

Concept	Detail
Number Sense and Calculation	Understanding the number system and how numbers relate to each other. Pupils develop fluency in the four operations, estimation, and mental and written strategies, enabling them to solve problems confidently and accurately.
Proportional Reasoning	Recognising and applying relationships involving ratio, proportion, fractions, percentages, and scaling. This concept helps pupils see connections between different topics, such as measures, geometry, and algebra.
Algebraic Thinking	Using symbols, patterns, and generalisations to represent and solve problems. Pupils learn to express mathematical relationships and use formulae to describe and predict outcomes.
Geometry and Measure	Exploring properties of shape, space, and measure. Pupils learn to visualise, draw, and describe shapes, reason about angles, and understand how measurement connects to real-life contexts.
Data and Probability	Collecting, analysing, and interpreting data to make informed decisions. Pupils develop skills in presenting data clearly and understanding chance, uncertainty, and risk in everyday life.
Mathematical Communication and Reasoning	Explaining, justifying, and evaluating methods and results using clear mathematical language. Pupils are supported to articulate their thinking, make logical connections, and reflect on different strategies.
Problem Solving and Application	Applying mathematical knowledge in unfamiliar or real-world situations. Pupils learn to plan, persevere, and evaluate different approaches, developing both independence and confidence.

Our Approach to Teaching Maths

At our school, we believe that all pupils can succeed in mathematics when teaching is clear, structured, and purposeful. Our approach is rooted in common-sense pedagogy: breaking complex ideas into logical steps, securing understanding at each stage, and giving pupils repeated opportunities to apply knowledge in different contexts.

We recognise that predictability, clarity, and emotional safety are essential for effective learning. Lessons therefore follow a consistent format to reduce anxiety and cognitive load. Each session begins with a retrieval activity to strengthen long-term memory and make connections between current and prior learning. New content is introduced through clear teacher modelling, supported by visual representations and scaffolded practice before pupils move towards greater independence.

Mathematics is taught as a connected subject. Teachers make explicit links between topics and highlight how mathematical thinking applies to real-life and vocational contexts, ensuring learning feels relevant and meaningful. Opportunities for discussion, reflection, and reasoning are built into lessons so that pupils can explain their methods and develop mathematical language and confidence.

Staff use consistent strategies for modelling, questioning, and feedback to check understanding and address misconceptions quickly. Success and effort are celebrated to promote self-belief, resilience, and pride in achievement — key qualities for our learners as they prepare for life beyond school. Our aim is to develop confident, independent thinkers who understand the 'why' behind mathematical processes and can apply their learning flexibly in new situations.

Assessment

Assessment in maths is designed to support teaching and learning rather than simply record outcomes. We assess pupils against the taught curriculum to identify what they know, understand, and can do, and to inform next steps in teaching.

Our assessment framework is aligned with the curriculum and allows us to judge whether pupils are working towards, at, or beyond the expected standard for their year group. Progress is tracked using Kings Levels, ranging from King 1 to King 9, which reflect increasing depth of understanding and independence in applying mathematical knowledge.

Low-stakes testing, retrieval activities, and teacher questioning are used regularly to check understanding and strengthen long-term memory. These formative approaches help teachers identify misconceptions early and adapt teaching accordingly. Periodic summative assessments provide a broader overview of progress and ensure that pupils are on track to meet their end-of-year expectations or qualification outcomes.

Through this balanced approach, assessment becomes a useful tool for teachers and a motivator for pupils, helping everyone to understand where they are in their learning journey and what they need to focus on next.

Assessment Type	Details	Frequency
Maths ages	Summative	Once per term.
Mini topic tests	Formative – linked to taught curriculum content	Once per term.
Low stakes testing	To check understanding and strengthen memory. To help teachers identify gaps, misconceptions, or topics that need revisiting.Typical examples include retrieval quizzes, exit tickets, or "Do Now" review tasks — all designed to inform future teaching and help pupils recall key knowledge.	Ongoing lesson by lesson
Data capture	Formal data captured across all strands of the curriculum using formative and summative methods.	Once per half term (+ baselining new students)

Subject enhancements

At Acer, we believe in providing a comprehensive mathematics education that goes beyond the classroom. We recognize the value of subject enhancements, such as trips, in-school visits, projects, theme days, and the inclusion of famous mathematicians throughout the curriculum. These enhancements aim to deepen students' understanding of mathematical concepts, foster a love for the subject, and develop crucial real-world skills. By incorporating these activities, we create a holistic learning experience and promote cultural capital among our students.

Trips: Trips offer students the opportunity to apply mathematical concepts in real-life situations and develop practical skills. The following table highlights the trips organized by year group and their focus:

Year	Trip	Focus
TBC		

In-School Visits: In-school visits bring experts and external organizations to our students, providing hands-on experiences and fostering problem-solving skills. The following table showcases the in-school visits and their focus:

Year	Visits	Focus
TBC		

Subject enhancements

Projects and Theme Days: Projects and theme days allow students to delve deeper into specific mathematical topics and engage in interactive and collaborative activities. The following table highlights the projects and theme days conducted throughout the year:

Year	Theme Day / Project	Focus
All years	My Money Week	Money
Successful student applicants	Enterprise project	Money, profit, maths in business

Inclusion and Cultural Capital: We value inclusivity and aim to provide a diverse and representative curriculum. To celebrate inclusivity, we have incorporated the study of famous mathematicians throughout the curriculum. The following mathematicians are interwoven into our lessons:

Year	Mathematician
Year 7	TBC
Year 8	
Year 9	
Year 10	

Additionally, on Inclusivity Day (March 23rd), students study a famous mathematician who has overcome challenges to achieve success. This activity aims to inspire students by reflecting their own experiences and the experiences of others in the curriculum.

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Year 7	TBC
Year 8	
Year 9	
Year 10	
Year 11	

British Values & SMSC

Design

- **Extremism and radicalization** - All subject teachers in the Maths department are familiar with the indicators of vulnerability to extremism and radicalisation and the procedures for dealing with concerns. When delivering lessons in Maths we look out for indicators and report any concerns. We work to prevent pupils from developing extreme and radical views by embedding SMSC principles throughout the Maths curriculum.

- **Promoting values** - During lessons in Maths we strive to create a learning environment which promotes respect, diversity and self-awareness and equips all of our pupils with the knowledge, skills, attitudes and values they will need to succeed in their future lives.

- **Planning for British Values** – we have looked at all areas of our Maths curriculum and have pre-planned the coverage of the British values through the topics that we have selected.

- British Value and SMSC coverage is considered throughout the planning stages of the curriculum and plotted in our coverage grids. An example of this can be seen on the next slide.

Social **Investigate moral issues; appreciate diverse viewpoints; participate, volunteer and cooperate; resolve conflict; engage with the fundamental values of British democracy.**	Mathematics lessons use a range of teaching and learning strategies. Sometimes independent work is required, other times pair work or group work essential. Among others we use debates, dominoes, jigsaws, sort cards and team quizzes to structure group work. Verbalising and discussing mathematical problems is one of the most powerful tools we have in arriving at their solutions (or at least gaining a deeper understanding of the problem at hand). Many topics have a direct and deep sociological impact or effect. We teach co-ordinate geometry, bearings and vectors which are the bedrock of so many "real life" applications of mathematics that have had and still have profound consequences to human development (eg wireless communications, GPS, flight, electronics). We develop each pupil's understanding of statistics to a depth which should equip them with the ability to tell when statistics are meaningful or being used inappropriately (eg in newspapers or on social media). Even simpler skills such as numerical fluency or confidence with estimation benefit our students' functioning in society. When is something a poor/good deal? Is this really a special offer, or a rip off? Is £9 a good price? How long will it take to get to Manchester from here? Half termly estimation challenged also happen within each class.

Moral **Recognise right and wrong; respect the law; understand consequences; investigate moral and ethical issues; offer reasoned views and have an appreciation of British Values.**	We get many opportunities to develop our pupils' moral values incidentally through the mathematics we teach. For example, a study of probability lends itself to considerations of gambling, betting, lotteries, raffles and games of chance. Our students are encouraged to weigh up the pros and cons of taking part in such activities. Another statistical example is our requirement to teach experimental design. Questionnaires should not be (mis)leading, culturally biased or poorly operationalised.

Spiritual

Explore beliefs; respect faiths, feelings and values; enjoy learning about oneself, others and the surrounding world; use imagination and creativity; reflect.

Our pupils learn geometrical reasoning through knowledge and application of angle rules. The whole purpose is to demonstrate the power of deductive logic and problem solving through use of rigorous, proven techniques. This should encourage pupils to question "why" more often, to interrogate motives and to avoid assumption when analysing any given problem. These skills should transfer to the less abstract situations facing our students daily.

Another example is our insistence on algebraic fluency throughout the curriculum. Algebra is a uniquely powerful set of tools that enable us to describe and model reality. When understood as a language, algebra enables us to express truth in its purest form. It is the language of science, but it also develops the type of intuitive logic in pupils that equips them to recognise when an argument (eg political, religious, social) is valid or nonsensical.

Many topics give rise to the opportunity of developing our pupils' senses of "awe and wonder" – none more so than the topic of standard index form where astronomically large and microscopically small worlds are considered and accurately described in detail. Concepts such as a "light year" cannot fail to inspire amazement and fascination. Even some more trivial pure mathematics investigations produce beautiful elegance in their surprising symmetries, patterns or results. Pi is a number that goes on forever in a non-repeating and unpredictable way. Another example is the number of ways a pack of cards can be shuffled. It is so unbelievably vast that we need convoluted descriptions to even get close to understanding its magnitude.

| Cultural

Appreciate cultural influences; appreciate the role of Britain's parliamentary system; participate in culture opportunities; understand, accept, respect and celebrate diversity | All mathematics has a rich history and a cultural context in which it was first discovered or used. The most ancient of our knowledge we owe to the Babylonians, Egyptians, Greeks and Arab and Vedic mathematicians. The opportunity to consider the lives of specific mathematicians isn't lost (eg Newton, Pythagoras, Galileo or Fibonacci).

A study of Imperial units specifically is no longer on the our syllabus, although pupils are still required to make conversions between any given units. An understanding of the deep emotional and cultural attachment to these is normally discussed.

The world of modern computing would be impossible without the fundamental mathematics upon which they are built. Algorithmic approaches to problem solving are first introduced in KS4.

Mathematics has deep links to music, art and sport. Factors and multiples build rhythm and design percussion. Furthermore, ratios mathematically explain pitch and tuning (especially from a physical perspective) and trigonometric functions describe and illuminate the structure of sound waves. The world of professional sport has been revolutionised by statistics and their analysis. |