

# ACLE ACADEMY CURRICULUM OFFER – KS3 & KS4 SUBJECT



## SUBJECT SUMMARY: Aims and Objectives for...MATHS

All students follow the National Curriculum in Mathematics and will have access to a GCSE at a level appropriate to their ability. The national curriculum for mathematics aims to ensure that all pupils: Become:

- **Fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- Able to **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- Can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

### KEY STAGE 3:

Year 7 Outline:			
Term	Lower Ability	Middle Ability	Higher Ability
Autumn 1	1 Analysing and displaying data 2 Calculating	1 Analysing and displaying data 2 Number skills	1 Analysing and displaying data 2 Number skills
Autumn 2	3 Expressions, functions and formulae 4 Graphs	3 Expressions, functions and formulae 4 Decimals and measures	3 Expressions, functions and formulae 4 Fractions
Spring 1	5 Factors and multiples 6 Decimals and measures	5 Fractions 6 Probability	5 Angles and shapes 6 Decimals
Spring 2	7 Angles and lines	7 Ratio and proportion	7 Equations
Summer 1	8 Measuring and shapes 9 Fractions, decimals and percentages	8 Lines and angles 9 Sequences and graphs	8 Multiplicative reasoning 9 Perimeter, area and volume
Summer 2	10 Transformations	10 Transformations	10 Sequences and graphs
Year 8 Outline:			
Term	Lower Ability	Middle Ability	Higher Ability
Autumn 1	1 Number properties and calculations	1 Number	1 Factors and powers
Autumn 2	2 Shapes and measures in 3D 3 Statistics	2 Area and volume 3 Statistics, graphs and charts	2 Working with powers 3 2D shapes and 3D solids
Spring 1	4 Expressions and equations 5 Decimal calculations	4 Expressions and equations 5 Real-life graphs	4 Real-life graphs 5 Transformations
Spring 2	6 Angles	6 Decimals and ratio	6 Fractions, decimals and percentages
Summer 1	7 Number properties 8 Sequences	7 Lines and angles 8 Calculating with fractions	7 Constructions and loci 8 Probability
Summer 2	9 Fractions and percentages 10 Probability	9 Straight-line graphs 10 Percentages, decimals and fractions	9 Scale drawings and measures 10 Graphs
Year 9 Outline:			
Term	Lower Ability	Middle Ability	Higher Ability
Autumn 1	1 Number calculations 2 Sequences and equations	1 Indices and standard form 2 Expressions and formulae	1 Powers and roots 2 Quadratics
Autumn 2	3 Statistics 4 Fractions, decimals and percentages	3 Dealing with data 4 Multiplicative reasoning	3 Inequalities, equations and formulae 4 Collecting and analysing data



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<b>Spring 1</b>	5 Geometry in 2D and 3D 6 Algebraic and real-life graphs	5 Constructions 6 Equations, inequalities and proportionality	5 Multiplicative reasoning 6 Non-linear graphs
<b>Spring 2</b>	7 Multiplicative reasoning	7 Circles, Pythagoras and prisms	7 Accuracy and measures
<b>Summer 1</b>	8 Algebraic and geometric formulae 9 Probability	8 Sequences and graphs 9 Probability	8 Graphical solutions 9 Trigonometry
<b>Summer 2</b>	10 Polygons and transformations	10 Comparing shapes	10 Mathematical reasoning

### KEY STAGE 4:

#### Subject Available Summary:

#### Key Stage 4 Mathematics

The new GCSE places an emphasis on problem-solving, functionality and mathematical thinking. There will be much greater emphasis in examinations on the assessment of applying mathematics to solve problems. Some questions will be set in contexts that students should be expected to deal with in the 'real world'. Students might be asked to answer questions on decorating a room or designing a garden, or perhaps sorting bills or working out rotas for shop staff.

Questions will also require students to be able to communicate the mathematics they have applied (a requirement called Quality of Written Communication, QWC). This may involve giving a reason for an answer, correctly setting out a proof or accurately labelling a statistical diagram.

Approximately 5% of marks in the examination will be given over to QWC. The content of the GCSE is grouped into the topic areas of Number, Algebra, Geometry, Measures, Statistics and Probability. GCSE Mathematics is entirely assessed by written examination. There is no controlled assessment.

The written examination will consist of two papers which are each worth 50% of the final mark.

- Paper 1 (non-calculator)
- Paper 2 (calculator)

The papers can be sat at Higher or Foundation tier and students will be entered for the most appropriate tier for their ability.

For students taking exams in 2017 (current Y10) the exam arrangements differ.

For these students the change concerns the exam format.

There will be three written papers, each of 1 hour 30 minutes.

- Paper 1 (non-calculator),
- Papers 2 and 3 (calculator).

Each paper is worth a third of the total marks.

The papers can still be sat at Higher or Foundation tier and students will still be entered at the most appropriate tier for their ability.

#### Exam board External links:

<http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html>