

# Maths Subject Overview



# **ROUTE 1 – Maths**

	AUTUMN HALF TERM 1	AUTUMN HALF TERM 2	SPRING HALF TERM 1	SPRING HALF TERM 2	SUMMER HALF TERM 1	SUMMER HALF TERM 2
Year 7 DAPA 4-8	Number Place Value Counting, comparing number, reading, writing and estimating number and (where possible), problem solving	Number Addition & Subtraction Number bonds, mental calculation, written methods, inverse operations and (where possible), problem solving	Measurement Standard and nonstandard. Time. Comparative vocabulary: long/short, longer/shorter, tall/short, double/half Days of the week, months of the year, analogue and digital time. Time vocabulary [e.g. quicker, slower, earlier, later]	Number Place Value (revisited) Counting, comparing number, reading, writing and estimating number and problem solving.	Measurement Time, position and direction. Time: days of the week, months of the year, analogue and digital time. Position and direction: positional language and compass directions (half, quarter and three-quarter turns, where possible)	Geometry 2D and 3D (revisited) Identifying shapes and their properties (2D and 3D), drawing and constructing, comparing and classifying and pattern.
		Geometry 2D and 3D Identifying shapes and their properties (2D and 3D), drawing and constructing, comparing and classifying and pattern.	Statistics Tally, bar charts and pictograms (basic principles) Recording data, interpreting results and drawing data pictorially in a number of forms.	Number Multiplication & Division Multiplication and division facts, mental and written calculation, properties of numbers, order of operations, inverse operations, estimation and problem solving.	Measurement Money Identifying money (coin recognition and value, where possible)	Number Fractions ½, ¼, ¾, 1



	Number	Number	Measurement	Number	Measurement	Geometry
<b>Year 8</b> DAPA 9-12	Place Value Counting, comparing number, reading, writing and estimating number and (where possible), problem solving.	Addition & Subtraction Number bonds, mental calculation, written methods, inverse operations and (where possible), problem solving.	Standard and nonstandard. Time. Comparative vocabulary: long/short, longer/shorter, tall/short, double/half Days of the week, months of the year, analogue and digital time. Time vocabulary [e.g. quicker, slower, earlier, later]	Place Value (revisited) Counting, comparing number, reading, writing and estimating number and problem solving.	Time Position and direction. Time: days of the week, months of the year, analogue and digital time. Position and direction: positional language and compass directions (half, quarter and three-quarter turns, where possible)	2D and 3D (revisited) Identifying shapes and their properties (2D and 3D), drawing and constructing, comparing and classifying and pattern.
≻ °		<b>Geometry</b> 2D and 3D	<b>Statistics</b> Tally, bar charts	Number Multiplication	<b>Measurement</b> Money	Number Fractions ½, ¼,
		Identifying shapes and their properties (2D and 3D), drawing and constructing, comparing and classifying and pattern.	and pictograms (basic principles) Recording data, interpreting results and drawing data pictorially in a number of forms.	& Division Multiplication and division facts, mental and written calculation, properties of numbers, order of operations, inverse operations, estimation and problem solving.	Identifying money (coin recognition and value, where possible)	<i>¾,</i> 1



	Properties of number	The four operations	Ratio Money	The calendar and time	Measures Geometry	Statistics
Year 9	Number - One to twenty Touch counting, reading and writing numbers, comparing number, estimating, place value (part whole models) and problem solving.	The four operations (without a calculator) Addition and subtraction within 20, number bonds, inverse operations, problem solving.	Fractions- half of shape and amounts up to 20. Money- recognition of coins and notes, calculations with money up to 20p.	Days of the Week the calendar and time (on the hour, half past) Practical Maths.	Measure- Length, weight and volume, Standard (cm) and non- standard, comparative language, using a ruler accurately, position and direction. Geometry- recognising, naming and sorting 2D and 3D shapes.	Tally, pictogram and simple bar charts- recording, drawing and interpreting data.
	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme
Year 10	Properties of number Number- One to thirty Touch counting, reading and writing numbers, comparing number, estimating, place value and problem solving.	The four operations The four operations (without a calculator) Addition and subtraction within 30, number bonds, inverse operations, skip counting (10s, 2s, 5s), sharing equally, problem solving.	Ratio Money Fractions- half and quarter of shapes and amounts up to 30. Money- recognition of coins and notes, calculations with money up to 30p.	The calendar and time Days of the Week the calendar and time (on the hour, half past, quarter to/past). Practical Maths.	Measures Geometry Measure- Length, weight and volume, Standard (cm and m) and non-standard, comparative language, using a ruler accurately, position and direction. Geometry- recognising, naming, sorting and comparing 2D and 3D shapes, including properties of shapes.	Statistics Tally, pictogram and simple bar charts- recording, drawing, interpreting and problem- solving using data.
	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme



	Properties of number	The four operations	Ratio Money	The calendar and time	Measures Geometry	Statistics
Year 11	Number- One to fifty Touch counting, reading and writing numbers, comparing number, estimating, place value and problem solving.	The four operations (without a calculator) Addition and subtraction within 50, number bonds, inverse operations, times tables, division using manipulatives, problem solving.	Fractions of shapes and amounts up to 50. Money- recognition of coins and notes, calculations with money to 50p (and beyond where applicable).	Days of the Week the calendar and time- digital and analogue. Practical Maths.	Measure- Length, weight and volume, Standard (mm, cm and m) and non- standard, comparative language, using a ruler accurately, position and direction. Geometry- recognising, naming, sorting, drawing and comparing 2D and 3D shapes, including properties of shapes.	Tally, pictogram and bar charts- recording, drawing, interpreting and problem- solving using data.
	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme	AQA Unit Award Scheme



# **Curriculum Overview**

- Route 1 Pupils undertake tasks to DISCOVER, EXPLORE and EXPERIENCE opportunities within the context of the topics.
- Pupils work to a carefully crafted curriculum targeting DAPA S Levels. Skills and Knowledge are taught and tracked from National Curriculum levels to ensure progression is evident. We work from the pupil's individual starting point and content will differ per class to meet the individual need of the pupil, working towards security in knowledge with incremental steps.
- All Year 7 content is taught against DAPA levels 4-8.
- All Year 8 content is taught against DAPA levels 9-12.
- White Rose Maths schemes are also taught alongside where appropriate.
- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Additional resources used include: Times Tables Rock Stars, Maths Whizz, Education City, My Maths.
- There are five Maths lessons per week in every class.
- Pupils will work towards gaining a Unit Award recognition following the AQA Unit Award Scheme.

# Skills and Knowledge Progression Year 7 & Year 8

# KNOWLEDGE

Pupils acquire knowledge in the following areas:

- Number
- Place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Time
- Position and direction
- Money
- Geometry
- 2D and 3D shapes
- Statistics
- Tally, bar charts and pictograms

# SKILLS

- Patterns and connections
- Spatial reasoning
- Subitising
- Composition
- Sorting and matching
- Comparing and ordering

### SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations

# Skills, Knowledge Progression and Destinations Year 9, Year 10 and Year 11 KNOWLEDGE



Pupils acquire knowledge in the following areas:

- Properties of number
- The four operations
- Ratio
- Money
- The calendar and time
- Measure and Geometry
- Statistics

### SKILLS

- Life Skills to enable pupils to function in the wider world, including:
- Problem solving
- Subitising
- Counting
- Composition
- Sorting and matching
- Comparing and ordering

# SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations

### DESTINATION

• The curriculum presents opportunities to meet pupils' potential throughout a three-year period; pupils work towards AQA Unit Award Scheme certification.



# **ROUTE 2 – Maths**

	AUTUMN HALF TERM 1	AUTUMN HALF TERM 2	SPRING HALF TERM 1	SPRING HALF TERM 2	SUMMER HALF TERM 1	SUMMER HALF TERM 2
	Number Place Value	Geometry Properties of Shape	Measurement Time	Number Fractions	Geometry Position & Direction	Measurement Mass, Capacity and Temperature
Year 7	(within 100, including comparison)	(2D and 3D – recognise, name and sort)	(days, months, units of time, telling time to hour, half hour, quarter past / to and 5 minute intervals, where appropriate)	(finding ½, ¼, 1/3, ¾ of an object, shape or quantity. Unit and non-unit fractions)	(positional language and direction)	(measure and compare in mm/l/g/kg with four operations)
	Addition & Subtraction	Measurement Money	Statistics	Multiplication and Division	Measurement Length & Height	
	(within 20, with missing number problems)	(unitising, recognition and counting)	Tally charts, bar / block charts and pictograms (basic principles)	(count in 2s/5s/10s, times tables/division by 2/5/10)	(compare, measure and order length and height in cm and m)	



	Number Place Value	Geometry Properties of Shape	Measurement Time	Number Fractions	Geometry Position & Direction	Measurement Mass, Capacity and Temperature
Year 8	(within 100, estimation and comparison)	(2D and 3D – recognise, name, sort, patterns and symmetry)	(days, months, units of time, telling time, as in prior learning, on analogue and digital and conversions, where appropriate)	(compare, order and understand unit and non- unit fractions, with addition and subtraction of fractions, where appropriate)	(positional language and direction using coordinates, translations and symmetry)	(measure and compare in mm/l/g/kg with four operations and equivalents)
7	Addition & Subtraction	Measurement Money	Statistics	Multiplication and Division	Measurement Length & Height	
	(within 100, up to 2 digit numbers)	(counting, comparing and calculating with conversions and estimation)	Bar charts, pictograms and two-way tables (collection and representation)	(multiples of 2s/5s/10s, multiplication and division of 3 / 4 / 8 and beyond, where appropriate)	(compare, measure and order length and height in cm, m, mm and km, where appropriate; and perimeter)	
	Properties of number	The four operations	Ratio	The calendar and time	Measures	Statistics
Year 9	Enhancing working with numbers to 20 (EL1)	Enhance the use of + and – signs to solve simple number problems	Enhance understanding of equality	Enhance the use of days of the week and ordering familiar events; time to the hour/half hour	Enhance comparisons of length, height capacity and weight	Enhance by sorting and classifying objects using a single criterion
			Money		Geometry	
			Recognise coins and notes up to £20		Enhance recognition of 2D and 3D shapes	



	Properties of number	The four operations	Ratio	The calendar and time	Measures	Statistics
Year 10	Deepen knowledge with numbers to 100 (EL2)	Deepen prior skills, adding and subtracting whole numbers with a total up to 100. Enhance multiplication and division skills (EL2)	Deepen ability to find a third or a quarter	Deepen understanding of seasons, months and time to the nearest five minutes	Deepen with use of measure and estimation	Deepen by sorting and classifying objects using more than one criterion
			Money		Geometry	
			Deepen understanding by converting from pence to pounds (and vice versa) up to £100		Deepen recognition and properties of 2D and 3D shapes with use of angles	
	Properties of number	The four operations	Ratio	The calendar and time	Measures	Statistics
Year 11	Develop mastery with numbers to 1,000 (EL3)	Develop +, -, x and division at a mastery level. For example, using three/four digit numbers (EL3)	Develop understanding, working with unit fractions to one tenth of a number up to 100 (EL3)	Develop understanding by solving problems, Roman numerals and conversions	Develop with addition of measures, conversions and use of perimeter	Develop by use of bar charts, pictograms, tally charts and frequency tables with comparative problem- solving.
			Money		Geometry	
			Develop understanding by solving real-life problems / investigations		Develop understanding with symmetry, angles and coordinates	



# **Curriculum Overview**

- Route 2 Pupils undertake tasks to ENHANCE, DEVELOP and DEEPEN opportunities within the context of the topics.
- The principal focus ensures that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects, manipulatives and measuring tools].
- Pupils are taught content (fluency) and skills in line with National Curriculum coverage at appropriate levels.
- There are five Maths lessons per week in every class.
- White Rose Maths schemes are utilised to support teaching.
- Additional resources used include: Times Tables Rock Stars, Maths Whizz, Education City, My Maths
- Lower ability pupils will have access to a carefully catered curriculum and will work towards DAPA S Levels, where appropriate.
- Each class is unique, and it is to be expected that the delivery of taught content will differ to meet the varied needs of pupils.
- Pupils will work towards gaining an Entry Level Certificate following the AQA Entry Level Certificate scheme.

# Skills and Knowledge Progression Year 7 & Year 8

# KNOWLEDGE

Pupils acquire knowledge in the following areas:

- Number
- Place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Time
- Mass, capacity and temperature
- Length and height
- Money
- Position and direction
- Geometry
- 2D and 3D shapes
- Position and direction
- Statistics
- Tally charts, bar charts, pictograms and two-way tables
- SKILLS
  - The principal focus ensures that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].
  - Conceptual understanding
  - Procedural fluency
  - Problem solving
  - Reasoning

### SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations



# Skills, Knowledge Progression and Destinations Year 9, Year 10 and Year 11

# KNOWLEDGE

Pupils acquire knowledge in the following areas:

- Properties of number
- The four operations
- Ratio
- Money
- The calendar and time
- Measures and Geometry
- Statistics

### <u>SKILLS</u>

- The principal focus ensures that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].
- In such cases, pupils will learn content (fluency) to enhance prior learning, develop their skills with reasoning and deepen their knowledge via problem solving opportunities.
- Conceptual understanding
- Procedural fluency

# SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations

# DESTINATION

• The curriculum presents opportunities to meet pupils' potential throughout a three-year period; where appropriate, pupils may achieve an EL1/2/3 in AQA Maths Entry Level Certificate.



# **ROUTE 3 – Maths**

	AUTUMN HALF TERM 1	AUTUMN HALF TERM 2	SPRING HALF TERM 1	SPRING HALF TERM 2	SUMMER HALF TERM 1	SUMMER HALF TERM 2
	Number Place Value	Geometry Properties of Shape	Measurement Time	Number Fractions	Geometry Position & Direction	Measurement Mass, Capacity and Temperature
Year 7	(within 100, including comparison)	(2D and 3D – recognise, name and sort)	(days, months, units of time, telling time to hour, half hour, quarter past / to and 5 minute intervals, where appropriate)	(finding ½ , ¼, 1/3, ¾ of an object, shape or quantity. Unit and non-unit fractions)	(positional language and direction)	(measure and compare in mm/l/g/kg with four operations)
	Addition & Subtraction	Measurement Money	Statistics	Multiplication and Division	Measurement Length & Height	
	(within 20, with missing number problems)	(unitising, recognition and counting)	Tally charts, bar / block charts and pictograms (basic principles)	(count in 2s/5s/10s, times tables/division by 2/5/10)	(compare, measure and order length and height in cm and m)	



	Number Place Value	Geometry Properties of Shape	Measurement Time	Number Fractions	Geometry Position & Direction	Measurement Mass, Capacity and Temperature
Year 8	(within 100, estimation and comparison)	(2D and 3D – recognise, name, sort, patterns and symmetry)	(days, months, units of time, telling time, as in prior learning, on analogue and digital and conversions, where appropriate)	(compare, order and understand unit and non- unit fractions, with addition and subtraction of fractions, where appropriate)	(positional language and direction using coordinates, translations and symmetry)	(measure and compare in mm/l/g/kg with four operations and equivalents)
~	Addition & Subtraction	Measurement Money	Statistics	Multiplication and Division	Measurement Length & Height	
	(within 100, up to 2 digit numbers)	(counting, comparing and calculating with conversions and estimation)	Bar charts, pictograms and two-way tables (collection and representation)	(multiples of 2s/5s/10s, multiplication and division of 3 / 4 / 8 and beyond, where appropriate)	(compare, measure and order length and height in cm, m, mm and km, where appropriate; and perimeter)	
	Properties of number	The four operations	Ratio Money	The calendar and time	Measures Geometry	Statistics
Year 9	Embed an understanding of number up to a level adapted to the pupil.	Embed an understanding of the four operations up to a level adapted to the pupil.	Embed an understanding of ratio/money up to a level adapted to the pupil.	Embed an understanding of the calendar and time up to a level adapted to the pupil.	Embed an understanding of measures/ geometry up to a level adapted to the pupil.	Embed an understanding of statistics up to a level adapted to the pupil.
	GCSE content: Fractions and percentages	GCSE content: Algebra	GCSE content: Ratio and proportion	GCSE content: Graphs, tables and charts	GCSE content: Perimeter, area and volume 1 Angles	GCSE content: Averages and range



	Properties of number	The four operations	Ratio Money	The calendar and time	Measures Geometry	Statistics
Year 10	Demonstrate an understanding of number up to a level adapted to the pupil.	Demonstrate an understanding of the four operations up to a level adapted to the pupil.	Demonstrate an understanding of ratio/money up to a level adapted to the pupil.	Demonstrate an understanding of the calendar and time up to a level adapted to the pupil.	Demonstrate an understanding of measures/ geometry to a level adapted to the pupil.	Demonstrate an understanding of statistics up to a level adapted to the pupil.
	GCSE content: Fractions, indices and standard form.	GCSE content: Multiplicative reasoning	GCSE content: Equations, inequalities and sequences	GCSE content: Graphs and transformations	GCSE content: Constructions, loci, bearings, quadratic equations, graphs Perimeter, area	GCSE content: Probability
	Properties of	The four	Ratio		and volume 2	
	number	operations	Money			
Year 11	Apply an understanding of number up to a level adapted to the pupil.	Apply an understanding of the four operations up to a level adapted to the pupil.	Apply an understanding of ratio/money up to a level adapted to the pupil.	Revision	Exams Level 1 Functional Skills / GCSE	Exams Level 1 Functional Skills / GCSE
	GCSE content: Congruence, similarity and vectors	GCSE content: Algebra	GCSE content: Right angled triangles			



# **Curriculum Overview**

- Route 3 Pupils undertake tasks to EMBED, DEMONSTRATE, and APPLY opportunities within the context of the topics taught.
- 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.
- 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- Skills and Knowledge are taught from National Curriculum levels to ensure progression is evident. We work from the pupil's individual starting point and look for progression through skills and additional knowledge.
- Real Life links Select and apply mathematical methods in a range of contexts
- Conceptual understanding of topics taught
- Procedural fluency Recall and embed knowledge of the prescribed content
- Problem solving and reasoning Interpret and analyse problems and generate strategies to solve them
- A spiralling curriculum allows for key skills to be revisited, gaps in knowledge to be addressed and learning to be embedded via a mastery approach.
- Content will differ per class to meet the individual needs of the pupils.
- Pupils are entered for qualifications that concretise the embedding of ambitious opportunities across a three-year period. Within this route, pupils will aspire to achieve at least an AQA Entry Level Certificate 3, AQA Functional Skills Level 1 / 2 and / or an AQA GCSE in Year 11.
- Suitability of qualifications will be determined on a case-by-case basis, informed by progress made during the fluency, reasoning and problem-solving stages.

# Skills and Knowledge Progression Year 7 & Year 8

# KNOWLEDGE

Pupils acquire knowledge in the following areas:

- Number
- Place value
- Addition and subtraction
- Multiplication and division
- Fractions
- Measurement
- Time
- Mass, capacity and temperature
- Length and height
- Money
- Position and direction
- Geometry
- 2D and 3D shapes
- Position and direction
- Statistics
- Tally charts, bar charts, pictograms and two-way tables
- SKILLS
  - 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.
  - 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 nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

# SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations

# Skills, Knowledge Progression and Destinations Year 9, Year 10 and Year 11 KNOWLEDGE

- Properties of number
- The four operations
- Ratio
- Money
- The calendar and time
- Measures and Geometry
- Statistics

### SKILLS

- Conceptual understanding
- Procedural fluency
- Problem solving
- Reasoning
- AO1 Recall and use knowledge of the prescribed content
- AO2 Select and apply mathematical methods in a range of contexts
- AO3 Interpret and analyse problems and generate strategies to solve them

### SPIRAL

- A spiralling curriculum ensures we can revisit key skills, address gaps in knowledge and explore via discovery-based learning.
- Create collaboratively
- sharing ideas, resources and skills
- Safely use equipment
- Share creations

# DESTINATION

 Pupils are entered for qualifications that concretise the embedding of ambitious opportunities across a three-year period. Within this route, pupils will aspire to achieve at least an AQA Entry Level Certificate 3, AQA Functional Skills Level 1 / 2 and / or an AQA GCSE in Year 11.