Biscovey Academy

Maths Curriculum

"Without mathematics, there's nothing you can do. Everything around you is mathematics. Everything around you is numbers."
Shakuntala Devi

Maths National Curriculum Guidance

The principal focus of mathematics teaching in lower key stage 2 is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value. This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers. At this stage, pupils should develop their ability to solve a range of problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number. By the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work. Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

The principal focus of mathematics teaching in upper key stage 2 is to ensure that pupils extend their understanding of the number system and place value to include larger integers. This should develop the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. At this stage, pupils should develop their ability to solve a wider range of problems, including increasingly complex properties of numbers and arithmetic, and problems demanding efficient written and mental methods of calculation. With this foundation in arithmetic, pupils are introduced to the language of algebra as a means for solving a variety of problems. Teaching in geometry and measures should consolidate and extend knowledge developed in number. Teaching should also ensure that pupils classify shapes with increasingly complex geometric properties and that they learn the vocabulary they need to describe them. By the end of year 6, pupils should be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages. Pupils should read, spell and pronounce mathematical vocabulary correctly.

Pupils should develop knowledge about –

Year 3:	Year 4:	Year 5:	Year 6:
Place Value,	Place Value	Place Value	Place Value
Addition and Subtraction,	Addition and Subtraction	Addition and Subtraction	The Four Operations
Multiplication and Division	Area	Multiplication and Division	Fractions
Length and Perimeter	Multiplication and Division	Fractions	Converting Units
Fractions	Length and Perimeter	Decimals and percentages	Ratio
Mass and Capacity	Fractions	Perimeter and Area	Algebra
Money	Decimals	Statistics	Decimals
Time	Money	Shape	Fractions, Decimals and Percentages
Shape	Time	Position and Direction	Area, Perimeter and Volume
Statistics	Shape	Decimals	Statistics
	Statistics	Negative Numbers	Shape
		Converting Units	Position and Direction
		Volume	

Biscovey Academy Maths Sequence of Learning - Year 3

Year 3 Autumn	Year 3 Spring	Year 3 Summer
Topics covered: Block 1: Place Value, Block 2: Addition and Subtraction, Block 3: Multiplication and Division A	**Topics covered:** Block 1: Multiplication and Division B Block 2: Length and Perimeter Block 3: Fractions A Block 4: Mass and Capacity	**Topics covered:** Block 1: Fractions B Block 2 Money Block 3: Time Block 4: Shape Block 5: Statistics

Block 1: Place Value
- Represent numbers to 100
- Partitioning numbers to 100
- Number line to 100
- 100s
- Represent numbers to 1000
- Partitioning numbers to 1000
- Flexible partitioning of numbers to 1000
- 100s, 10s and 1s
- Find 1, 10 or 100 more/less
- Number line to 1000
- Estimate on a number line to 1000
- Compare numbers to 1000
- Order numbers to 1000
- Count in 50s

Block 2: Addition and Subtraction
- Apply number binds within 10
- Add and subtract 1s
- Add and subtract 10s
- Add and subtract 100s
- Spot patterns
- Add ones across the 10
- Add 10s across 100
- Subtract 1s across a 10
- Subtract 10s across a 100
- Make connections
- Add two numbers – no exchange
- Subtract two numbers – no exchange
- Add two numbers across 10
- Add two numbers across 100
- Subtract two numbers across 10
- Subtract two numbers across 100
- Add two-digit and three-digit numbers
- Subtract a two-digit number from a three-digit number
- Complements to 100
- Estimate answers
- Inverse operations
- Make decisions

Block 1: Multiplication and Division B
- Multiples of 10
- Related calculations
- Reasoning about multiplication
- Multiply a two-digit number by a one-digit number – no exchange
- Multiply a two-digit number by a one-digit number – with exchange
- Link multiplication and division
- Divide a two-digit number by a one-digit number – no exchange
- Divide a two-digit number by a one-digit number (flexible partitioning)
- Divide a two digit number by a one-digit number (with remainders)
- Scaling
- How many ways?

Block 2: Length and Perimeter
- Measuring m and cm
- Measuring mm
- Measure in cm and mm
- m, cm and mm
- Equivalent length (m and cm)
- Equivalent length (mm and cm)
- Compare length
- Add length
- Subtract length
- What is perimeter?
- Measure perimeter
- Calculate perimeter

Block 3: Fractions A
- Understand the denominators of unit fractions
- Compare and order unit fractions
- Understand the numerator of non-unit fractions
- Understand the whole
- Compare and order non-unit fractions
- Fractions and scales
- Fractions on a number line

Block 1: Fractions B
- Add fractions
- Subtract fractions
- Partition the whole
- Unit fractions of a set of objects
- Non-unit fractions of a set of objects
- Reasoning with fractions of an amount

Block 2: Money
- Pounds and pence
- Convert pounds and pence
- Add money
- Subtract money
- Find change

Block 3: Time
- Roman numerals to 12
- Tell the time to five minutes
- Tell the time to the minute
- Read time on a digital clock
- Use am and pm
- Years, months and days
- Days and hours
- Hours and minutes – use start and end times
- Hours and minutes – use durations
- Minutes and seconds
- Units of time
- Solve problems with time

Block 4: Shape
- Turns and angles
- Right angles
- Compare angles
- Measure and draw accurately
- Horizontal and vertical
- Parallel and perpendicular
- Recognise and describe 2D shapes
- Draw polygons
- Recognise and describe 3D shapes
- Make 3D shapes

Block 3: Multiplication and Division A
- Multiplication equal groups
- Use arrays
- Multiples of two
- Multiples of 5 and 10
- Sharing and grouping
- Multiplying by 3
- Divide by 3
- The 3 times table
- Multiply by 4
- Divide by 4
- The 4 times table
- Multiply by 8
- Divide by 8
- The 8 times table
- The 2, 4 and 8 times table

- Count in fractions on a number line
- Equivalent fractions on a number line
- Equivalent fractions as bar models

Block 4: Mass and Capacity
- Use scales
- Measure mass in g
- Measure mass in kg and g
- Compare mass
- Add and subtract mass
- Measure capacity and volume in ml
- Measure capacity and volume in l and ml
- Equivalent capacities and volumes l and ml
- Compare capacity and volume
- Add and subtract capacity and volume

Block 5: Statistics
- Interpret pictograms
- Draw pictograms
- Interpret bar charts
- Draw bar charts
- Collect and represent data
- Two way tables

Biscovey Academy Maths Sequence of Learning - Year 4

Year 4 Autumn	*Year 4 Spring*	*Year 4 Summer*
Topics covered: **Block 1: Place Value** **Block 2: Addition and Subtraction** **Block 3: Area** **Block 4: Multiplication and Division A**	**Topics covered:** **Block 1: Multiplication and Division B** **Block 2: Length and Perimeter** **Block 3: Fractions A** **Block 4: Decimals**	**Topics covered:** **Block 1: Decimals B** **Block 2 Money** **Block 3: Time** **Block 4: Shape** **Block 5: Statistics**

Block 1: Place Value
- Represent numbers to 1000
- Partitioning numbers to 1000
- Number line to 1000
- 1000s
- Represent numbers to 10000
- Partitioning numbers to 10000
- Flexible partitioning of numbers to 10000
- Find 1, 10, 100 or 1000 more/less
- Number line to 10000
- Estimate on a number line to 10000
- Compare numbers to 10000
- Order numbers to 10000
- Roman numerals
- Round to the nearest 10
- Round to the nearest 100
- Round to the nearest 1000
- Round to the nearest 10, 100 and 1000

Block 2: Addition and Subtraction
- Add and subtract 1s, 10s, 100s and 1000s
- Add two four-digit numbers (no exchange)
- Add two four-digit numbers (one exchange)
- Add two four-digit numbers (more than one exchange)
- Subtract two four-digit numbers (no exchange)
- Subtract two four-digit numbers (one exchange)
- Subtract two four-digit numbers (more than one exchange)
- Efficient subtraction
- Estimate answers
- Checking strategies

Block 3: Area
- What is area?
- Count squares
- Make shapes
- Compare areas

Block 4: Multiplication and Division A
- Multiples of 3
- Multiply and divide by 6

Block 1: Multiplication and Division B
- Factor pairs
- Use factor pairs
- Multiply by 10
- Multiply by 100
- Divide by 10
- Divide by 100
- Related facts multiplication and division
- Informal written methods for multiplication
- Multiply a two-digit number by a one-digit number
- Multiply a three-digit number by a one-digit number
- Divide a two-digit number by a one-digit number (one)
- Divide a two-digit number by a one-digit number (two)
- Divide a three-digit number by a one-digit number
- Correspondence problems
- Efficient multiplication

Block 2: Length and Perimeter
- Measuring km and m
- Equivalent length (km and m)
- Perimeter on a grid
- Perimeter of a rectangle
- Perimeter of a rectangular shape
- Find missing lengths in a rectilinear shapes
- Calculate perimeter of rectilinear shapes
- Perimeter of regular polygons
- Perimeter of polygons

Block 3: Fractions A
- Understand the whole
- Count beyond one
- Partition a mixed number
- Number lines with mixed numbers
- Compare and order mixed numbers
- Understand improper fractions
- Convert mixed numbers to improper fractions
- Convert improper fractions to mixed numbers
- Equivalent fractions on a number line
- Equivalent fraction families
- Add two or more fractions

Block 1: Decimals B
- Make a whole with tenths
- Make a whole with hundredths
- Partition decimals
- Flexibly partition decimals
- Compare decimals
- Order decimals
- Round to the nearest whole number
- Halves and quarters as decimals

Block 2: Money
- Right money using decimals
- Convert between pounds and pence
- Compare amounts of money
- Estimate money
- Calculate with money
- Solve problems with money

Block 3: Time
- Years, months, weeks and days
- Hours minutes and seconds
- Convert between analogue and digital times
- Convert to the 24-hour clock
- Convert from the 24-hour clock

Block 4: Shape
- Understand angles as turns
- Identify angles
- Compare and order angles
- Triangles
- Quadrilaterals
- Polygons
- Lines of symmetry
- Complete asymmetric figure

Block 5: Statistics
- Interpret charts
- Comparison some and difference
- Interpret line graphs
- Draw line graphs

- The 6 times table and division facts
- Multiply and divide by 9
- The 9 times table and division facts
- The 3, 6 and 9 times tables
- Multiply and divide by 7
- The 7 times table and division facts
- The 11 times table and division facts
- The 12 times table and division facts
- Multiply by 1 and 0
- Divide a number by 1 and itself
- Multiply three numbers

- Add fractions and mixed numbers
- Subtract two fractions
- Subtract from whole amounts
- Subtract mixed numbers

Block 4: Decimals A
- Tenths as fractions
- Tenths as decimals
- Tenths on a place value chart
- Tenths on a number line
- Divide a one-digit number by 10
- Divide a two digit number by 10
- Hundredths as fractions
- Hundredths as decimals
- Hundredths on a plave value chart
- Divide a one or two-digit number by 100

- Position and direction
- Describe position using co-ordinates
- Plot co-ordinates
- Draw 2D shapes on a grid
- Translate on a grid
- Describe translation on a grid

Biscovey Academy Maths Sequence of Learning - Year 5

Year 5 Autumn	Year 5 Spring	Year 5 Summer
Topics covered: **Block 1: Place Value** **Block 2: Addition and Subtraction** **Block 3: Multiplication and Division A** **Block 4: Fractions A**	**Topics covered:** **Block 1: Multiplication and Division B** **Block 2: Fractions B** **Block 3: Decimals and percentages** **Block 4: Perimeter and Area** **Block 5: Statistics**	**Topics covered:** **Block 1: Shape** **Block 2 Position and Direction** **Block 3: Decimals** **Block 4: Negative Numbers** **Block 5: Converting Units** **Block 6: Volume**

Block 1: Place Value
- Roman numerals to 1000
- Numbers to 10,000
- Numbers to 100,000
- Numbers to 1,000,000
- Read and write numbers to 1,000,000
- Powers of 10
- 10, 100, 1,000, 10,000, 100,000 more or less
- Partitioning numbers to 1,000,000
- Number line to 1,000,000
- Compare and order numbers to 100,000
- Compare and order numbers to 1,000,000
- Round to the nearest 10, 100 or 1,000
- Round within 100,000
- Round within 1,000,000

Block 2: Addition and Subtraction
- Mental strategies
- Add whole numbers with more than four-digits
- Subtract whole numbers with more than four-digits
- Round to check answers
- Inverse operations (addition and subtraction)
- Multi-step addition and subtraction problems
- Find missing numbers

Block 3: Multiplication and Division A
- Multiples
- Common multiples
- Factors
- Common factors
- Prime numbers
- Square numbers
- Cube numbers
- Multiply by 10, 100 and 1000
- Divide by 10, 100 and 1000
- Multiples of 10, 100 and 1000

Block 4: Fractions A
- Find fractions equivalent to unit fractions

Block 1: Multiplication and Division B
- Multiply up to a four-digit number by a one-digit number
- Multiply a two-digit number by a two-digit number (area model)
- Multiply a two- digit number by a two-digit number
- Multiply a three-digit number by a two-digit number
- Multiply a four-digit number by a two-digit number
- Solve problems with multiplication
- Short division
- Divide a four-digit number by a one-digit number
- Divide with remainders
- Efficient division
- Solve problems with multiplication and division

Block 2: Fractions B
- Multiply a unit fraction by a integer
- Multiply a non-unit fraction by a integer
- Multiply a mined number by a integer
- Calculate a fraction of a quantity
- Fraction of an amount
- Find the whole
- Use fractions as operators

Block 3: Decimals and percentages
- Decimals up to 2dp
- Equivalent fractions and decimals (tenths)
- Equivalent fractions and decimals (hundredths)
- Equivalent fractions and decimals (thousandths as fractions)
- Thousandths as decimals
- Thousandths on a place value chart
- Order and compare decimals (same number of dp)
- Order and compare any decimals (with up to 3dp)
- Round to the nearest whole number
- Round to 1dp
- Understand percentages
- Percentages as fractions
- Percentages as decimals

Block 1: Shape
- Understand and use degrees
- Classify angles
- Estimate angles
- Measure angles up to 180 degrees
- Draw lines and angles accurately
- Calculate angles around a point
- Calculate angles on a straight line
- Length and angles in shapes
- Regular and irregular polygons
- 3D shapes

Block 2: Position and Direction
- Read and plot co-ordinates
- Problem solving with co-ordinates
- Translation
- Translation with co-ordinates
- Lines of symmetry
- Reflection in horizontal and vertical lines

Block 3: Decimals
- Use known facts to add and subtract decimals within 1
- Complements to 1
- Add and subtract decimals across 1
- Add decimals with the same number of decimal places
- Subtract decimals with the same number of decimal places
- Add decimals with different numbers of decimal places
- Subtract decimals with different numbers of decimal places
- Efficient strategies for adding and subtracting decimals
- Decimal sequences
- Multiply by 10, 100 and 1000
- Divide by 10, 100 and 1000
- Multiply and divide decimals by missing values

- Find fractions equivalent to non-unit fractions
- Recognise equivalent fractions
- Convert improper fractions to mixed numbers
- Convert mixed numbers to improper fractions
- Compare fractions less than 1
- Order fractions less than 1
- Compare and order fractions greater than 1
- Add and subtract fractions with the same denominator
- Add fractions within 1
- Add fractions with a total greater than 1
- Add to a mixed number
- Add two mixed numbers
- Subtract fractions
- Subtract from a mixed number
- Subtract from a mixed number (breaking the whole)
- Subtract two mixed numbers

- Equivalent fractions, decimals and percentages

Block 4: Perimeter and Area
- Perimeter of rectangles
- Perimeter of rectilinear shapes
- Perimeter of polygons
- Area of rectangles
- Area of compound shapes
- Estimate area

Block 5: Statistics
- Draw line graphs
- Read and interpret line graphs
- Read and interpret tables
- Two-way tables
- Read and interpret timetables

Block 4: Negative Numbers
- Understand negative numbers
- Count through zero in ones
- Count through zero in multiples
- Compare and order negative numbers
- Find the difference

Block 5: Converting Units
- kg and km
- mm and ml
- Convert units of length
- Convert between metric and imperial units
- Convert units of time
- Calculate using times tables

Block 6: Volume
- Cubic cm
- Compare volume
- Estimate volume
- Estimate capacity

Biscovey Academy Maths Sequence of Learning - Year 6

Year 6 Autumn	*Year 6 Spring*	*Year 6 Summer*
Topics covered: **Block 1: Place Value** **Block 2: The Four Operations** **Block 3: Fractions A** **Block 4: Fractions B** **Block 5: Converting Units**	**Topics covered:** **Block 1: Ratio** **Block 2: Algebra** **Block 3: Decimals** **Block 4: Fractions, Decimals and Percentages** **Block 5: Area, Perimeter and Volume** **Block 6: Statistics**	**Topics covered:** **Block 1: Shape** **Block 2 Position and Direction**

Block 1: Place Value
- Numbers to 1,000,000
- Numbers to 10,000,000
- Read and write numbers to 10,000,000
- Powers of 10
- Number line to 10,000,000
- Compare and order any integer
- Round any integer
- Negative numbers

Block 2: The four operations
- Add and subtract integers
- Common factors
- Common multiples
- Rules of divisibility
- Primes to 100
- Square and cube numbers
- Multiply up to four-digit numbers by a two-digit number
- Solve problems using multiplication
- Short division
- Division using factors
- Introduction to long division
- Long division with remainders
- Solve problems with division
- Solve multi-step problems
- Order of operations
- Mental calculations and estimation
- Reason from known facts

Block 3: Fractions A
- Equivalent fractions and simplifying
- Equivalent fractions on a number line
- Compare and order (denominator)
- Compare and order (numerator)
- Add and subtract simple fractions
- Add and subtract any two fractions
- Add mixed numbers
- Subtract mixed numbers
- Multi-step problems

Block 1: Ratio
- Add or multiply
- Use ratio language
- Introduction to the ratio symbol
- Ratio and fractions
- Scale drawing
- Use scale factors
- Similar shapes
- Ratio problems
- Proportion problems
- Recipes

Block 2: Algebra
- One-step function machines
- Two-step function machines
- Form expressions
- Substitution
- Formula
- Form equations
- Solve one-step equations
- Solve two-step equations
- Find pairs of values
- Solve problems with two unknowns

Block 3: Decimals
- Place value within 1
- Place value integers and decimals
- Round decimals
- Add and subtract decimals
- Multiply by 10, 100 and 1000
- Divide by 10, 100 and 1000
- Multiply decimals by integers
- Divide decimals by integers
- Multiply and divide decimals in context

Block 4: Fractions, Decimals and Percentages
- Decimal and fraction equivalence
- Fractions as division
- Understand percentages

Block 1: Shape
- Measure and classify angles
- Calculate angles
- Vertically opposite angles
- Angles in a triangle
- Angles in a triangle (special cases)
- Angles in a triangle (missing angles)
- Angles in a quadrilateral
- Angles in a polygon
- Circles
- Draw shapes accurately
- Nets of 3D shapes

Block 2: Position and Direction
- The first quadrant
- Read and plot points in four quadrants
- Solve problems with co-ordinates
- Translations
- Reflections

Block 4: Fractions B
- Multiply fractions by integers
- Multiply fractions by fractions
- Divide a fraction by an integer
- Divide any fraction by an integer
- Mixed questions with fractions
- Fractions of an amount
- Fractions of an amount (find the whole)

Block 5: Converting Units
- Metric measures
- Convert metric measures
- Calculate with metric measures
- Miles and km
- Imperial measures

- Fractions to percentages
- Equivalent fractions, decimals and percentages
- Order fractions, decimals and percentages
- Percentage of an amount (one step)
- Percentage of an amount (multi step)
- Percentages (missing values)

Block 5: Area, Perimeter and Volume
- Shapes (same area)
- Area and perimeter
- Area of a triangle (counting squares)
- Area of a right angle triangle
- Area of any triangle
- Area of a parallelogram
- Volume (counting cubes)
- Volume of a cuboid

Block 6: Statistics
- Line graphs
- Dual bar charts
- Read and interpret bar charts
- Pie charts with percentages
- Draw pie charts
- The mean