Marshalls Park Academy - Curriculum Overview

Subject: Mathematics   Year Group: 7

In Year 7, the curriculum supports students become fluent in the fundamentals of mathematics. Students develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. They also develop problem solving skills.

TERM 1	TERM 2	TERM 3
CONTENT/SKILLS	CONTENT/SKILLS	CONTENT/SKILLS

TERM 1 — CONTENT/SKILLS

Analysing and displaying data
- Find the mode, median and range for a set of data
- Find information from tables and diagrams
- Display data using tally charts, tables, bar charts and bar-line charts
- Interpret simple charts for grouped data
- Find the modal class for grouped data
- Calculate the mean of a set of data
- Compare sets of data using their ranges and averages
- Understand and draw line graphs
- Understand and draw dual and compound bar charts

Number skills
- Use the priority of operations, including brackets
- Use multiplication facts up to 10 × 10 and the laws of arithmetic to do mental multiplication and division
- Multiply by multiples of 10, 100 and 1000
- Make an estimate to check an answer
- Use inverse operations to check an answer
- Use a written method to add and subtract whole numbers of any size

TERM 2 — CONTENT/SKILLS

Fractions and percentages
- Use fraction notation to describe parts of a shape
- Compare simple fractions
- Use a diagram to compare two or more simple fractions
- Order fractions
- Change an improper fraction to a mixed number
- Identify equivalent fractions
- Simplify fractions by dividing numerator and denominator by common factors
- Add and subtract simple fractions
- Calculate simple fractions of quantities
- Work with equivalent fractions and decimals
- Write one quantity as a fraction of another
- Understand percentage as 'the number of parts per 100'
- Convert a percentage to a fraction or decimal
- Work with equivalent percentages, fractions and decimals
- Use different strategies to calculate with percentages
- Express one quantity as a percentage of another

Probability
- Use the language of probability
- Use a probability scale with words
- Understand the probability scale from 0 to 1

TERM 3 — CONTENT/SKILLS

Sequences and graphs
- Recognise, describe and continue number sequences
- Generate terms of a sequence using a one-step term-to-term rule
- Find missing terms in a sequence
- Find patterns and rules in sequences
- Describe how a pattern sequence grows
- Write and use number sequences to model real-life problems
- Generate and plot coordinates from a rule
- Solve problems and spot patterns in coordinates
- Find the midpoint of a line segment
- Describe and continue special sequences
- Use the term-to-term rule to work out more terms in a sequence
- Recognise an arithmetic sequence and a geometric sequence
- Recognise, name and plot graphs parallel to the axes
- Recognise, name and plot the graphs of $y = x$ and $y = -x$
- Plot straight-line graphs using a table of values
- Draw graphs to represent relationships
- Generate terms of a sequence using a position-to-term rule

- Round whole numbers to the nearest 10 000, 100 000, 1 000 000.
- Use an estimate to check an answer to a multiplication
- Use a written method to multiply whole numbers
- Use a written method to divide whole numbers
- Use inverse operations to check an answer
- Round money to the nearest pound or penny
- Interpret the display on a calculator in different contexts
- Use a calculator to solve problems involving money and time
- Order positive and negative numbers
- Add and subtract positive and negative numbers
- Begin to multiply with negative numbers
- Find all the factor pairs for any whole number
- Identify common factors, the highest common factor and the lowest common multiple
- Recognise prime numbers
- Recognise square numbers
- Use a calculator to find squares and square roots
- Use the priority of operations, including powers
- Use index form for powers
- Do mental calculations with squares and square roots

Expressions, functions and formulae

- Find outputs of simple functions written in words and using symbols
- Describe simple functions in words
- Use letters to represent unknowns in algebraic expressions

- Identify outcomes and equally likely outcomes
- Calculate probabilities
- Use a probability scale from 0 to 1
- Calculate more complex probabilities
- Calculate the probability of an event *not* happening
- Record data from a simple experiment
- Estimate probability based on experimental data
- Make conclusions based on the results of an experiment
- Use probability to estimate the expected number of times an outcome will occur
- Apply probabilities from experimental data in simple situations

Ratio and proportion

- Use direct proportion in simple contexts
- Solve simple problems involving direct proportion
- Use the unitary method to solve simple word problems involving direct proportion
- Use ratio notation
- Reduce a ratio to its simplest form
- Reduce a three-part ratio to its simplest form by cancelling
- Find equivalent ratios
- Divide a quantity into two parts in a given ratio
- Solve word problems involving ratio
- Use ratios and measures
- Use fractions to describe and compare proportions
- Understand and use the relationship between fractions, ratio and proportion
- Use percentages to describe proportions
- Use percentages to compare simple proportions
- Understand and use the relationship between percentages, ratio and proportion

- Use linear expressions to describe the nth term of simple sequences

Transformations

- Identify congruent shapes
- Use the language of enlargement
- Enlarge shapes using given scale factors
- Work out the scale factor given an object and its image
- Recognise reflection and rotational symmetry in 2D shapes
- Solve problems using line symmetry
- Identify all the symmetries of 2D shapes
- Identify reflection symmetry in 3D shapes
- Recognise and carry out reflections in a mirror line
- Reflect a shape on a coordinate grid
- Describe a reflection on a coordinate grid
- Describe and carry out rotations on a coordinate grid
- Translate 2D shapes
- Transform 2D shapes by combinations of rotations, reflections and translations

YEAR 8 INTRODUCTION

Number
Area
Volume
Statistics and graphs

- Simplify linear algebraic expressions by collecting like terms
- Multiply and divide algebraic terms
- Use brackets with numbers and letters
- Write expressions from word descriptions using addition, subtraction, multiplication and division
- Write expressions to represent function machines
- Substitute positive whole numbers into simple formulae written in words
- Substitute positive whole numbers into formulae written with letters
- Write simple formulae in words
- Write simple formulae using letter symbols
- Identify formulae and functions
- Identify the unknowns in a formula and a function

Decimals and measures

- Measure and draw lines to the nearest millimetre
- Write decimals in order of size
- Round decimals to the nearest whole number and to 1 decimal place
- Round decimals to make estimates and approximations of calculations
- Multiply and divide by 10, 100 and 1000
- Convert measurements into the same units to compare them
- Solve simple problems involving units of measurement in the context of length, mass and capacity
- Convert between metric units of length, mass and capacity
- Use scale diagrams
- Read scales

Lines and angles

- Use a protractor to measure and draw angles
- Recognise acute, obtuse and reflex angles
- Estimate the size of angles
- Describe and label lines, angles and triangles
- Identify angle and side properties of triangles
- Use a ruler and protractor to draw triangles accurately
- Use the rules for angles on a straight line, angles around a point and vertically opposite angles
- Solve problems involving angles
- Use the rule for the sum of angles in a triangle
- Calculate interior and exterior angles
- Solve angle problems involving triangles
- Identify and name types of quadrilaterals
- Use the rule for the sum of angles in a quadrilateral
- Solve angle problems involving quadrilaterals

- Write decimal measures as two related units of measure
- Interpret metric measures displayed on a calculator
- Multiply decimals by multiples of 10, 100 and 1000
- Multiply decimals mentally
- Check a result by considering whether it is of the right order of magnitude
- Understand where to position the decimal point by considering equivalent calculations
- Add and subtract decimals
- Multiply and divide decimals by single-digit whole numbers
- Divide numbers that give decimal answers
- Work out the perimeters of composite shapes and polygons
- Solve perimeter problems
- Find areas of irregular shapes by counting squares
- Calculate the areas of shapes made from rectangles
- Solve problems involving area
- Choose suitable units to measure length and area
- Use units of measure to solve problems
- Use metric and imperial units

KEY ASSESSMENTS	KEY ASSESSMENTS	KEY ASSESSMENTS
HALF TERM 1 Baseline assessment Unit assessment HALF TERM 2 End of Term 1 assessment	HALF TERM 3 Unit assessment HALF TERM 4 End of Term 2 assessment	HALF TERM 5 Unit assessment HALF TERM 6 End of Year assessment

Students have access to Mathswatch revision resources and supporting video clips. https://vle.mathswatch.co.uk/vle/

Edexcel Key Stage 3 revision guides are available to support learning.

Students can obtain further revision resources from www.mathsgenie.co.uk and www.corbettmaths.com