

# **Curriculum Overview**

## Maths Year 8

	<u>HT1</u>	<u>HT2</u>	<u>HT3</u>	<u>HT4</u>	<u>HT5</u>	<u>HT6</u>
<u>Topics</u>	<ul> <li>Ratio and scales</li> <li>Multiplicative change</li> <li>Multiplying and dividing fractions.</li> </ul>	Working in the Cartesian place     Representing data.     Tables and probability	Brackets, equations and inequalities. Sequences Indices Fractions and percentages	<ul> <li>Fraction and percentages</li> <li>Standard index form.</li> </ul>	<ul> <li>Angles in parallel lines and polygons.</li> <li>Area of trapezia and circle</li> <li>Line of symmetry and reflection.</li> </ul>	<ul> <li>The data handling cycle.</li> <li>Measure of location.</li> <li>Number sense.</li> </ul>

# Kev skills and knowledge

#### Ratio and scales-

Understand the meaning and representation of ratio. Understand and use ratio notation.

Solve problems involving ratios of the form 1:n(or n:1) Divide in a given ratio. Express ratios in their simplest integer form. Compare ratios and fractions.

Understand pi as a ratio.

Multiplicative change -Solve problems involving

direct proportion. Explore conversion graphs. Convert between currencies. Explore relationships between similar shapes. Understand scale factors as multiplicative representations. Draw and interpret scale diagrams. Interpret maps using scale

factors and ratios Multiplying and dividing fractions-

Represent multiplication of fractions. Multiply a fraction by an

integer. Find the product of a pair of unit fractions

Divide an integer/ fraction by a fraction or unit fraction. Understand and use reciprocal. Divide any pair of fractions.

Multiply and divide improper and mixed fractions.

#### Working in the Cartesian place -

Work with coordinates in all four quadrants. Identify and draw lines that are parallel to the axes. Recognise and use the line y=x. Recognise and use lines of the form v=kx. Link v=kx to direct proportion problems. Recognise and use lines of the form y=x+a Explore graphs with

negative gradients. Representing data-

Draw and interpret scatter graphs. Understand and describe linear correlation. Draw and use line of best

Identify non linear relationships. Identify different types of data

Read and interpret unarouped frequency tables.

Read and interpret arouped frequency tables

Tables and probability -

Construct sample space for one or more events. Find probabilities from a sample space. Find probabilities from two way tables. Find probabilities from Venn diagrams. Use the product rule for finding the total number of possible outcomes.

#### Brackets, equations and inequalities-

Form algebraic expressions Use directed number with algebra. Multiply out a single bracket. Factorise into a single bracket. Expand multiple single brackets And simplify.

Sequences -

Generate sequences given a rule in words Generate sequence given a simple algebraic

Generate sequences given a complex algebraic rule.

#### Indices-

Adding and subtracting expressions with indices. Simplifying algebraic expressions by multiplying indices. Using the addition law for indices. Using the addition and subtraction law for indices.

#### Fractions and percentages-

Convert fluently between key fraction decimals and percentages. Calculate key fractions. decimals and percentages of an amount without a calculator. Calculate fractions, decimals and percentages of an amount using calculator methods. Convert between decimals and

#### Fraction and percentages-

Percentages decrease with a multiplier. Calculate percentages increase and decrease using a multiplier. Express one number as a fraction or a percentages of another without a calculator.

#### Standard index form-

standard form

Investigate positive powers of 10. Work with numbers greater than 1 in standard form Work with numbers between 1 and 1 in

#### Angles in parallel lines and polygons.

Understand and use basic angles rules and notation. Investigate angles between parallel lines and transversal Identify and calculate with alternate and corresponding angles. Area of trapezia and

### circle

Calculate the area of triangles, rectangle and parallelograms. Calculate the area of a trapezium Calculate the perimeter and area of compound shapes.

#### Line of symmetry and reflection.

Recognise symmetry Reflect a shape in Horizontal or vertical line. Reflect a shape in a diagonal line.

#### The data handling cvcle.

Set up a statistical enauiry Design and criticise auestions Draw and interpret multiple bar charts

#### Measure of location.

Understand and use the mean, median and mode.

Choose the most appropriate averages

### Number sense.

Round numbers to the power of 10 and 1 significant figure. Round numbers to a given number of decimal places. Estimate the answer to a calculation Calculate with money.

	percentages greater than 100%		

Assessment Opportunities (F&S)	Self assessment Peer Assessment Teacher Feedback Improvement Time	Self assessment Peer Assessment Teacher Feedback Improvement Time	Self assessment Peer Assessment Teacher Feedback Improvement Time	Self assessment Peer Assessment Teacher Feedback Improvement Time	Self assessment Peer Assessment Teacher Feedback Improvement Time	Self assessment Peer Assessment Teacher Feedback Improvement Time
CEIAG	Finance advisors use ratios to evaluate the amount of money earned compared to how much can be borrowed for things such as mortgages and car loans. This is called a 'loan-to-value' ratio.	Sports reporters and analysts use data and probability to evaluate a team's performance and create an opinion on who is likely to win a sports match.	A car mechanic aims to reduce rates of gas consumption which are fractions. A mechanic's tools are measured in fractions of inches or metres.	Scientists use standard form when working with the speed of light and distances between galaxies.	Professional painters use surface area to determine how much paint they will need for a project. They calculate the surface area subtracting any windows or doors that they aren't planning to paint.	Sociologists study the behaviour of societies in order to assist public leaders in making decisions that benefit society. They collect data and analyse it to use in many areas of society, including health, education, and racial relations.
<u>Cultural</u> <u>Capital</u>	Personal finance lessons that investigate earnings required for different value properties. Fractions in shopping tasks to look at offers in store and online. Using scale factors in drawing local landmarks. KS3 RATIO AND PROPORTION COOKING CHALLENGE Looking at ratio as a way of sharing equally or unequally	Use games to work out probability. Data collection activities and producing resulting tables and charts.	Create and evaluate formulas that relate to real life (e.g. converting currency or temperature and calculating bills) Using sequences to read timetables.	Using fractions and percentages in finance - VAT, percentage discounts, Look at percentages and fractions by considering different groups within society e.g. percentage of the population that follows a religion, has a disability etc. Develop financial skills of percentage profit and loss	Investigate surface area of packaging including calculating printing costs. Measuring large areas to calculate cost of redecoration. Using symmetry to plan construction of models.	Practicing reading/ following multiple instructions Consider historical data e.g. birth rates and population SCHOOL TRIP- EYAM PLAGUE VILLAGE after working with the data
<u>Cross-</u> <u>Curricular</u> <u>Links</u>	Geography - Scale Factors in map reading and route planning.	Science - Recording data and evaluating findings.	Food Tech - Using sequences to plan cooking times. Life Skills - Using sequences to plan	Science - Using percentages in chemistry equations.	Motor Vehicle - Using perimeter and area to ensure the correct size parts are ordered.	Link to history- displaying historical data

journeys on public Food tech - Using Construction - Using angles to ensure that ingredients. buildings are level.
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