

Co-op Academy North Manchester - Year 8 Maths Curriculum

Y8	HT1	HT2	HT3	HT4	HT5	HT6
Topic(s)	1) Sequences 2) Forming and solving equations 3) Forming and solving inequalities	4) Linear Graphs 5) Accuracy and estimation	6) Ratio review 7) Real life graphs 8) Direct and inverse proportion	9) Univariate data 10) Bivariate data	11) Angles in polygons 12) Bearings	13) Circles 14) Volume and surface areas of prisms
Substantive Knowledge (Know That...)	<ul style="list-style-type: none"> <li>- To know that we can have equality in algebraic relationships.</li> <li>- To know that there can be algebraic relationships embedded within various contexts.</li> <li>- To know that there are different representations of inequalities.</li> <li>- To know that inequalities are representations of numerical relationships from a range of contexts.</li> </ul>	<ul style="list-style-type: none"> <li>- To know that a linear relationship can be recognised from a constant rate of change in the coordinates.</li> <li>- To know that a linear relationship can be described using algebra in the form <math>y=mx+c</math>.</li> <li>- To know that rounding is a method of approximation.</li> </ul>	<ul style="list-style-type: none"> <li>- To know that there is a relationship between ratio and other proportional descriptors.</li> <li>- To know that we can represent change graphically.</li> <li>- To know that rate is one measure per another.</li> <li>- To know that some terms have multiplicative relationships.</li> <li>- To know that some terms have inversely proportional relationships.</li> </ul>	<ul style="list-style-type: none"> <li>- To know that there are different types of data.</li> <li>- To know that the mean is a way of sharing out equally.</li> <li>- To know that the mean, median and mode are measures of average.</li> <li>- To know that the range is a measure of spread.</li> <li>- To know that in bivariate data each data entry has 2 connected values.</li> <li>- To know that scatter graphs help make predictions about hypothetical data.</li> </ul>	<ul style="list-style-type: none"> <li>- To know that a polygon is a flat two-dimensional shape with straight sides that are fully closed.</li> <li>- To know that an interior angle in a polygon is formed by two adjacent sides.</li> <li>- To know that an exterior angle is an angle formed by one side of a polygon and a line extended from an adjacent side.</li> <li>- To know that bearings have three figures and are measured clockwise from North.</li> <li>- To know that bearings can form part of a position description.</li> </ul>	<ul style="list-style-type: none"> <li>- To know that Pi is the ratio between diameter and circumference.</li> <li>- To know that Pi is the ratio between radius squared and circumference.</li> <li>- To know that solid shapes have three dimensions.</li> <li>- To know that a prism has a constant cross-section.</li> <li>- To know that volume is a measurement of the three-dimensional space inside a shape.</li> </ul>
Disciplinary Knowledge (Know How...)	<ul style="list-style-type: none"> <li>- To know how the nth term formula connects to the common difference and 0th term.</li> <li>- To know how to use the term-to-term rule and the position-to-term rule to generate a sequence.</li> </ul>	<ul style="list-style-type: none"> <li>- To know how to identify the gradient of a line from its graph and from a set of coordinates.</li> <li>- To know how to identify the equation of a line and draw a line from its</li> </ul>	<ul style="list-style-type: none"> <li>- To know how to use models and equivalence to solve ratio problems.</li> <li>- To know how to interpret and express graphical linear and piecewise relationships.</li> <li>- To know how to</li> </ul>	<ul style="list-style-type: none"> <li>- To know how to interpret and represent data in different ways.</li> <li>- To know how to use the mean to solve problems.</li> <li>- To know how to find averages from different representations of data.</li> </ul>	<ul style="list-style-type: none"> <li>- To know how triangles can be used to find the sum of interior angles of polygons.</li> <li>- To know how to find missing angles in polygons.</li> <li>- To know how to find</li> </ul>	<ul style="list-style-type: none"> <li>- To know how to calculate circumference and arc lengths in perimeter problems.</li> <li>- To know how to work out area of circles, sectors and compound</li> </ul>

Co-op Academy North Manchester - Year 8 Maths Curriculum

	<ul style="list-style-type: none"> <li>- To know how to find the nth term of linear and non-linear sequences.</li> <li>- To know how to solve simple linear equations.</li> <li>- To know how to form and solve linear equations with unknowns on both sides.</li> <li>- To know how to test and solve linear inequalities.</li> <li>- To know how to solve inequalities including with unknowns on both sides.</li> </ul>	<p>equation.</p> <ul style="list-style-type: none"> <li>- To know how to round to decimal places and 'to the nearest' given value.</li> <li>- To know how to identify significant figures.</li> <li>- To know how to round to a given number of significant figures.</li> </ul>	<p>contextualise speed and compare it in different measures.</p> <ul style="list-style-type: none"> <li>- To know how to read and draw displacement-time graphs.</li> <li>- To know how to use scale factor and constant of proportionality independently to find missing values in directly proportional relationships.</li> <li>- To know how to identify the scale factor and constant of proportionality for any two directly proportional measures (including non-integer values).</li> <li>- To know how to find missing values from directly and inversely proportional relationships, and state the constant of proportionality in each case.</li> <li>- To know how to use algebraic notation to describe directly and inversely proportional relationships.</li> </ul>	<ul style="list-style-type: none"> <li>- To know how to represent bivariate data with a scatter diagram, and to read data from a scatter diagram.</li> <li>- To know how to identify trends in bivariate data and use mathematical language to describe trends.</li> <li>- To know how to find averages from scatter graphs.</li> </ul>	<p>the sizes of missing angles in polygons, including interior and exterior angles of regular shapes.</p> <ul style="list-style-type: none"> <li>- To know how to use angle notation conventions to describe angles.</li> <li>- To know how to describe a position using a bearing and direction.</li> <li>- To know how to find missing angle problems involving bearings.</li> <li>- To know how bearing conventions relate to prior knowledge of angles.</li> </ul>	<p>shapes.</p> <ul style="list-style-type: none"> <li>- To know how to find the surface area of a cube and cuboid.</li> <li>- To know how to calculate the surface area of a prism.</li> <li>- To know how to calculate the volume of prisms.</li> </ul>
Key Concepts	Equations and inequalities	Graphical representations	Proportional reasoning	Representations and reasoning with data	Angles	Area, volume and surface area
Assessment	Topic assessments at the end of each topic with individualised Progress Tasks following each assessment. Academy End of Year Assessment completed in HT6.					

## Co-op Academy North Manchester - Year 8 Maths Curriculum

Homework	Key Skills Homework set each week.					
Wider reading	'The Penguin Dictionary of Curious and Interesting Numbers' - David Wells	'The Indisputable Existence of Santa Claus' - Dr Hannah Fry and Dr Thomas Oleron Evans	'The Number Devil' - Hans Magnus Enzensberger	'The Ten Greatest Maths Puzzles of All Time' - Marcel Danesi	'The Thrilling Adventures of Lovelace and Babbage' - Sydney Padua	'Snowflake, Seashell, Star' - Alex Bellos
How to help at home	<p>The two sites below are fantastic resources for revision:</p> <ul style="list-style-type: none"> <li>- CorbettMaths is useful for topic-based practice, with videos, worksheets and exam-style questions for each topic - <a href="https://corbettmaths.com/contents/">https://corbettmaths.com/contents/</a></li> <li>- BBC Bitesize is another useful website that features clear examples, questions to try and also interactive games related to the given topic - <a href="https://www.bbc.co.uk/bitesize/subjects/zqhs34j">https://www.bbc.co.uk/bitesize/subjects/zqhs34j</a></li> <li>- Oak Academy features more 'lesson-style' topic resources with a video, followed by some questions to try and a quiz that is marked on the site - <a href="https://classroom.thenational.academy/subjects-by-key-stage/key-stage-3/subjects/math">https://classroom.thenational.academy/subjects-by-key-stage/key-stage-3/subjects/math</a></li> </ul>					