Year 8 Scheme of Learning

MODULE 1

Bishop Chadwick
Catholic Education Trust

Bespoke revision

Perimeter, area & volume

Bounce back: Constructions & Loci

Quadratic equations

Compound measures

Percentages, including interest

Year 11

Indices & standard form

Bounce back: Quadratic equations

Constructions & Loci

Probability & diagrams

Perimeter, area & volume

Averages

Angles & Transformations

Straight line & other graphs

Expressions & equations

Graphs

Year 10

Pythagoras & Trigonometry

Fractions & percentages

Sequences

Pythagoras & Trigonometry

Ratio & proportion

Data handling

Handling data & measures of location

Angles in parallel lines, lines & polygons

Fractions & percentages

Algebra: including substituting & brackets

Year 9

Sequences & Indices

Number; including index laws

Area of trapezia & circles; Line symmetry & reflections

Standard form & number sense

Sets & probability

Proof

Multiplicative reasoning

Working in Cartesian plane

Brackets, equations & inequalities

Ratio & proportion

Year 8

Fraction arithmetic

Geometric reasoning

Prime numbers

Ratio & scale

Multiplying & dividing fractions

Representing data, tables & probability

Operations with equations & directed numbers

Fraction & % of amounts

Fractions, decimals & percentages

Use and understand algebraic notation

Place value and ordering, including decimals

Year 7

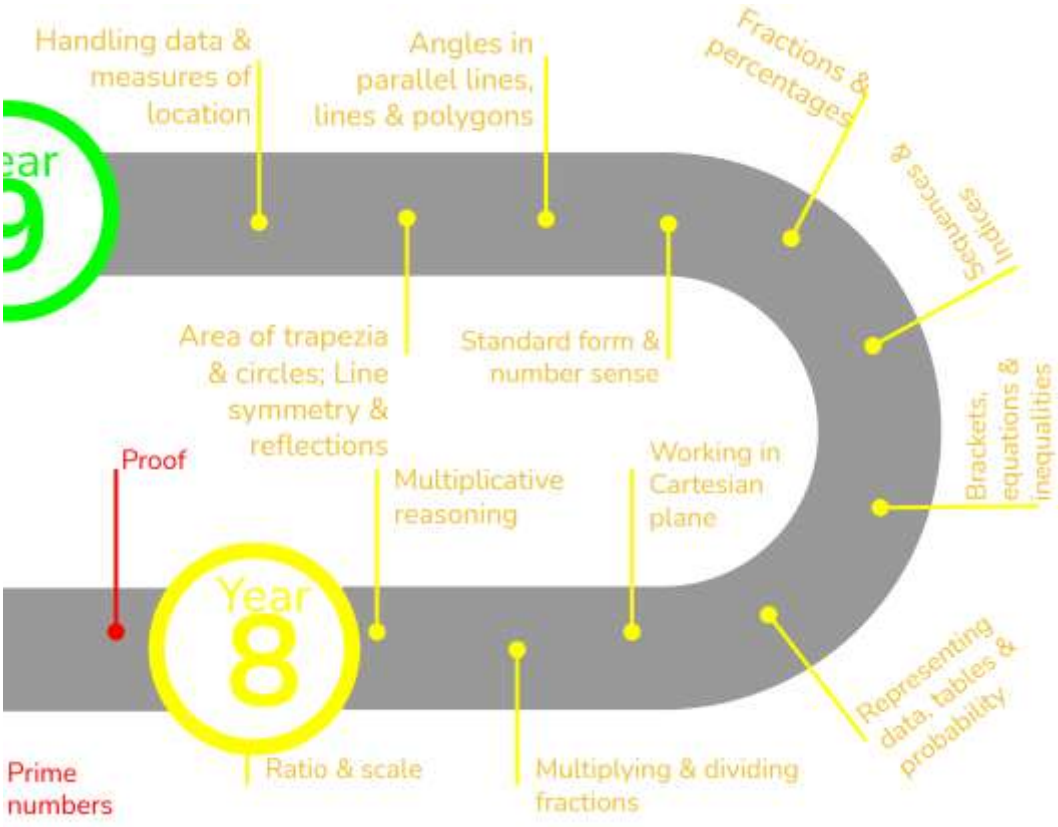
Problem solving with four main operations

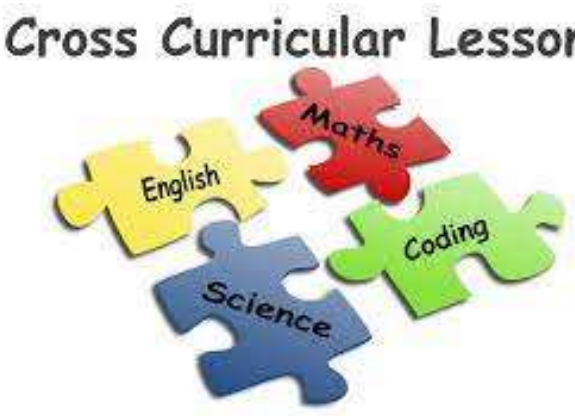
Equality & Equivalence - solving equations

Sequences

Core/Foundation 2021/22 *(includes Y11 bounce back)*

This is what your child will be taught in Year 8 in MATHS

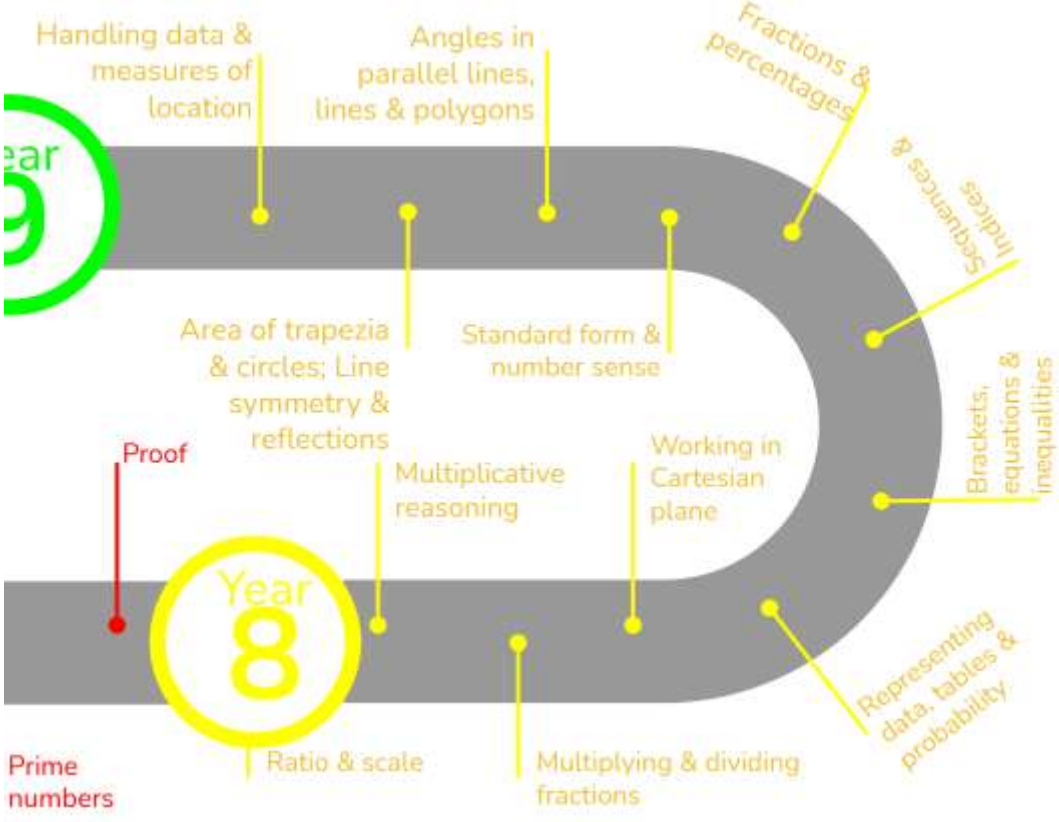




They will have also have specific lessons linked to other subjects and a diet of retrieval built into their lessons

In Year 8 Module 1 your child will study the following topics:

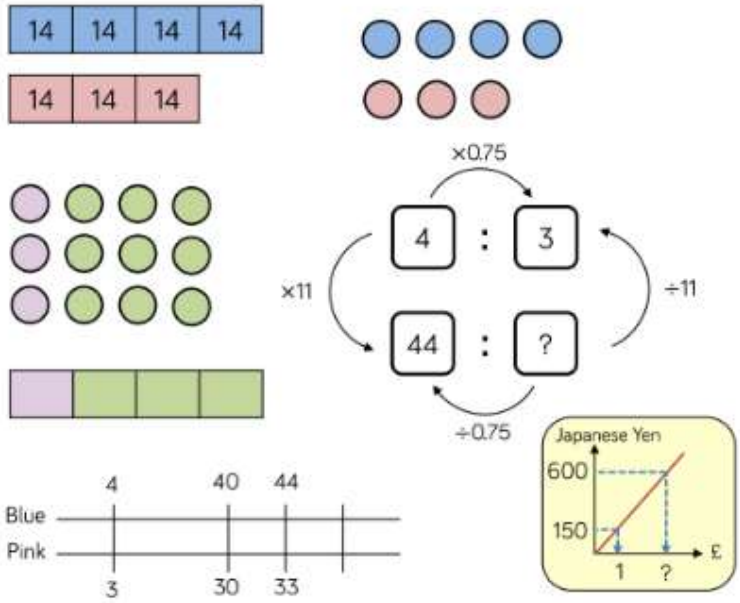
- Ratio & scale
- Multiplicative change
- Multiplying & dividing fractions
- Working in the Cartesian plane
- Representing data
- Tables & probability



We use the White Rose Maths scheme of learning in Year 8 as our feeder primary schools follow this scheme. It also helps with the transition to secondary school as pupils are familiar with the resources.

Unit 1: Ratio & Scale

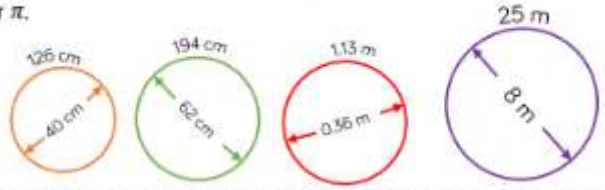
Key Representations



Key vocabulary

Ratio	Equal parts	For every
Proportion	Relationship	

The ratio of diameter : circumference in the form $1 : n$ of a circle is constant. It is $1 : \pi$. Use the circles given to find an approximation for π.



Key vocabulary

Perimeter	Circumference	Constant
Pi (π)	Regular	Diameter

Ratio and Scale

Small Steps

- Understand the meaning and representation of ratio
- Understand and use ratio notation
- Solve problems involving ratios of the form $1 : n$ (or $n : 1$)
- Solve proportional problems involving the ratio $m : n$
- Divide a value into a given ratio
- Express ratios in their simplest integer form
- Express ratios in the form $1 : n$ (H)
- Compare ratios and related fractions
- Understand π as the ratio between diameter and circumference
- Understand gradient of a line as a ratio (H)

(H) denotes higher strand and not necessarily content for Higher Tier GCSE

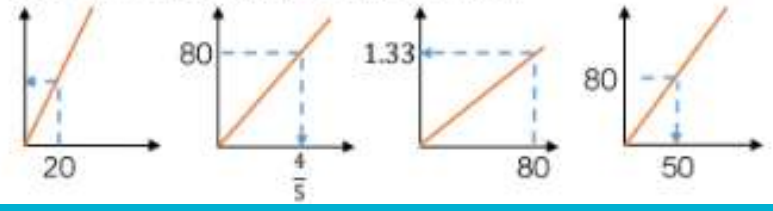
Multiplicative Change

Small Steps

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

Exemplar Questions

Match the conversion graph to the statement.



The scale of this map is 1 : 1250
Each square is 1 cm by 1 cm.
Which is the shortest route for the boy to cycle to his elephant?

Unit 2: Multiplicative Change

Key vocabulary

Rate	Directly proportional	Origin
Constant	Relationship	Linear

Key vocabulary

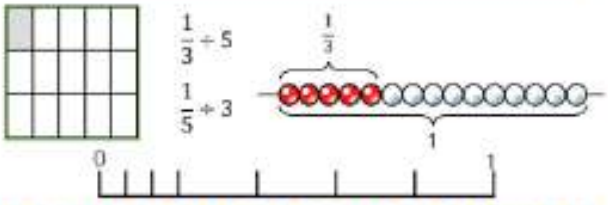
Exchange rate	Currency	Conversion
Estimate	Sterling	

Product of unit fractions

Whitney has worked out $\frac{1}{3} \times \frac{1}{5} = \frac{1}{15}$

How do the following link to her calculation?

A third of one fifth is three times smaller than one fifth.



Improper and mixed fractions

Work out the following multiplications.

- $2\frac{1}{4} \times 3$
- $2\frac{1}{4} \times 4$
- $5 \times 2\frac{1}{4}$
- $5\frac{5}{8} \times 1\frac{7}{6}$
- $5\frac{5}{8} \times 1\frac{5}{6}$
- $5\frac{5}{8} \times 1\frac{5}{7}$

Multiplying & Dividing Fractions

Small Steps

- Represent multiplication of fractions
- Multiply a fraction by an integer
- Find the product of a pair of unit fractions
- Find the product of a pair of any fractions
- Divide an integer by a fraction
- Divide a fraction by a unit fraction
- Understand and use the reciprocal
- Divide any pair of fractions

Unit 3: Multiplying & dividing fractions

Key vocabulary

Unit fraction	Numerator	Denominator
Product	Repeated addition	

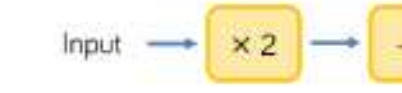
Unit 4:Working in the Cartesian plane

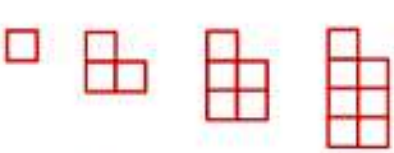
Working in the Cartesian Plane

Small Steps

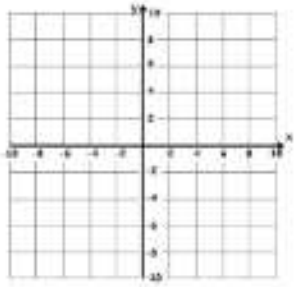
- Work with coordinates in all four quadrants
- Identify and draw lines that are parallel to the axes
- Recognise and use the line $y = x$
- Recognise and use lines of the form $y = kx$
- Link $y = kx$ to direct proportion problems
- **Explore the gradient of the line $y = kx$**
- Recognise and use lines of the form $y = x + a$
- Explore graphs with negative gradient $(y = -kx, y = a - x, x + y = a)$
- Link graphs to linear sequences
- Plot graphs of the form $y = mx + c$
- **Explore non-linear graphs**
- **Find the midpoint of a line segment**

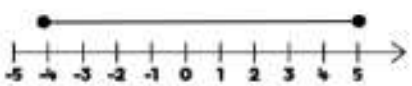
Key Representations





x	1	2	3	4
y	1	3	5	7





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Representing Data

Small Steps

- Draw and interpret scatter graphs
- Understand and describe linear correlation
- Draw and use line of best fit (1) & (2)
- Identify non-linear relationships
- Identify different types of data
- Read and interpret ungrouped frequency tables
- Read and interpret grouped frequency tables
- Represent grouped discrete data
- Represent continuous data grouped into equal classes
- Represent data in two-way tables

Draw and interpret scatter graphs

Key vocabulary

Variable	Relationship	Origin
Scale	Coordinate	Axis
Increase	Decrease	

Exemplar Questions

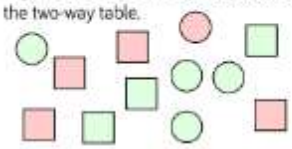
Sort the statements into discrete and continuous data.
Two of the statements don't belong in either category, why?

Discrete Data: E.g. Number of children on a bus	Continuous Data: E.g. Heights of children on a bus

Number of school buses
Speed of school buses
Age of a person
Make of mobile phone
Cost of apples
Favourite colour

Exemplar Questions

A game has circle and square pieces. Count the pieces and complete the two-way table.



	Squares	Circles
Green	3	
Red		

Unit 5: Representing data

Key vocabulary

Grouped	Frequency	Discrete
Class	Class Boundary	Estimate

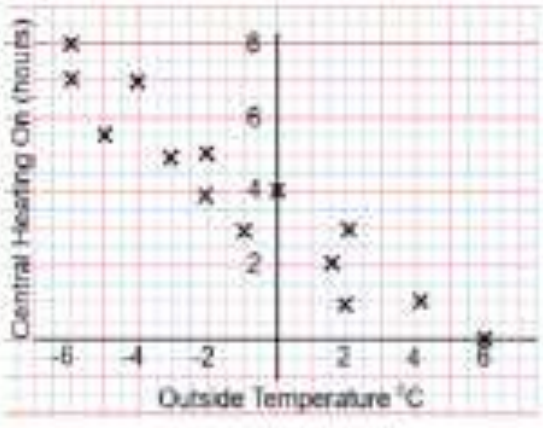
Key vocabulary

Grouped	Tally	Less than/Equal to
Greater than	Discrete	Continuous

Describe the correlation.

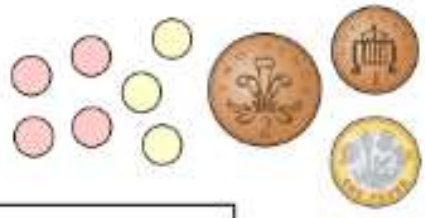
Explain why it's appropriate to draw a line of best fit on this graph.
Draw a line of best fit on the graph.

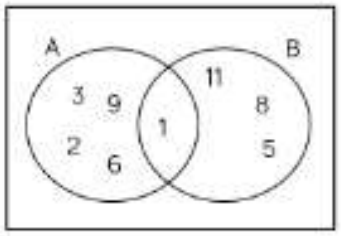
Use your line of best fit to estimate how long the central heating is on for when the outside temperature is 0.5°C



Key Representations

	Boys	Girls	Total
Year 8			
Year 9			
Total			





	H	T
H	HH	HT
T	TH	TT

Key vocabulary

Outcomes	Sample space	Set
Probability	Systematic	Chance

Constructing sample spaces

A spinner is spun and a fair die is rolled at the same time.
Complete the table listing all the possible outcomes.

	1	2	3	4	5	6
R	1R					
G		2G				
B						
Y						6Y

Tables and Probability

Small Steps

- Construct sample spaces for 1 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**

Unit 6: Tables and probability

We recommend pupils have a Casio scientific calculator.
The Casio featured is the one we use when demonstrating in lessons.

On our school website there is a calculation policy showing the methods we use for common operations. It can be found at: Our School > Policies