Y8 Maths

Subject	Maths
Term	Cycle 1
Duration (approx.)	3 weeks
Module	Introduction to Data

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Categorical data and frequency tables
- Graphical representations of categorical data - bar charts, pictograms, pie charts
- Numerical data - discrete and continuous, ungrouped and grouped frequency tables
- Graphical representations of discrete numerical data - vertical line, bar charts
- Measures of central tendency of ungrouped data - mean, mode and median, including from a frequency table
- Measures of spread - range, outliers
- Compare data sets through graphs, central tendency and spread

Skills and concepts to be developed and assessed (linking to identified AOs)

- Filling in a tally chart from raw data
- Design a frequency chart
- Construct and interpret pictograms and barcharts
- Construct and interpret dual and compound barcharts
- Construct and interpret pie charts
- Design ungrouped and grouped frequency charts for discrete data
- Design grouped frequency charts for continuous data
- Construct and interpret vertical line graphs
- Construct and interpret grouped barcharts
- Construct frequency polygons
- Work out the mode, including from a frequency table
- Work out the mean and median
- Work out the mean and median from an ungrouped frequency table
- Work out the range
- Identify outliers and decide when to ignore these
- Compare averages and range
- Use comparisons to make decisions

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Autumn 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year. Advanced data analysis will be covered in Year 9.

Y8 Maths

Subject	Maths
Term	Cycle 1
Duration (approx.)	3 weeks
Module	Linear Equations

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Simple one-step solutions (four rules)
- Two-step solutions (four rules)
- Solve with variables on both sides
- Solve complex linear equations by applying inverse operations
- Applications and problems, including forming and solving equations in a geometric or "real-life" context

Skills and concepts to be developed and assessed (linking to identified AOs)

- Understanding and maintaining equality
- Transforming equations
- Solve one step equations
- Solve two step equations with the unknown on the same side
- Solve two step equations with the unknown on the same side and brackets
- Solve equations with the unknown on both sides
- Solve equations with denominators and fractional coefficients
- Form and solve equations in a real-life context

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Autumn 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and links to The Cartesian Grid unit which is covered later in Year 8.

Y8 Maths

Subject	Maths
Term	Cycle 1
Duration (approx.)	3 weeks
Module	Formulae

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Writing formulae in words and letters
- Substitution
- Rearranging linear formulae

Skills and concepts to be developed and assessed (linking to identified AOs)

- Write expressions to represent real life contexts
- Write formulae to represent real life contexts
- Use function machines to work out inputs and outputs
- Substitute positive integers into linear formulae
- Substitute negative integers into linear formulae
- Substitute integers into non linear formulae
- Rearrange one step linear formulae
- Rearrange two step formulae
- Rearrange non linear formulae
- Rearranging formulae with factorisation

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Autumn 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and will be built upon in KS4.

Y8 Maths

Subject	Maths
Term	Cycle 2
Duration (approx.)	4 weeks
Module	Ratio

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Ratio notation
- Simplifying ratios
- Unit ratios, fractions from ratios
- Dividing a quantity into a ratio
- Scale drawings, maps
- Problems and applications

Skills and concepts to be developed and assessed (linking to identified AOs)

- Express relationships as ratios
- Simplify a ratio
- Simplify a ratio involving different units
- Writing in the form 1:n or n:1
- Writing fractions using ratio
- Divide into a ratio through counting
- Divide into a ratio using a bar method
- Work out one quantity when given another
- Work out total quantity when given one quantity in the ratio
- Use a scale given in the form of a ratio to interpret maps
- Solve equations in ratio (e.g. x:x+5 = 4:5)

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards
-

Summative Assessment

45 minute written assessment based upon modules 1-3 during Spring 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar
How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

Number topics are built upon throughout the year and revisited throughout KS3. This unit links to the next unit (Proportional Reasoning).

Y8 Maths

Subject	Maths
Term	Cycle 2
Duration (approx.)	4 weeks
Module	Proportional Reasoning

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Comparing quantities (value for money, exchange rates)
- Scaling up/down - recipes, shapes (simple enlargements)
- Conversion graphs
- Changing between units (time, length, area, capacity)
- Reverse percentages

Skills and concepts to be developed and assessed (linking to identified AOs)

- Working out best buys and solving value for money problems
- Use exchange rates to convert currency
- Use exchange rates to compare prices and solve problems
- Scaling recipes up and down
- Enlarge shapes using a scale factor
- Use linear conversion graphs to convert quantities
- Convert units of time
- Convert units of length
- Convert units of area
- Convert units of capacity
- Find the original value when a quantity has been increased or decreased by a %

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Spring 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

Number topics are built upon throughout the year and revisited throughout KS3.

Y8 Maths

Subject	Maths
Term	Cycle 2
Duration (approx.)	3 weeks
Module	Constructions

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Use ruler and protractor accurately
- Use compasses accurately
- Constructing triangles and other shapes
- Bisectors and perpendiculars
- Loci

Skills and concepts to be developed and assessed (linking to identified AOs)

- Measure, draw and label line segments accurately
- Measure, draw and label angles accurately
- Accurately construct circles and arcs
- Construct inscribed polygons
- Given SSS, SAS, ASA, construct accurate triangles
- Construct a rhombus with ruler and compasses
- Construct angles of 45 and 60 degrees using compasses and ruler
- Construct perpendicular bisector of a line segment
- Construct perpendicular bisector of a line segment from a given point
- Construct angle bisectors
- Locus of points which are fixed distance from one point
- Locus of points which are fixed distance from one line or shape
- Locus of points equidistant from 2 points or 2 lines
- More complex loci problems

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ormative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Spring 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar
How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and will be built upon in KS4.

Y8 Maths

Subject	Maths
Term	Cycle 3
Duration (approx.)	3 weeks
Module	Polygons and Angles

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Angle facts
- Naming, labelling and recognising the features of triangles (including sum of angles)
- Naming, labelling and recognising the features of quadrilaterals (including sum of angles)
- Naming and recognising the features of other polygons
- Angles on a straight line, around a point, vertically opposite
- Angles in parallel lines (alternate, corresponding, cointerior)
- Bearings
- Application & problems

Skills and concepts to be developed and assessed (linking to identified AOs)

- Explaining what an angle is
- Identify different types of angle based on size
- Naming different types of triangles
- Using conventional notation to label side and angle properties
- Recall and use the fact that angles in triangles sum to 180 degrees
- Naming different types of quadrilaterals based on side and angle properties
- Using conventional notation to label side and angle properties
- Recall and use the fact that angles in quadrilaterals sum to 360 degrees
- Difference between regular and irregular polygons
- Naming polygons up to 12 sides
- Calculating interior and exterior angles in polygons
- Recall and use the fact for angles on straight lines
- Recall and use the fact for angles around a point
- Recall and use the fact that vertically opposite angles are equal
- Identify and use alternate angles
- Identify and use corresponding angles
- Identify and use cointerior angles
- Be able to measure the bearing between 2 points
- Use angle facts to calculate missing bearings
- Use angle facts in real life diagrams to make decisions, decide if polygons tessellate

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Summer 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and will be built upon with Units on Triangles and Circles in Year 9.

Y8 Maths

Subject	Maths
Term	Cycle 3
Duration (approx.)	2 weeks
Module	Area

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Working out area of shapes with linear sides
- Area of a circle
- Application & problems

Skills and concepts to be developed and assessed (linking to identified AOs)

- Working out area of rectangles, Inc. inverse problems
- Working out area of triangles, Inc. inverse problems
- Work out areas of compound shapes
- Working out area of different quadrilaterals
- Identify radius and diameter
- Recall and use formula for area
- Work out area of semi circles and quadrants
- Area in real life problems involving costs e.g. painting a room, limitations in resources e.g. tiling a patio, writing expressions involving area, factor pairs in suggesting side lengths

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Summer 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and will be built upon with Units on Triangles and Circles in Year 9.

Y8 Maths

Subject	Maths
Term	Cycle 3
Duration (approx.)	3 weeks
Module	The Cartesian Grid

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Plotting 2D coordinates in four quadrants
- Expressing number relationships algebraically
- Representing number relationships on a Cartesian grid
- Sketching graphs of straight lines and quadratics, with appropriate scaling, by finding a table of values
- y=mx+c
- Real-life graphs

Skills and concepts to be developed and assessed (linking to identified AOs)

- Plot coordinates in the first quadrant
- Plot coordinates in all four quadrants
- Express additive relationships for number sets algebraically e.g. y= x+ 3
- Express multiplicative relationships for number sets algebraically e.g. y=3x
- Plot pairs of related numbers on the coordinate grid to create linear lines
- Fill in a table and plot coordinates for one step relationships
- Fill in a table and plot coordinates for two step relationships
- Fill in a table and plot coordinates for simple quadratic relationships
- Identify y intercepts
- Identify gradient by reading how many units up/down for every one unit across
- Calculate gradient using change in y/ change in x
- Use y intercept and gradient to write y=mx+c
- Sketch graphs when given y=mx+c
- Identify parallel lines from their y=mx+c form
- Work out the gradient of perpendicular lines
- Identify equations of parallel and perpendicular lines
- Advanced y=mx+c questions - finding equations given two points or a point and gradient. Solve problems related to this.

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards

Summative Assessment

45 minute written assessment based upon modules 1-3 during Summer 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout the year, and will be built upon in Year 9 (Simultaneous Equations).

Y8 Maths

Subject	Maths
Term	Cycle 3
Duration (approx.)	3 weeks
Module	Linear Inequalities

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Solve linear inequalities
- Inequalities on a cartesian grid
- Application & problems

Skills and concepts to be developed and assessed (linking to identified AOs)

- Solve simple one step and 2 step linear inequalities
- Represent solutions to inequalities on a number line
- Represent solutions to inequalities using set notation
- Represent inequalities involving 2 variables on coordinate grid
- Identify integer solutions to a system of linear inequalities on a Cartesian grid
- Real life examples of inequalities such as resourcing restrictions, budgets

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards
-

Summative Assessment

45 minute written assessment based upon modules 1-3 during Summer 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout year 9, and will be built upon in KS4.

Y8 Maths

Subject	Maths
Term	Cycle 3
Duration (approx.)	3 weeks
Module	Bivariate Data and Time Series

Factual knowledge to be taught and assessed (including subject specific vocabulary).

- Draw a scatter graph
- Interpret relationships from a scatter graph
- Interpret and construct tables and line graphs for time series data

Skills and concepts to be developed and assessed (linking to identified AOs)

- Plot points on ready made axis
- Construct own axis with sensible scales
- Identify different types of correlation
- Draw and use a line of best fit
- Describe relationships
- Construct and interpret tables for time series data
- Construct and interpret time series graphs

Formative Assessment/work prior to end of unit:

- Questioning in class.
- Sparx homework
- Independent completion of exercises.
- Follow up 5 every fortnight
- Low stakes quiz
- Use of whiteboards
-

Summative Assessment

45 minute written assessment based upon modules 1-3 during Summer 2.

Retrieval Practice and developing student learning

Retrieval lesson starters

Retrieval will make up 40% of their 1 hour set homework

Spelling-Punctuation-Grammar How will you promote high standards within this module?

- Emphasis given to key words.
- Definitions provided.
- Spellings corrected where necessary when marking.
- Develop the ability to communicate mathematically.

Link forward: where next for the learning?

This topic will be revisited through retrieval tasks throughout Year 9, and will be built upon in KS4.