

<b>Subject</b>	Maths
<b>Term</b>	Cycle 1
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Probability

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

- Expressing theoretical probability using words and numbers
- Experimental Probability
- Mutually exclusive events and Listing Outcomes
- More probability diagrams
- Sets

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

- Use the vocabulary of probability
- Write theoretical probabilities as fractions, decimals and percentages
- Explain what is meant by equally likely outcomes
- Construct and use the probability scale with words and numbers
- Carry out a simple probability experiment eg rolling a dice, recording and analysing results
- Use results to work out relative frequency and predict future outcomes
- Identify all mutually exclusive outcomes for an event
- Create systematic lists of outcomes
- Use the fact that sum of probabilities of all mutually exclusive events = 1
- Work out the probability of an outcome NOT happening
- Construct sample space diagrams
- Use these to calculate theoretical probabilities

- Construct two way tables and use to calculate probabilities
- Construct Venn Diagrams and use to calculate probabilities
- Construct probability trees and use to calculate probabilities
- Use language and symbols of set theory to answer probability questions

**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 Year 9 and built upon in KS4.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 1
<b>Duration (approx.)</b>	3 weeks
<b>Module</b>	Sequences

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

- Continuing sequences
- $n$ th term rule
- Different types of sequences

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

- Continue arithmetic sequences for a specified number of terms
- Identify the term to term rule for arithmetic sequences
- Generate sequences when given the first term and the term to term rule
- Generate sequences using the  $n$ th term rule
- Work out the  $n$ th term rule of an arithmetic sequence
- Recognise and continue the triangular, square and cube number sequences
- Recognise and continue the Fibonacci sequence
- Describe and continue pictorial and algebraic sequences
- Recognise and continue geometric sequences
- Recognise and continue quadratic sequences

**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?**

Algebra topics are built upon throughout the year.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 1
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Congruence and Similarity

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

- Congruency
- Transformations
- Enlargement and similarity
- Similar lengths and areas
- Converting units of length and area

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

- Define congruency and identify congruent shapes
- Identify congruent triangles by using conditions SSS, SAS, ASA, RHS
- Translate shapes using words and vectors
- Identify and use rotational and reflective symmetry
- Rotate and reflect shapes
- Glide reflections
- Combinations of transformations
- Tessellations
- Enlarge shapes using positive integer scale factors
- Enlarge using a centre of enlargement
- Enlarge using fractional and negative scale factors
- Use similarity property to work out missing lengths
- Work out areas of similar shapes and appreciate the scale factor is different
- Convert between units of length
- Convert between units of area
- Convert between units of volume

**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?**

Shape topics are built upon throughout the year.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 2
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Advanced Data Analysis

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

- Averages from grouped data
- Measures of spread
- Representing grouped data
- Comparing data sets

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

- Work out the modal class
- Estimate the mean by using midpoints
- Work out which class contains the median value
- Work out the range of grouped data
- Work out interquartile range
- Construct frequency polygons
- Construct cumulative frequency graphs
- Construct box plots
- Compare data sets through graphs, central tendency and spread

**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?**

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

<b>Subject</b>	Maths
<b>Term</b>	Cycle 2
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Triangles

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

- Triangle properties
- Pythagoras' Theorem in 2D
- Trigonometry and ratios
- Exact trig values
- Application & Problems

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

- Identify different types of triangles based on side and angle properties
- Use angle facts to work out missing angles in triangles
- Define and identify the hypotenuse on right angled triangles
- Use Pythagoras' theorem to calculate the hypotenuse
- Use Pythagoras' theorem to calculate a shorter side
- Determine whether a triangle is right angled, using Pythagoras
- Label the 3 sides of right angled triangles according to a given angle
- Use trig ratios to calculate missing sides
- Use trig ratios to calculate missing angles
- Use calculator to obtain exact values
- Use triangles to work out exact values
- Plot values on graphs and identify key features of the sin/cos/tan graphs
- Problem Solving, including 3D problems

**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?**

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

<b>Subject</b>	Maths
<b>Term</b>	Cycle 2
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Circles

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

- Circle parts and properties
- Circumference of a circle
- Area of circles
- Arcs and sectors
- Circle theorems

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

- Identify and define the key parts of circles
- Use the formula to calculate circumference using radius or diameter
- Work out radius or diameter when given circumference
- Use the formula to calculate area using radius or diameter
- Work out radius or diameter when given area
- Work out the area of semi circles and quadrants
- Calculate the area of a sector
- Calculate the length of an arc
- Calculate the perimeter of a sector
- Recall and use circle theorems in simple problems
- Recall and use multiple circle theorems in complex problems
- Prove the circle theorems

**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?**

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

<b>Subject</b>	Maths
<b>Term</b>	Cycle 3
<b>Duration (approx.)</b>	2 weeks
<b>Module</b>	Standard Form

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

- Convert between normal and standard form
- Comparing numbers in standard form
- Calculating with numbers in standard form

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

- Multiply integers and decimals by powers of 10
- Write large numbers in standard form
- Write small numbers in standard form
- Convert standard form back to normal form
- Comparing and ordering numbers in standard form
- Adding and subtracting by converting back to normal form
- Adding and subtracting through an efficient method
- Multiplying and dividing by using index laws

**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 built upon in KS4.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 3
<b>Duration (approx.)</b>	3 weeks
<b>Module</b>	Simultaneous Equations

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

- Simultaneous equations
- Read solutions of simultaneous equations from graphs

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

- Solve linear equations involving 2 variables
- Solve simple linear simultaneous equations in context
- Find the solution to two simultaneous linear equations by elimination
- Find the solution to two simultaneous linear equations by substitution
- Construct linear simultaneous equations from real life contexts
- Identify points of intersection of 2 lines
- Represent solutions to simultaneous equations graphically

**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 built upon in KS4.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 3
<b>Duration (approx.)</b>	4 weeks
<b>Module</b>	Surface Area and Volume

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

- Polyhedra
- 2D representations
- Surface area
- Volume

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

- Naming polyhedra
- Use of Euler's formula
- Planes of symmetry
- Accurately construct nets
- Draw plans and elevations
- Isometric drawing
- Work out the surface area of cubes and cuboids
- Work out the surface area of prisms involving triangles and rectangles
- Work out the surface area of cylinders
- Work out the surface area of spheres, pyramids and cones
- Work out the volume of cubes and cuboids
- Work out the volume of other prisms, including cylinders
- Work out the volume of spheres, pyramids and cones
- Use scale factors of length and area to solve similarity problems
- Use scale factors of volume to solve similarity problems

**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 built upon in KS4.

<b>Subject</b>	Maths
<b>Term</b>	Cycle 3
<b>Duration (approx.)</b>	3 weeks
<b>Module</b>	Advanced Manipulating and Simplifying Expressions

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

- Expanding binomials
- Factorising
- Algebraic Fractions

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

- Expand double brackets
- Expand triple brackets
- Factorise a quadratic where the coefficient of  $x^2$  is 1
- Factorise the difference of two squares
- Factorise a quadratic where the coefficient of  $x^2$  larger than 1
- Simplify algebraic fractions
- Use the four operations with algebraic fractions
- Solve equations involving fractions

**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 built upon in KS4.