

Y8 Core Scheme of Work (KS3 Maths Progress Theta Two) - Autumn Term

Main resource: Theta Two textbook

Teachers are to use their judgement as to how long to spend on each unit; this will depend on the class being taught.

| Fractals | Unit 1 Number | Unit 4 – Expressions and Equations | Unit 6 – Decimals and Ratio |
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| <ul style="list-style-type: none"> identify examples of fractals and understand the concept of self-similarity produce a fractal drawing using geometry skills | <ul style="list-style-type: none"> use the concepts and vocabulary of common factors use the concepts and vocabulary of common multiples use the concepts and vocabulary of highest common factor use the concepts and vocabulary of lowest common multiple use the concepts and vocabulary of prime factorisation use the four operations, including formal written methods, with positive and negative integers use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals use integer powers and associated real roots (square, cube and higher) recognise powers of 2, 3, 4, 5 | <ul style="list-style-type: none"> use and interpret algebraic notation: ab in place of $a \times b$ use and interpret algebraic notation: a^2 in place of $a \times a$ use and interpret algebraic notation: a^3 in place of $a \times a \times a$ use and interpret algebraic notation: coefficients written as fractions rather than as decimals use and interpret algebraic notation: brackets understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors simplify and manipulate algebraic expressions to maintain equivalence: collecting like terms simplify and manipulate algebraic expressions to maintain equivalence: taking out common factors use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) | <ul style="list-style-type: none"> use the four operations, including formal written methods, with positive and negative decimals round numbers and measures to an appropriate degree of accuracy [for example, to a number of decimal places or significant figures] use ratio notation reduce a ratio to simplest form divide a given quantity into two parts in a given part:part ratio divide a given quantity into two parts in a given part:whole ratio express the division of a quantity into two parts as a ratio understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction |

Y8 Core Scheme of Work (KS3 Maths Progress Theta Two) - Spring Term

Main resource: Theta Two textbook

| Unit 8 – Calculating with Fractions | Unit 10 – Percentages, Decimals and Fractions | Unit 2 – Area and Volume |
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| <ul style="list-style-type: none">• use the four operations, including formal written methods, with positive and negative fractions• use the four operations, including formal written methods, with positive and negative improper fractions and mixed numbers• work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and $\frac{7}{2}$ or 0.375 and $\frac{3}{8}$)• use standard units of mass, length, time, money and other measures, including with decimal quantities | <ul style="list-style-type: none">• express one quantity as a percentage of another• compare two quantities using percentages• work with percentages greater than 100%• interpret percentages multiplicatively | <ul style="list-style-type: none">• derive and apply formulae to calculate and solve problems involving area of triangles, parallelograms, trapezia• derive and apply formulae to calculate and solve problems involving volume of cuboids (including cubes)• calculate and solve problems involving composite shapes• change freely between related standard units [for example time, length, area, volume/capacity, mass] |

Y8 Core Scheme of Work (KS3 Maths Progress Theta Two) – Summer Term

Main resource: Theta Two textbook (Pi Two as foundation resource if needed)

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| <p>Unit 3 – Statistics, Graphs and Charts</p> <ul style="list-style-type: none"> describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete data describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving continuous and grouped data describe, interpret and compare observed distributions of a single variable through: appropriate measures of spread (range, consideration of outliers) describe, interpret and compare observed distributions of a single variable through: appropriate measures of central tendency (mean, mode, median) construct and interpret frequency tables construct and interpret bar charts construct and interpret pie charts Illustrate simple mathematical relationships between two variables (bivariate data) using scatter graphs | <p>Unit 5 – Real-life Graphs</p> <ul style="list-style-type: none"> model situations or procedures by using graphs interpret mathematical relationships both algebraically and graphically find approximate solutions to contextual problems from given graphs of a variety of functions: including piece-wise linear graphs |
| <p>Unit 7 – Lines and Angles</p> <ul style="list-style-type: none"> derive and illustrate properties of triangles, quadrilaterals, circles, and other plane figures [for example, equal lengths and angles] using appropriate language and technologies understand and use the relationship between parallel lines and alternate and corresponding angles use the sum of angles in a triangle to deduce the angle sum in any polygon apply angle facts, triangle congruence, similarity and properties of quadrilaterals to derive results about angles and sides | <p>Unit 9 – Straight-line Graphs</p> <ul style="list-style-type: none"> recognise, sketch and produce graphs of linear functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane reduce a given linear equation in two variables to the standard form $y = mx + c$ calculate and interpret gradients and intercepts of graphs of such linear equations numerically calculate and interpret gradients and intercepts of graphs of such linear equations graphically calculate and interpret gradients and intercepts of graphs of such linear equations algebraically solve problems involving direct proportion solve proportion problems including graphical and algebraic representations |