



YEAR 7 MATHS: MY LEARNING JOURNEY

AUTUMN 1:



SEQUENCES, ALGEBRAIC NOTATION, EXPRESSIONS & EQUATIONS * AVERAGES.

Knowledge: We will learn how to understand logical reasoning around sequences, make the first steps in understanding algebraic notation, substitution and forming and solving equations and end the term by finding averages from lists.

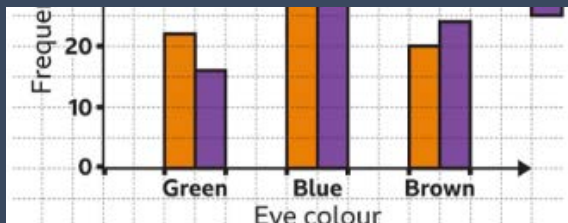
AUTUMN 2:



PLACE VALUE, ROUNDING, 4 OPERATIONS, ESTIMATION AND DIRECTED NUMBER.

Knowledge: We will secure our foundational number knowledge by mastering place value, the 4 operations, rounding and understanding negative numbers. To deepen our understanding this will include using decimals, standard form and the order of operations.

SPRING 1:



GRAPHING DATA & FRACTIONS, DECIMALS AND PERCENTAGES

Knowledge: We will utilise the data handling cycle and learn how to display data that has been previously gathered. We will understand the links between fractions, decimals and percentages and how to convert between them.

SPRING 2:

$\frac{2}{8} =$	25%	$=$	0.25	$\frac{2}{3} =$	%	$=$	0.
$\frac{3}{8} =$	%	$=$	0.	Why have $\frac{4}{8}$ and $\frac{6}{8}$ been excluded?			
$\frac{5}{8} =$	%	$=$	0.				

FRACTIONS AND PERCENTAGES OF AMOUNTS & PERIMETER AND AREA

Knowledge: We will expand our knowledge of fractions and percentages using both calculator and non calculator methods and extend into reverse percentages. We will learn how to find the perimeter and area of various polygons and form expressions.

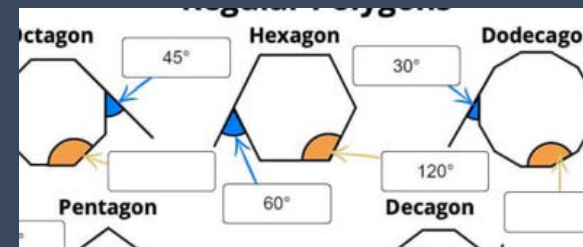
SUMMER 1:



SPEED, DISTANCE, TIME & PROPERTIES OF NUMBER AND ADD AND SUBTRACT FRACTIONS.

Knowledge: we will understand how to solve problems with time and calculate S,D,T. We will apply our understanding of multiples, factors and prime numbers and review and extend our knowledge of adding & subtracting fractions.

SUMMER 2 : WRITING



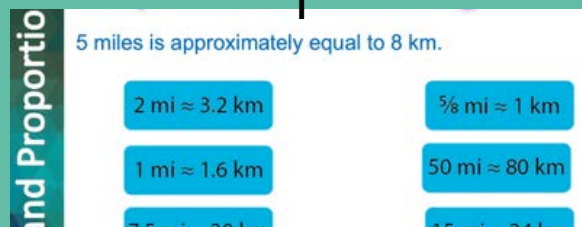
ANGLES AND POLYGONS

Knowledge: Learn about the different angle types and how to apply angle knowledge to find missing values, including with polygons.



YEAR 8 MATHS: MY LEARNING JOURNEY

AUTUMN 1:



RATIO & PROPORTION AND COORDINATES & GRAPHS

Knowledge: We will build our knowledge of ratio and how to solve ratio problems leading to a deeper understanding of how to solve direct proportion problems. We will plot coordinates on the cartesian plane and use equations to form line segments.

AUTUMN 2:



ALGEBRAIC MANIPULATION, FRACTION CALCULATION, SIMPLE TRANSFORMATIONS & AREA, VOLUME, DENSITY.

Knowledge: We will deepen our understanding of algebra by expanding and factorising. We will explore symmetry and reflection. Problem solve fractions in different contexts and learn about relations between area, volume and density.

SPRING 1:

Laws of indices provide us with rules for simplifying expressions involving powers of the same base. They are:

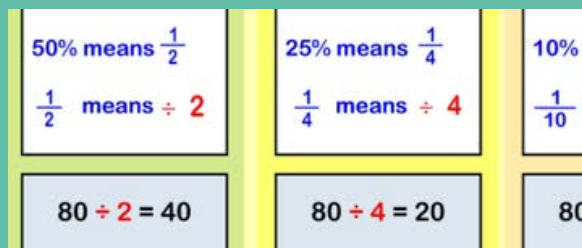
$$a^m \times a^n = a^{m+n}$$

$$a^m \div a^n = a^{m-n}$$

EQUATIONS AND INEQUALITIES, INDICES AND STANDARD FORM.

Knowledge: We will learn how to form and solve simple and complex equations and inequalities. We will understand the laws of indices and how they apply to the four operations. This will extend into negative and fractional indices. We will convert between standard form and ordinary values.

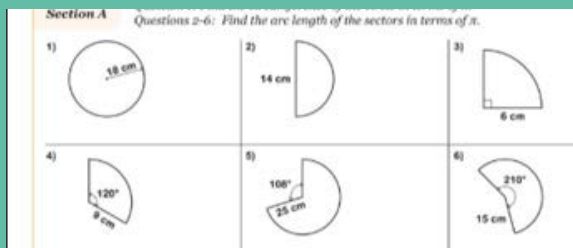
SPRING 2:



PERCENTAGES & INTERPRET AND REPRESENT DATA

Knowledge: We will extend our knowledge of the percentage of amounts through the use of decimal multipliers. Express a value as a fraction or percentage of another and reverse percentages. Identify data types and utilise averages to represent data with both discrete & continuous data.

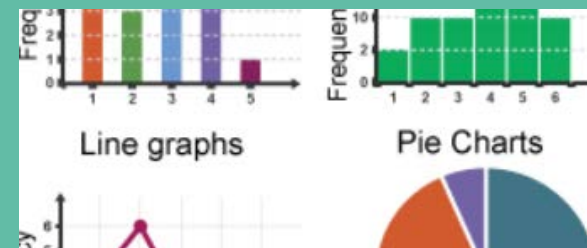
SUMMER 1:



ANGLE FACTS, TABLES, PROBABILITY & CIRCLES

Knowledge: Apply angle facts to find angles in parallel lines and polygons. Understand the probability scale, single event probability and the probability of multiple events. Recognise the parts of a circle and apply the power of Pi to find the area and perimeter of circles.

SUMMER 2:



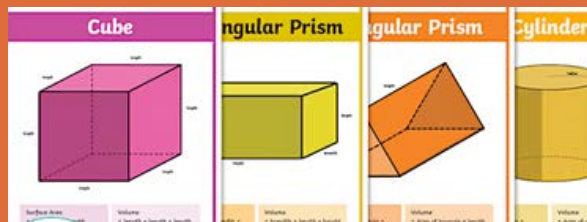
GRAPHS, CHARTS AND SEQUENCES

Knowledge: We will extend our understanding of representing data by using pie charts, deciding the most appropriate chart and comparing distributions. Extend our understanding of sequences by finding the Nth term or linear sequences and generating sequences with algebraic rules.



YEAR 9 MATHS: MY LEARNING JOURNEY

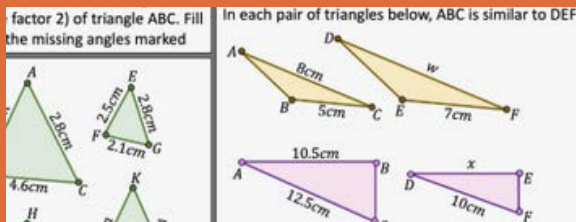
AUTUMN 1:



NUMBER PROPERTIES, PERCENTAGES. AREA & VOLUME AND FRACTIONS

Knowledge: We will extend multiples and factors using Venn diagrams and extending into surds. Solve problems using percentages and extend into calculations with interest. Utilise prior understand of area and volume find surface area of 3D shapes. Review calculations with fractions.

AUTUMN 2:



EQUATIONS FORMULAE, RATES, STANDARD FORM AND SIMILARITY

Knowledge: We will deepen solving equations and inequalities then introduce and deepen rearranging. Extend speed, distance, time to introduce graphs and rates of change. Deepen standard form to use the four operations. Solve problems of length and area using similar shapes

SPRING 1:



MONEY, STRAIGHT LINE GRAPHS AND RATIO & PROPORTION

Knowledge: We will how to manage money in the real world including spending, saving and investment. Deepen understanding of equation of a straight line including interpreting graphs and using $y=mx+c$. Extend understanding of proportion to use conversion graphs, inverse proportion and solving ratio problems.

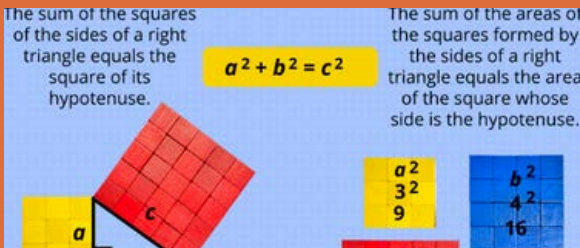
SPRING 2:



CONSTRUCTION & CONGRUENCE AND ALGEBRAIC MANIPULATION

Knowledge: We will develop construction skills to produce scale drawings, recognise similarity and construct polygons. Deepen algebraic manipulation to expand double brackets, use identities and extend into solving quadratic equations.

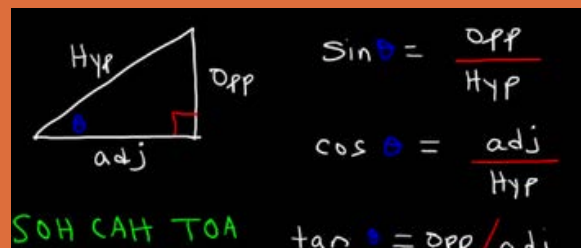
SUMMER 1:



PYTHAGORAS, NON-LINEAR GRAPHS AND PROBABILITY

Knowledge: We will use pythagoras theorem to find sides of right angle triangles and extend into 3D shapes. Substitute into quadratics to draw and interpret quadratic graphs. Extend probability to applying Set notation and problem solving using probability.

SUMMER 2:



TRANSFORMATIONS, SIMULTANEOUS EQUATIONS AND TRIGONOMETRY

Knowledge: We will draw and describe enlargements, translations, rotations and reflections extending into fractional and negatives. Develop a foundational knowledge of solving simultaneous equations and trigonometry with right angle triangles.



YEAR 10 FOUNDATION MATHS MY LEARNING JOURNEY

AUTUMN 1

Factorise into either single or double brackets.

Single Brackets
 $3x + 12 = 3(x + 4)$
 HCF of $3x$ and 12

Double Brackets
 When factorising quadratics we use **TEAM**.
 $x^2 + 5x + 6 = (x + 3)(x + 2)$
 T – Times to make the
 E – End Value
 A – Add to make the
 M – Middle value
 $E = (1 \times 6) (2 \times 3) (-1 \times -6) (-2 \times -3)$
 $A = +5$

Skill 1
 1) $\frac{5y^2}{y}$ 2) $\frac{8x^2}{2x^2}$ 3) $\frac{2x}{4y}$
 4) $\frac{6y}{5}$ 5) $\frac{5ab}{5}$ 6) $\frac{(2a)^2}{(2a)^2}$

UNIT 1: NUMBER AND UNIT 2: ALGEBRA

Knowledge: We will strengthen our understanding of number calculation utilising decimals, factors & multiples, index notation and prime factors. Algebra skills will review multiple skills of manipulation including substitution, expanding & factorising brackets and using formulae. Application will be multiskilled.

AUTUMN 2

Main types of charts:

Bar chart **Line chart** **Pie chart**

UNIT 3: GRAPHS, TABLES & CHARTS AND UNIT 4: FRACTIONS & PERCENTAGES

Knowledge: We will strengthen our understanding of data representation and analysis using tables, timeseries, stem & leaf, pie charts and scatter graphs. Fraction skills will be applied to using the operations with fractions. Application will be multiskilled.

SPRING 1

Arithmetic Sequences
 In an Arithmetic Sequence the difference between one term and the next is a constant.
 $a, a+d, a+2d, a+3d, \dots$
 The n^{th} term, $a_n = a + (n-1)d$ **Example:** 1, 5, 9, 13, 17, ...

Geometric Sequences
 In a Geometric Sequence each term is found by multiplying the previous term by a constant.
 $a, ar, ar^2, ar^3, \dots$

UNIT 4: FRACTIONS & %, UNIT 5: EQUATIONS & SEQUENCES AND UNIT 6: ANGLES

Knowledge: We will strengthen our use of calculating with percentages. All skills of solving equations and inequalities will be revisited as well as extending our understanding of sequences. Properties of angles will be applied to various polygons and utilised for problem solving.

SPRING 2

Area of a triangle
 $\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$
 $\text{Area} = \frac{1}{2} \times 4\text{cm} \times 3\text{cm} = 6\text{cm}^2$

Area of a parallelogram
 $\text{Area} = \text{base} \times \text{height}$
 $\text{Area} = 12\text{cm} \times 5\text{cm} = 60\text{cm}^2$

Volume of a cuboid
 $\text{Volume} = \text{length} \times \text{width} \times \text{height}$
 $\text{Volume} = 10\text{cm} \times 4\text{cm} \times 3\text{cm} = 120\text{cm}^3$

UNIT 7: AVERAGES AND UNIT 8: PERIMETER, AREA AND VOLUME 1

Knowledge: We will revisit the averages and range. This will be extended into estimating the mean and sampling. Revisit and strengthen understanding of perimeter, area and volume including surface area and volume of prisms.

SUMMER 1

Translation **Reflection**

UNIT 9: GRAPHS AND UNIT 10: TRANSFORMATIONS

Knowledge: We will strengthen our understanding of straight line graphs and extend into real life graphs including distance-time graphs. Transformations will review all the transformations and extend into combining transformations.

SUMMER 2

Ratio and Proportions
Learning Objective: Solve ratio and proportion problems and compare ratios.
 A necklace is made up of yellow and green beads.
 $8:2$
 $\div 2$
 $4:1$
 Write the amount of yellow to green beads as a simplified ratio.

UNIT 11: RATIO AND PROPORTION

Knowledge: We will review and strengthen our understanding of ratio and proportion including problem solving, comparing ratios and using proportion graphs.



YEAR 10 HIGHER MATHS MY LEARNING JOURNEY

AUTUMN 1

Factorise into either single or double brackets.

Single Brackets
 $3x + 12 = 3(x + 4)$
 HCF of $3x$ and 12

Double Brackets
 When factorising quadratics we use **TEAM**.
 $x^2 + 5x + 6 = (x + 3)(x + 2)$
 T – Times to make the
 E – End Value
 A – Add to make the
 M – Middle value
 $E = (1 \times 6) (2 \times 3) (-1 \times -6) (-2 \times -3)$
 $A = +5$

Skill 1
 $1) \frac{5y^2}{y} \quad 2) \frac{8x^2}{2x^2} \quad 3) \frac{2x}{4y}$
 $4) \frac{6y}{4y} \quad 5) \frac{5ab}{5ab} \quad 6) \frac{(2a)^2}{(2a)^2}$

UNIT 1: NUMBER AND UNIT 2: ALGEBRA

Knowledge: We will strengthen our understanding of number calculation utilising more complex index laws, using standard form and surds. Algebra skills will review multiple skills of manipulation and solving whilst extending knowledge of sequences and expansion/factorisation.

AUTUMN 2

Main types of charts:

Bar chart

Line chart

Pie chart

UNIT 3: INTERPRET AND REPRESENT DATA AND UNIT 4: FRACTIONS, RATIO & PERCENTAGES

Knowledge: We will deepen our understanding of data representation and analysis using timeseries, scatter graphs, averages and statistical diagrams. Fraction, ratio and % skills will be refreshed and extended into GCSE application. Application will be multiskilled.

SPRING 1

For this cuboid calculate:
 a) Length AG
 11.18 cm
 b) Angle between AG and the plane ABCD
 $\theta = 35.26^\circ$

Pythagoras' Theorem:
 $\sqrt{10^2 + 5^2} = \sqrt{125} = 11.18$
 $\sin \theta = \frac{5}{11.18} \Rightarrow \theta = 26.56^\circ$
 $\theta = 90^\circ - 26.56^\circ = 63.44^\circ$

UNIT 5: ANGLES & TRIGONOMETRY AND UNIT 6: GRAPHS

Knowledge: We will strengthen and deepen our knowledge of Pythagoras' Theorem and Trigonometry. This will include using non right angle triangles. Algebraic graphing will be deepened to include linear, quadratic, cubic and reciprocal graphs and their applications.

SPRING 2

Area and Volume:
 Area of a rectangle: $\text{Area} = \text{length} \times \text{width}$
 Area of a triangle: $\text{Area} = \frac{1}{2} \times \text{base} \times \text{height}$
 Volume of a cuboid: $\text{Volume} = \text{length} \times \text{width} \times \text{height}$

UNIT 7: AREA AND VOLUMES

Knowledge: We will revisit, strengthen and deepen understanding of the uses of perimeter, area and volume. This will include the use of accuracy and then the application of these skills to more complex shapes such as spheres, pyramids, cones and frustrums. Application will be multiskilled.

SUMMER 1

Transformations:
 Translation
 Reflection
 Rotation

UNIT 8: TRANSFORMATIONS & CONSTRUCTIONS AND UNIT 9: EQUATIONS & INEQUALITIES

Knowledge: We will deepen knowledge of transformations, use bearings, develop constructions and application to Loci. All aspects of solving quadratics and simultaneous equations will be renewed and deepened.

SUMMER 2

Probability:
 First Flip
 Second Flip
 Outcomes
 Calculate

Heads (0.5) / Tails (0.5)
 Heads, Heads (0.25)
 Heads, Tails (0.25)
 Tails, Heads (0.25)
 Tails, Tails (0.25)

UNIT 10: PROBABILITY

Knowledge: We will review and deepen all aspects of probability. This includes combined, mutually exclusive experimental, independent and conditional probability events. Venn diagrams and set notation as well as solving problems with tree diagrams will be understood and applied.



YEAR 11 FOUNDATION MATHS

MY LEARNING JOURNEY 25/26

AUTUMN 1

a) Area = 100 cm²

b) Area = 49 cm²

c) Area = 144 cm²

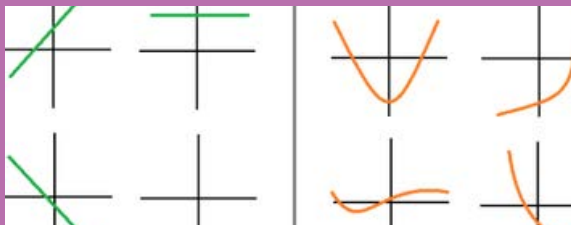
Use a calculator to find the following, correct to 1 d.p.

a) $\sqrt{10}$ b) $\sqrt{29}$ c) $\sqrt{107}$ d) $\sqrt{19.7}$
 e) $\sqrt{7406}$ f) $\sqrt{58.6}$ g) $\sqrt{0.15}$ h) $\sqrt{0.727}$

FACTORS, POWERS, ROOTS, EXACT CALCULATIONS, 2D & 3D SHAPES

Knowledge: We will review and deepen the use of factors, multiples and primes as well as index laws. Exact calculations including fractions, pi and calculating with standard form. Perimeter, area and volume of 2D and 3D shapes within a GCSE context.

AUTUMN 2



STEM & LEAF AND GRAPHS

Knowledge: We will learn how to use stem and leaf diagrams. All aspects of graphing using linear, quadratic, cubic, reciprocal and graph transformations will be covered. Included is a review of the use of gradients and the use of $y=mx+c$.

SPRING 1

CATCH UP, MOCKS AND REVISION

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by which topics need to be covered from earlier in the year as well as feedback from mock exams and assessments. Mock exams will also take place.

SPRING 2

CATCH UP, MOCKS AND REVISION

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by which topics need to be covered from earlier in the year as well as feedback from mock exams and assessments.

SUMMER 1



REVISION AND EXAMS

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by feedback from mock exams and assessments. GCSE exams commence.

SUMMER 2



EXAMS

GCSE exams commence.



YEAR 11 HIGHER MATHS

MY LEARNING JOURNEY 25 / 26

AUTUMN 1

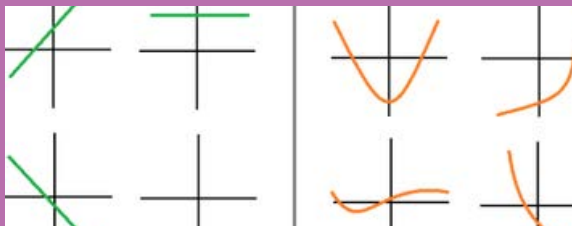
Use a calculator to find the following, correct to 1 d.p.

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FACTORS, POWERS, ROOTS, EXACT CALCULATIONS, 2D & 3D SHAPES

Knowledge: We will review and deepen the use of HCF & LCM, standard form calculations and surds. Exact calculations with fractions and calculating in terms of pi. Perimeter, area and volume of 2D and 3D shapes within a GCSE context as well as similarity.

AUTUMN 2



STEM & LEAF AND GRAPHS

Knowledge: We will learn how to use stem and leaf diagrams. All aspects of graphing using linear, quadratic, cubic, reciprocal and graph transformations will be covered. Included is trigonometric graphs, exponential functions, solving simultaneous equations graphically and equations of a circle.

SPRING 1

CATCH UP, MOCKS AND REVISION

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by which topics need to be covered from earlier in the year as well as feedback from mock exams and assessments. Mock exams will also take place.

SPRING 2

CATCH UP, MOCKS AND REVISION

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by which topics need to be covered from earlier in the year as well as feedback from mock exams and assessments.

SUMMER 1



REVISION AND EXAMS

Knowledge: We will learn content based upon the needs of learners in the class. This will be informed by feedback from mock exams and assessments. GCSE exams commence.

SUMMER 2



EXAMS

GCSE exams commence.