Year 10F

Mathematics Curriculum Road Map

Oasis Academy Enfield

ABC Links to literacy

We develop mathematical literacy through reading mathematical text aloud (including worded problems) and applying new knowledge to unfamiliar and non-routine problems. We discuss, select and use appropriate concepts and language.

AUTUMN - 2

Topic name: **Applications of Algebra**

Why study this topic?

To simplify, expand and factorise expressions (including quadratics), rearrange and evaluate by substituting into formulae.
To form and solve linear equations (including unknown on both sides) as well as quadratic equations.
To recognise and plot quadratic graphs and find approximate solutions
To apply simultaneous equations to solve worded problems.

2

SPRING - 2

Topic name: **Geometry**

Why study this topic?

To identify properties of, and describe the results of, translations, rotations, reflections and enlargement applied to given figures.
To calculate perimeter and area of basic and composite shapes (including circles, semicircles and sectors), giving the answer to a degree of accuracy.
To construct and interpret plans and elevations of 3D solids and recognise the vocabulary associated with it. To calculate surface area and volume of 3D prisms and convert units.

4

SUMMER - 2

Topic name: **Applications of algebra**

Why study this topic?

To expand, factorise and solve quadratics.
To solve problems in context using quadratics.
To sketch quadratics, find approximate roots, and identify intercepts and turning points of quadratic functions.
To solve linear simultaneous equations algebraically.
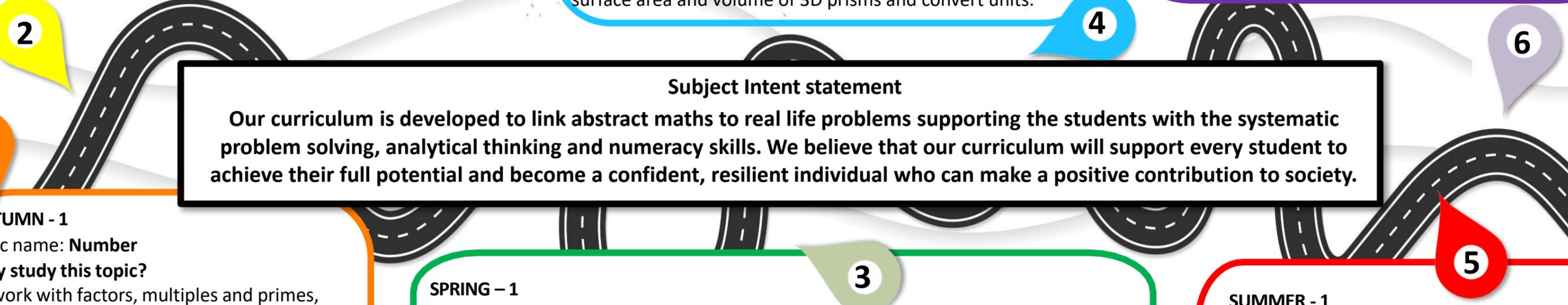To form and solve linear simultaneous equations in contextual problem solving.

6

Subject Intent statement

Our curriculum is developed to link abstract maths to real life problems supporting the students with the systematic problem solving, analytical thinking and numeracy skills. We believe that our curriculum will support every student to achieve their full potential and become a confident, resilient individual who can make a positive contribution to society.

1

AUTUMN - 1

Topic name: **Number**

Why study this topic?

To work with factors, multiples and primes, using prime factor decomposition to find HCF and LCM and apply these in problem solving context.
To understand the meaning of higher powers, roots and indices and know how to calculate with these, using efficiently calculator when appropriate. To apply laws of indices to numbers and algebraic terms
To convert large and small numbers to and from standard form, calculate and solve problems with these. To recognise and work with sequences

3

SPRING – 1

Topic name: **Percentages and Probability**

Why study this topic?

To recognise equivalent fractions, convert between mixed numbers and improper fractions, calculate with fractions. To find percentage change and reverse percentages, simple and compound interest (using calculator when appropriate) and solve problems with growth and decay. To solve probability problems using Venn diagrams, sample space, tree diagrams and product rule of counting.

5

SUMMER - 1

Topic name: **Similarity**

Why study this topic?

To write and simplify ratio, relate it to fraction, share into ratio and apply it to solve problems.
To apply the formula for speed, density and pressure. To solve numerical and algebraic direct and inverse proportion problems. To find any side in a right angled triangles using Pythagoras. To identify similarity and congruence and solve problems accordingly. To apply correct trig ratios.

123 Links to Numeracy

We develop the use of formal numerical knowledge to interpret and solve problems, evaluating the outcomes, make and test conjectures about patterns and relationships.

Year 10H — Mathematics Curriculum Road Map

Oasis Academy Enfield

ABC Links to literacy

We develop mathematical literacy through reading mathematical text aloud (including worded problems) and applying new knowledge to unfamiliar and non-routine problems. We discuss, select and use appropriate concepts and language

AUTUMN - 2
Topic name: **Applications of Algebra**
Why study this topic?

To expand (two and more brackets) and factorise quadratics, solve quadratics by factorising, formula or completing the square. To plot and sketch quadratics identifying key features (turning points and intercepts).
To simplify and calculate with algebraic fractions and solve equations with these.
To solve simultaneous equations algebraically and graphically, including one linear and one quadratic.

SPRING - 2
Topic name: **Geometry**
Why study this topic?

To calculate upper and lower bounds and solve problems with bounds including % error and suitable degree of accuracy.
To solve problems with area and circumference, solve problems with arc length and sector area, recognise and use equation of a circle, find the equation of a tangent to a circle
To calculate and solve problems with surface area and volume of cuboids, other prisms, cones, spheres and pyramids (converting units).

SUMMER - 2
Topic name: **Data handling**
Why study this topic?

To explore methods of data collection including surveys, questionnaires and the use of secondary data, classify and tabulate data.
To construct and interpret frequency tables, bar graphs, dual bar graphs, pictograms, pie charts, scatter graphs, cumulative frequency graphs and histograms.
To calculate averages and spread from grouped data

Subject Intent statement

Our curriculum is developed to link abstract maths to real life problems supporting the students with the systematic problem solving, analytical thinking and numeracy skills. We believe that our curriculum will support every student to achieve their full potential and become a confident, resilient individual who can make a positive contribution to society.

AUTUMN - 1
Topic name: **Geometric change**
Why study this topic?

To calculate with powers, roots and indices (including negative and fractional), applying laws of indices.
To simplify, rationalise and use surds in calculations and solving problems.
To convert recurring decimals to fractions, to and from standard form, and calculate in standard form.
To recognise different types of sequences, find the nth term of arithmetic, geometric and quadratic sequences and solve problems with these.

SPRING – 1
Topic name: **Percentages and Probability**
Why study this topic?

To convert between FDP, calculate % change, original amount, compound interest and solve problems with growth and decay.
To read and apply set notation
To calculate probability and relative frequency using Venn diagrams, sample space diagrams and tree diagrams and solve complex problems with these (including tree diagrams without replacement and applying algebra to it)

SUMMER - 1
Topic name: **Similarity**
Why study this topic?

To share into ratio and apply it to solve problems. To apply the formula for speed, density and pressure. To set up and solve formal problems involving direct and inverse variation (including powers and roots). To solve Pythagoras problems in 2D and 3D, problems with similar shapes involving angle facts and scaled lengths. To use trigonometry to solve non-right angled triangles problems (trig area formula, sine and cosine rule)

123 Links to Numeracy

We develop the use of formal numerical knowledge to interpret and solve problems, evaluating the outcomes, make and test conjectures about patterns and relationships.