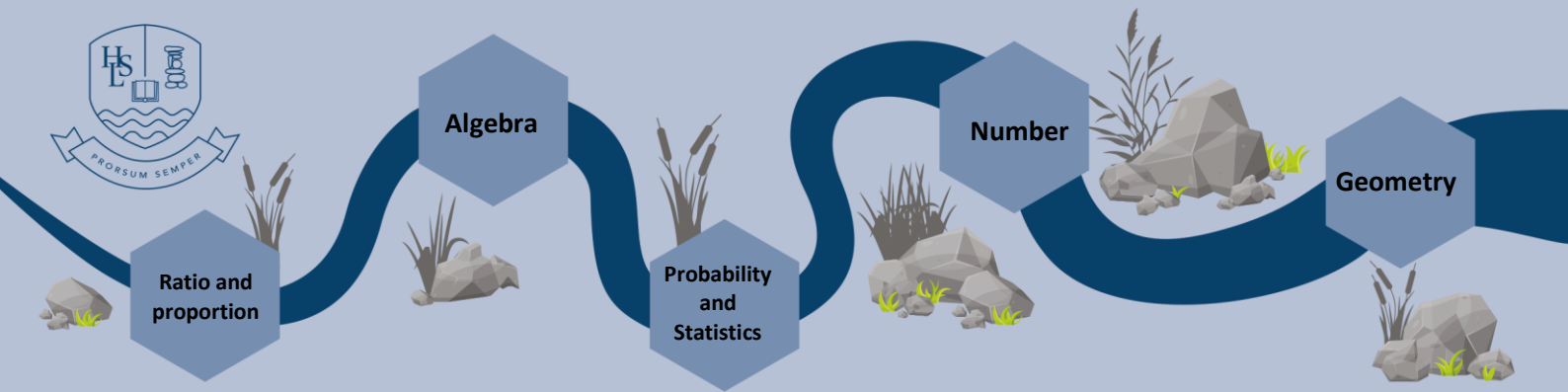


Subject: Maths	Year Group: 9	Term: 1, 2 and 3

Module/Theme: Algebra

Topic Outline & Aims (Intent)
Through the algebra topics covered in Year 9 students will take the necessary steps to build on their knowledge from years 7 and 8 and become GCSE ready. The GCSE requires pupils to be proficient with basic algebra and we aim for all students to finish year 9 with the confidence and knowledge to embrace the demands of Key Stage 4. Where appropriate the learning will continue to be structured by working in the concrete and pictorial and moving onto the abstract. The year 9 algebra topics will allow students to consolidate and deepen their understanding of manipulating and solving equations and further develop their understanding of graphical representations.

Key Skills and Knowledge taught through this topic: (Intent)

- Expand and factorise quadratics
- Solve an inequality and represent this on a number line
- Solve linear inequalities where a variable is on both sides and brackets are involved
- Use the equation of a straight line – y = mx +c
  - Understand and solve problems involving parallel and perpendicular gradients
  - Find the equation of a line given 2 points and 1 point with a gradient
- Interpret properties of quadratic graphs (intercept, symmetry, positive or negative, coefficients)
- Identify solutions from intersecting graphs
- Solve linear simultaneous equations

Prior Learning: (Context)
KS2:
Please see Year 7 Algebra
Year 7:
Please see Year 7 Algebra
Year 8:
Factorising expressions
Rearranging equations
Solving linear equations with x on both sides
Understand y=mx+c

Future Learning: (Context)
KS4: As above and Mathematics Programme of Study Key Stage 4 Pg7-8

Solving complex equations
Solving simultaneous equations involving a linear and quadratic equation
Forming and solving equations
Solving equations by numerical methods
Understanding quadratic equations and identifying turning points.

National Curriculum Links: (Context)
Mathematics Programme of Study: Key Stage 3

RRSA Links:
Article 17 – Access information
Article 28 – Access education
Article 29 – Goals of education

British Values Links:
Mutual respect – Working together with tolerance and mutual understanding, treating others with respect.

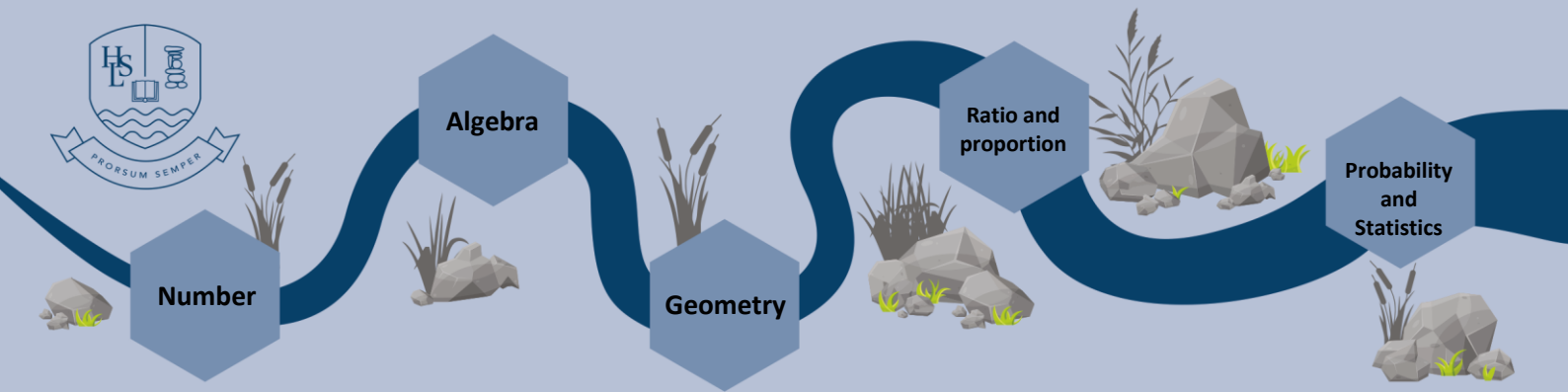
Eco Schools Links:
N/A

Assessment of Learning: (Impact)
Summative: formal assessments in December, March June

Formative: BAM tasks and homework tasks

Informal: low-stakes quizzes, questioning, mini-whiteboard work

Reading / Enrichment: <u>Useful websites:</u> Mathswatch clips – A1a – A28 Corbettmaths.com <u>In school enrichment:</u> Sum up the week Maths challenge club Weekly maths challenge Numeracy in tutor <u>Books:</u> CGP: Key stage 3 complete practice	**Key Vocabulary:** (Literacy) Expression, Gradient, Equation, Formulae Term, Function, Variable, Simplify Expand, Factorise Substitute, Quadratic Linear, Perpendicular, Gradient, Parallel, Intercept	**Numeracy Opportunities:**	**Career Links:** Engineer Economist Accountant Financial analyst Data analyst Research scientist Computer programmer Healthcare professionals Architect



Subject: Maths	Year Group: 9	Term: 1, 2 and 3

Module/Theme: Geometry

Topic Outline & Aims (Intent)
During year 9 students will build upon their prior learning of geometry. Through discovery, students will be able to deepen their understanding of the properties of shapes, volume, surface area, congruence and similarity.

Key Skills and Knowledge taught through this topic: (Intent)

- Construct and interpret bisectors of angles and line segments
- Understand and solve problems involving loci
- Calculate the area and arc lengths of sectors
- Calculate the area and perimeter of semi and quarter circles
- Calculate the volume and surface area of cylinders
- Understand, recognise and solve problems involving similarity between shapes
- Understand, recognise and solve problems involving congruence of shapes

Prior Learning: (Context)
KS2:
Please see Year 7 Geometry
Mathematics programme of study: Key Stage 2 Pg 43 – 45
Year 7:
Please see Year 7 Geometry
Year 8:
Plans, elevations and scale drawing
Alternate and corresponding angles
Interior and exterior angles in polygons
Circles, circumference and area
Volume of cylinders

Future Learning: (Context)
KS4: As above and Mathematics Programme of Study: Key Stage 4
Trigonometry
Pythagoras
Area of a triangle using Sin
Sine Rule and Cosine Rule
Circle theorems
Vectors

National Curriculum Links: (Context)
Mathematics Programme of Study: Key Stage 3

RRSA Links:
Article 17 – Access information
Article 28 – Access education
Article 29 – Goals of education

British Values Links:
Mutual respect – Working together with tolerance and mutual understanding, treating others with respect.

Eco Schools Links:
N/A

Assessment of Learning: (Impact)
Summative: formal assessments in December, February and June

Formative: BAM tasks and homework tasks

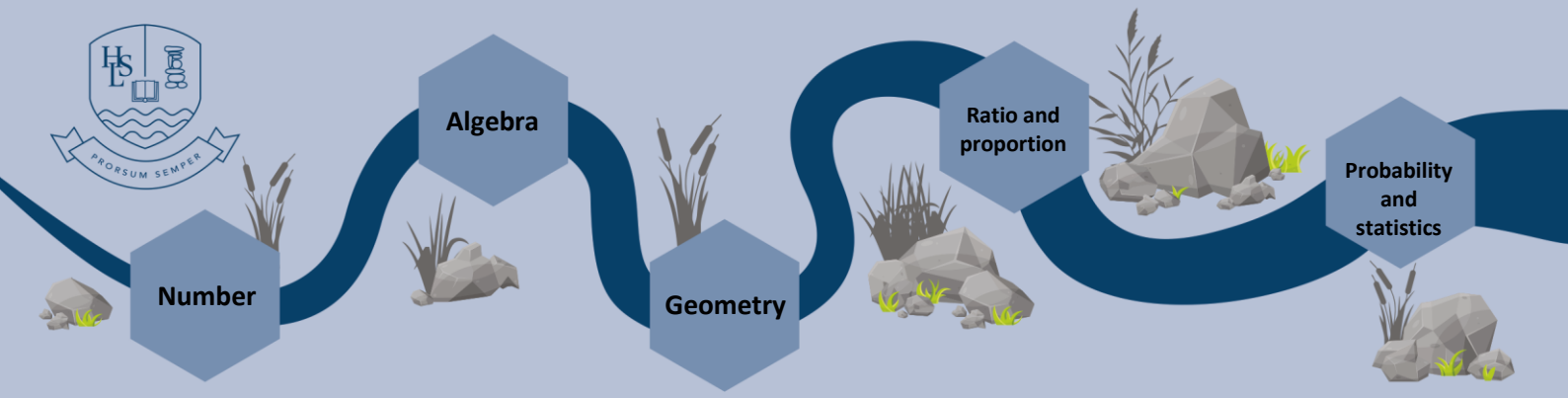
Informal: low-stakes quizzes, questioning, mini-whiteboard work

Reading / Enrichment:
Useful websites:
Mathswatch clips – A1a – A28
Corbettmaths.com
In school enrichment:
Sum up the week
Maths challenge club
Weekly maths challenge
Numeracy in tutor
Books:
CGP: Key stage 3 complete practice

Key Vocabulary: (Literacy)
Perpendicular bisector
Angle bisector
Sector
Tangent
Circumference
Radius
Diameter
Arc length
Surface area
Congruence
Similarity

Numeracy links:

Career Links:
Basic numeracy requirement for all careers.
Engineer
Builder
Banker
Architecture
Designer
Space scientist
Artist
Sculptor



Subject: Maths	Year Group: 8	Term: 1, 2 and 3

Module/Theme: Number

Topic Outline & Aims (Intent)

The Number strand of the curriculum is fundamental to successful progression through Key Stage 3. The aim in Year 9 is for students to demonstrate fluency of the fundamentals. Students will deepen their understanding of familiar numerical concepts from years 7 and 8 including negative numbers, indices, roots and standard form.

Key Skills and Knowledge taught through this topic: (Intent)

- Apply the laws of indices to numerical and algebraic problems (including negative and fractional indices)
- Work competently with roots and use them to manipulate numbers
- Calculate with numbers written in standard form
- Identify bounds when a value has been rounded
- Understand error intervals and use these appropriately when working in context.

Prior Learning: (Context)

KS2:
Please see Year 7 Number
Mathematics Programme of Study: Key Stage 2 (Page 6, 11, 18, 24, 31, 39)
Year7:
Please see Year 7 Number
Year 8:
HCF and LCM from prime factors
Standard form
Order of operations
Negative numbers

Future Learning: (Context)

KS4:
Compound interest
Calculating with fractional and negative indices
Working with surds and recurring decimals

National Curriculum Links: (Context)

Mathematics Programme of Study: Key Stage 3 (Page 5 and 6)

RRSA Links:

Article 17 – Access information
Article 28 – Access education
Article 29 – Goals of education

British Values Links:

Mutual respect – Working together with tolerance and mutual understanding, treating others with respect.

Eco Schools Links:

N/A

Assessment of Learning: (Impact)

Summative: formal assessments in December, February and June

Formative: BAM tasks and homework tasks

Informal: low-stakes quizzes, questioning, mini-whiteboard work

Reading / Enrichment:

Useful websites:
Mathswatch clips – N1 – N46
Corbettmaths.com
In school enrichment:
Sum up the week
Maths challenge club
Weekly maths challenge
Numeracy in tutor
Books:
CGP: Key stage 3 complete practice

Key Vocabulary: (Literacy)

Place value, square number, cube number, square root, cube root, rounding, significant figure, estimate, prime, factor, error interval, upper bound, lower bound,

Numeracy Opportunities:

Career Links:

Basic numeracy requirement for all careers

Chemist,
Physicist,
Biologist,
Engineer,
Statistician,
Astronomer,
Computer programmer,