

## Year 9 Maths

### Areas of Learning

- **Number and Algebra:** Algebraic expressions, linear and quadratic equations. Percentages and proportion. Sequences.
- **Shape and space:** Angles and polygons. Circumference, areas, surface areas and volumes of prisms and cylinders. Locus and transformations.
- **Probability and Statistics:** Venn and Tree diagrams. Mode, mean, median, range and quartiles.

### Approaches to learning

- **Number and Algebra:** Simplify and construct simple and quadratic expressions. Construct and solve linear, quadratic equations and linear inequalities. Solve problems involving percentage change, personal and household finance. Interpret and use ratio in a range of contexts, compare two ratios and solve problems involving proportionality. Use compound measures to make comparisons in real life contexts. Generate terms of a sequence and derive an expression for the  $n$ th term.
- **Shape and space:** Prove and use the formulae for the sum of interior and exterior angles of any polygon. Calculate the interior and exterior angle of any regular polygon. Solve problems using properties of angles, parallel and intersecting lines, other polygons and circles. Construct perpendicular lines, equilateral triangles and regular polygons by constructing equal divisions of a circle. Solve problems involving the circumference and area of circles, surface areas, volumes in right –angled prisms and cylinders. Find the locus and transform two-dimension shapes.
- **Probability and Statistics:** Understand and use the probability scale. Solve problems by using Tree and Venn diagrams. Determine the mean, mode, range and median. Draw cumulative frequency graphs. Design a tally table, organise data and interpret data by using pie charts, pictograms and graphs.

### Examples of learning

- Pupils work in groups to solve problems.
- Construct regular polygons and investigate angles in regular polygons.
- Develop practical outdoor activities where possible.
- Work in pairs, make and use scale drawings and interpret maps.
- Pupils undertake a statistical survey which is then used as the basis of further calculations (mean, mode, quartiles).

### References

- Mathematics stage 9 for Cambridge Secondary 1, (Oxford) Patrick Kivlin, Sue Pemberton, Paul Winters