Using Maths Aotearoa and Wilkie Way to deliver the refreshed New Zealand Curriculum

Maths Aotearoa Book 4B provides a range of learning opportunities building onto knowledge and concepts developed in year 7. These learning opportunities enable students to achieve the outcomes expected in year 8. The teacher book also provides links to further learning opportunities in the MOE Figure it Out series available in all schools

Maths Aotearoa teacher books and student books are available from edify.co.nz

Wilkie Way members also have access to Professional Resources on the teaching of geometric ideas and further classroom resources

Phase 3: Year 8

Understand: (big ideas)	Do (practices)
As students build knowledge through their use of the mathematical and statistical processes, they begin to understand: • Patterns and variation • Logic and reasoning • Visualisation and application	Students will have learning opportunities to: • Investigate situations • Represent situations • Connect situations • Generalise findings • Explain and justify findings

Know: Context of Geometry

Shapes	Spatial reasoning	Pathways
Describe triangles, quadrilaterals and other polygons in relation to ther sides, diagonals and angles. Reason about unknown angles in situations involving angles at a point, angles on a straight line, vertically opposite angles and interior angles of triangles and quadrilaterals.	Visualise and draw nets for prisms with a fixed cross section. Recognise the invariant properties of 2D and 3D shapes under different transformations.	Use maps scales, compass points, distance, and turn to interpret and communicate positions and pathways in co-ordinate systems and grid references systems.

Maths Literacy Development

- Confidently use specialist vocabulary associated with shape, space, position and orientation - see vocabulary list in the curriculum document
- Confidently read & understand math texts involving geometric language and concepts

Concepts being developed	Key knowledge being developed
• Views from different perspectives • Variant and invariant properties of transformations (reflections, rotations, translations, enlargements) • Spatial thinking by asking, Which way? How far? • Proportional thinking	• Know shapes can be decomposed or recomposed to help find perimeters, areas and volumes • Specific vocabulary and ideas related to circles (foundational to Phase 4) • Know the sum of angles in a triangle is equal to180º • Know the sum of the angles on a straight line is equal to 180º • Know opposite angles of intersecting lines are equal • Know the angle of incidence is equal to the angle of reflection • Know the distance from the line of symmetry is equal for the object and it's reflection

Maths Aotearoa Book 4B	Support Material available from Wilkie Way website wilkieway.co.nz: membership area (subscription)
Unit 4 Geometric Properties **Chapter 10 Plans & Elevations** • Use isometric paper to draw rectangular prisms • Build models of rectangular prisms from 2 dimensional representations • Construct a simple scale model from a plan showing different elevations • Draw different elevations of a model **Chapter 11 Tessellations** • Investigate tessellations • Use reflection, rotation or flipping to create new tessellations • Discover a special relationship ratio 3:4:5 using lattice points and squares (Pythagoras theorem)	**Teacher Professional Resources:** **Curriculum Knowledge:** **Geometry** Pocket Guide: Further Developing Geometric Thinking Geometric Progressions **Video Lesson** Bearings
Unit 5: Position and Orientation **Chapter 12 Investigating with Angles** *This chapter is also included in the measurement plan as it involves measuring angles.* • Use knowledge of rotation to calculate unknown angles along a straight line • Use angle properties of triangles to calculate unknown angles • Use algebraic reasoning to explain rules for geometric shapes **Chapter 13 Bearings and Locations** • Describe location using compass points and a co-ordinate system • Investigate and describe direction using bearings	
Unit 6 Transformations **Chapter 14 Reflective Symmetry** • Identify the invariant properties of reflection • Use the properties of reflection to measure distance and angles **Chapter 15 Rotations and Transformations** • Identify invariant properties of rotation • Rotate an object around a fixed point • Measure the angle of rotation • Translate an object through a fixed point in a given direction **Chapter 16 Enlargements and Distortions** • Identify the invariant properties of enlargements • Understand how a distortion occurs • Use a ratio to increase or decrease a linear measure	