



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

The only progress step given for year 5 for Space (Geometry) refers to visualise and draw nets for a cube. It is essential to look at all the progress outcomes for year 6, along with the learning progressions and consider the stepping stones and learning opportunities students can build on to achieve all the progress outcomes specified for end of the phase. Year 5 learning opportunities come from book 3A of Maths Aotearoa as part of the structured approach to learning mathematical concepts, skills and knowledge. Many activities are practical, providing foundations for later learning.

Each chapter is linked to further learning opportunities in Figure it Out

*Maths Aotearoa teacher books and student books are available from [edify.co.nz](http://edify.co.nz)*

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

### Phase 2: Year 5

#### Understand: (big ideas)

- Use maths to seek and understand patterns and relationships
- Use maths to work with and make sense of change and variation
- Use maths logic & reasoning to explain relationships and justify conclusions
- Make use of different cultural views and ideas about mathematics
- Embrace the history and evolution of mathematics

#### Do (practices)

Students will have learning opportunities to:

- Investigate situations
- Represent situations
- Connect situations
- Generalise findings
- Explain and justify findings

### Know: Context of Space (Geometry)

#### Maths Literacy Development

- Assistance with learning to use specialist vocabulary associated with shape, space, position and orientation
- Assistance with reading & understanding math texts involving geometric language and concepts

#### Concepts being developed

- Direction (which way?), Distance (How far?), Location (Where?)
- Angle as a turn around a fixed point
- Reflective and rotational symmetry
- Transformations
- Understand properties of 2D shapes
- Spatial thinking
- Spatial reasoning
- Spatial visualisation
- Multiplicative and proportional thinking

#### Key knowledge being developed

- Know about the existence of pi ( $\pi$ )
- Know the properties of cubes and cuboids
- Know enlargements (and reduction) proportionally alters lengths but not angles
- Know  $360^\circ$  in a full turn,  $180^\circ$  in a half turn,  $90^\circ$  in a quarter turn
- Know terms acute angle, obtuse angle and reflex angle
- Know scale on a map as a multiplier
- Know convention for writing co-ordinate pairs

| <p style="text-align: center;"><b>Maths Aotearoa Book 3A</b></p>   | <p style="text-align: center;"><b>Support Material available from Wilkie Way website<br/>wilkieWAY.co.nz: membership area (subscription)</b></p>   |
|--|--|
| <p><b>Unit 6: Geometric Shapes</b></p> <p><b>Chapter 16 Exploring Circles</b></p> <ul style="list-style-type: none"> <li>• Use a pair of compasses to draw a circle</li> <li>• Introduction to the geometric language specifically associated with circles</li> </ul> <p><b>Chapter 17 Exploring Cubes and Cuboids</b></p> <ul style="list-style-type: none"> <li>• Describe the properties of cubes and cuboids</li> <li>• Recognise and draw a net for a cube or cuboid</li> <li>• Draw cubes and cuboids using translation</li> <li>• Draw cubes and cuboids using isometric paper</li> </ul>   | <p><b>Teacher Professional Resources:</b></p> <p><b>Curriculum Knowledge:</b></p> <p><b>Geometry</b></p> <p>Pocket Guide: Further Developing Geometric Thinking</p> <p>Geometric Progressions</p> <p><b>Moderation</b></p> <p>Geometric Thinking Progressions Signposts 3 - 5</p> <p><b>Student Resources</b></p> <p>Geometric Problems</p> <p><b>Video Lessons</b></p> <p>Lines, angles and triangles</p> <p>Drawing plane shapes</p> |
| <p><b>Unit 7: Transformations</b></p> <p><b>Chapter 18 Reflective Symmetry</b></p> <ul style="list-style-type: none"> <li>• Recognise reflective symmetry in shapes</li> <li>• Create shapes with reflective symmetry</li> <li>• Understand how distance from a line of symmetry plays a part in the reflected image</li> </ul> <p><b>Chapter 19 Tessellations</b></p> <ul style="list-style-type: none"> <li>• Understand and use the features of shapes that make tessellation possible</li> <li>• Draw triangles using a ruler and compass</li> <li>• Translate and reflect shapes to create a tessellating pattern</li> </ul> <p><b>Chapter 20 Enlargements</b></p> <ul style="list-style-type: none"> <li>• Understand term “scale factor”</li> <li>• Enlarge a 2D shape using grids</li> <li>• Enlarge a simple 3D shape using multi link cubes</li> </ul> |  |

## Unit 8: Position and Orientation

### Chapter 21 Investigating Angles

*This chapter was also included in the measurement plan as it involves the measurement of angles*

- Use a protractor to measure angles
- Know a right angle is  $90^\circ$
- Begin to use language of angles to describe more or less than  $90^\circ$  (acute or obtuse), more than  $180^\circ$  (reflex)
- Use degrees to describe rotation between compass points

### Chapter 22 Plans and Directions

- Read simple maps and plans
- Read a distance on a map using a simple scale
- Enlarge shapes using a specific ratio

### Chapter 23 Co-ordinates and Graphs

- Read co-ordinate pairs
- Plot co-ordinate pairs
- Interpret time series data