

NRICH F-6 curriculum mapping document

Mapping to the Australian Curriculum - Measurement and Geometry

Many Australian teachers access the problems, games and investigations from the website www.nrich.maths.org to use with their students either as launch activities or as longer investigations during mathematics lessons. This resource maps the NRICH tasks to the Australian Curriculum descriptors (ACARA) for Measurement and Geometry. The NRICH [primary site](#) provides links to other countries' curriculum documents (e.g. England's curriculum) and these have been a guide for the production of this resource. In this resource, the tasks have been linked to the Australian Curriculum content descriptors only. All of these tasks potentially link to the proficiencies of understanding, fluency, problem solving and reasoning - however, it is more how the individual teacher utilises the tasks, and how the students interact with them, that determine the links to these processes.

This resource maps tasks to the Measurement and Geometry strand. Two other resources have been developed that link to [Number and Algebra](#) and [Statistics and Probability](#). The links here are not an exhaustive list of the many ways the tasks can be utilised or connected to concepts across the curriculum. The tasks have been linked to the content descriptor they mainly focus on, although connections can be made to other areas as well. As more tasks are added to the NRICH site this document will be updated.

NRICH also have a [Primary Live Problems](#) site where schools and their students can access problems and then send their solutions to NRICH who will publish a selection of them.

References

Australian Curriculum, Assessment and Reporting Authority (ACARA) mathematics curriculum content descriptors are all © Australian Curriculum, Assessment and Reporting Authority accessed via <https://www.australiancurriculum.edu.au/f-10-curriculum/mathematics>

NRICH website www.nrich.maths.org all tasks © University of Cambridge

Using units of measure			
Foundation content descriptors			
Use direct and indirect comparisons to decide which is longer, and explain their reasoning using everyday language (ACMMG006) Making Caterpillars Long Creatures I Have a Box Mud Kitchen	Compare and order the duration of events using the everyday language of time (ACMMG007) Calendar Muddle Timing Times of Day	Connect days of the week to familiar events and actions (ACMMG008) Calendar Muddle	
Year 1 content descriptors			
Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019) Making Caterpillars Long Creatures Mud Kitchen Water, Water ... Can You Do it Too? Building Towers	Tell time to the half-hour (ACMMG020) Stop the Clock	Describe duration using months, weeks, days and hours (ACMMG021) Calendar Muddle Timing Times of Day Snap Matching Time	



Using units of measure

Year 2 content descriptors

Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMG037)

[Making Caterpillars](#)
[Long Creatures](#)
[Wrapping Parcels](#)
[I Have a Box](#)
[Water, Water ...](#)
[Sizing Them Up](#)
[Different Sizes](#)
[Bottles \(1\)](#)
[Bottles \(2\)](#)
[Wallpaper](#)
[Thirsty?](#)
[Order, Order!](#)
[Compare the Cups](#)
[Making Longer, Making Shorter](#)
[Packing](#)

Compare the masses of objects using balance scales (ACMMG038)

[Balances](#)
[Presents](#)
[The Spring Scale](#)
[Weighted Numbers](#)

Tell time to the quarter-hour using the language of 'past' and 'to' (ACMMG039)

[Stop the Clock](#)

Name and order months and seasons (ACMMG040)

[Calendar Muddle](#)

Use a calendar to identify the date and determine the number of days in each month (ACMMG041)

[Calendar Muddle](#)



Using units of measure

Year 3 content descriptors

Measure, order and compare objects using familiar metric units of length, mass and capacity (ACMMG061)

Wrapping Parcels
Balances
Cooking with Children
Presents
Spring Scale
Bottles (1)
Bottles (2)
Little Man
Order, Order!
Compare the Cups
Weighted Numbers
Olympic Starters
Car Journey
Oh! Harry!
Pouring Problem

Tell time to the minute and investigate the relationship between units of time (ACMMG062)

What Is the Time?
Clocks
Two Clocks
The Time Is ...
Approaching Midnight
Wonky Watches
Watch the Clock
Times
Clock Hands



Using units of measure

Year 4 content descriptors

Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)

[Cooking](#)
[Little Man](#)
[How Tall?](#)
[Order, Order!](#)
[Compare the Cups](#)
[Weighted Numbers](#)
[Car Journey](#)
[Oh! Harry!](#)

Compare objects using familiar metric units of area and volume (ACMMG290)

[Area and Perimeter](#)
[Though the Window](#) (*note: change to dollar sign for Australian context*)
[Numerically Equal](#)
[Fitted](#)
[Dicey Perimeter, Dicey Area](#)

Convert between units of time (ACMMG085)

[Two Clocks](#)
[Approaching Midnight](#)

Use 'am' and 'pm' notation and solve simple time problems (ACMMG086)

[Matching Time](#)
[Approaching Midnight](#)
[Wonky Watches](#)
[Watch the Clock](#)
[Clock Hands](#)

Using units of measure			
Year 5 content descriptors		Year 6 content descriptors	
Choose appropriate units of measurement for length, area, volume, capacity and mass (ACMMG108)	Calculate perimeter and area of rectangles using familiar metric units (ACMMG109)	Compare 12- and 24-hour time systems and convert between them (ACMMG110)	Interpret and use timetables (ACMMG139)
How Tall? Order, Order! Compare the Cups Area and Perimeter Though the Window (note: change to dollar sign for Australian context) Numerically Equal Fitted Pouring Problem Dicey Perimeter, Dicey Area	Area and Perimeter Though the Window (note: change to dollar sign for Australian context) Numerically Equal Fitted Dicey Perimeter, Dicey Area	The Time Is ... 5 on the Clock Approaching Midnight	



Using units of measure

Year 6 content descriptors

Connect decimal representations to the metric system (ACMMG135)

Convert between common metric units of length, mass and capacity (ACMMG136)

Solve problems involving the comparison of lengths and areas using appropriate units (ACMMG137)

Connect volume and capacity and their units of measurement (ACMMG138)

[Area and Perimeter](#)
[Though the Window](#) (*note: change to dollar sign for Australian context*)
[Brush Loads](#)
[Numerically Equal](#)
[Ribbon Squares](#)
[Fitted](#)
[Dicey Perimeter, Dicey Area](#)

[Oh! Harry!](#)
[Next Size Up](#)

Shape			
Foundation content descriptor	Year 1 content descriptor	Year 2 content descriptors	
Sort, describe and name familiar two-dimensional shapes and three-dimensional objects in the environment (ACMMG009) Presents Mud Kitchen Collecting Exploring 2D Shapes Making Footprints Building Towers Packing Tubes and Tunnels Shapes in the Bag Matching Triangles Data Shapes Paper Partners	Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022) Presents Exploring 2D Shapes Making a Picture Building Towers Shapes in the Bag Jig Shapes Poly Plug Rectangles Seeing Squares Chain of Changes Triangle or No Triangle? Building with Solid Shapes Matching Triangles Data Shapes Paper Partners Sorting Logic Blocks	Describe and draw two-dimensional shapes, with and without the use of digital technologies (ACMMG042) Shaping It What's Happening? Always, Sometimes or Never? KS1 Shapely Lines Let's Investigate Triangles Seeing Squares Paper Patchwork 1 Paper Patchwork 2 Chain of Changes Complete the Square Inside Triangles Board Block Seven Sticks Board Block Challenge What Shape? Shapes on the Playground Geoboards Making Rectangles Where Are They? Egyptian Rope Sorting Logic Blocks	Describe the features of three-dimensional objects (ACMMG043) Presents Packing Tubes and Tunnels Always, Sometimes or Never? KS1 Building with Solid Shapes Shadow Play

Shape			
Year 3 content descriptor	Year 4 content descriptors	Year 5 content descriptor	
<p>Make models of three dimensional objects and describe key features (ACMMG063)</p> <p>Building Towers Packing Tubes and Tunnels Rolling That Cube Skeleton Shapes Cubes Cubes Cut Into Four Pieces Triple Cubes Building Blocks Arranging Cubes Construct-o-straws Making Cuboids</p>	<p>Compare the areas of regular and irregular shapes by informal means (ACMMG087)</p> <p>Area and Perimeter Fitted</p>	<p>Compare and describe two dimensional shapes that result from combining and splitting common shapes, with and without the use of digital technologies (ACMMG088)</p> <p>What's Happening? Overlaps Three Squares Paper Patchwork 1 Paper Patchwork 2 Tangram Tangle A City of Towers Triangle Animals Torn Shapes Stick Images Overlapping Again Move Those Halves Penta Place Tetrafit Polydron Four Triangles Puzzle Cut and Make Making Rectangles</p>	<p>Connect three-dimensional objects with their nets and other two-dimensional representations (ACMMG111)</p> <p>Rolling That Cube Shadow Play Making Boxes Building Blocks A Puzzling Cube Arranging Cubes Sponge Sections The Third Dimension Inky Cube Cut Nets</p>



Shape			
Year 6 content descriptors			
Construct simple prisms and pyramids (ACMMG140)			
Skeleton Shapes			

Location and transformation			
Foundation content descriptor	Year 1 content descriptor		
Describe position and movement (ACMMG010)	Give and follow directions to familiar locations (ACMMG023)		
Mud Kitchen Paths Position with Wellies (<i>note: may need to call them boots or gumboots</i>) Small World Play 2 Rings Olympic Rings	Paths Position with Wellies (<i>note: may need to call them boots or gumboots</i>) Scooters, Bikes and Trikes Small World Play		



Location and transformation

Year 2 content descriptors

Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)

[Six Places to Visit](#)

Investigate the effect of one-step slides and flips, with and without the use of digital technologies (ACMMG045)

[Overlaps](#)
[Three Squares](#)
[Exploded Squares](#)
[Matching Triangles](#)
[Olympic Rings](#)
[Cover the Camel](#)
[Overlapping Again](#)
[Tessellating Triangles](#)
[Polydron](#)
[Let Us Reflect](#)

Identify and describe half-turns and quarter-turns (ACMMG046)

[Shaping It](#)
[Matching Triangles](#)
[Turning](#)
[Turning Man](#)
[Cover the Camel](#)
[Tessellating Triangles](#)
[Penta Place](#)
[Tetrafit](#)
[Polydron](#)

Location and transformation			
Year 3 content descriptors		Year 4 content descriptors	
<p>Create and interpret simple grid maps to show position and pathways (ACMMG065)</p> <p>Six Places to Visit</p>	<p>Identify symmetry in the environment (ACMMG066)</p> <p>Shaping It National Flags</p>	<p>Use simple scales, legends and directions to interpret information contained in basic maps (ACMMG090)</p>	<p>Create symmetrical patterns, pictures and shapes with and without digital technologies (ACMMG091)</p> <p>Shaping It Exploded Squares Colouring Triangles Poly Plug Pattern Repeating Patterns Circles, Circles School Fair Necklaces Stick Images Tessellating Triangles Two by One Bracelets Symmetry Challenge</p>

Location and transformation

Year 5 content descriptors

Use a grid reference system to describe locations. Describe routes using landmarks and directional language (ACMMG113)

Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)

- [Exploded Squares](#)
- [Triple Cubes](#)
- [Square Corners](#)
- [Move Those Halves](#)
- [Inky Cube](#)
- [Nine-pin Triangles](#)
- [Tetrafit](#)
- [Polydron](#)
- [Baravelle](#)
- [Let Us Reflect](#)
- [Stringy Quads](#)
- [Triangles All Around](#)
- [National Flags](#)
- [Symmetry Challenge](#)
- [Reflector! Rotcelfer](#)

Apply the enlargement transformation to familiar two dimensional shapes and explore the properties of the resulting image compared with the original (ACMMG115)

- [Twice as Big?](#)
- [Transformations on a Pegboard](#)



Location and transformation

Year 6 content descriptor

Investigate combinations of translations, reflections and rotations, with and without the use of digital technologies (ACMMG142)

- Overlaps
- Three Squares
- Tangram Tangle
- Cover the Camel
- Square Corners
- Overlapping Again
- Move Those Halves
- Inky Cube
- Tessellating Triangles
- Penta Place
- Tetrafit
- Polydron
- Transformations on a Pegboard

Introduce the Cartesian coordinate system using all four quadrants (ACMMG143)

- Journeys in Numberland
- Transformation Tease
- Coordinate Challenge
- Eight Hidden Squares
- Cops and Robbers
- Coordinate Tan
- Ten Hidden Squares
- A Cartesian Puzzle

Geometric reasoning			
Year 3 content descriptor	Year 4 content descriptor	Year 5 content descriptor	Year 6 content descriptor
<p>Identify angles as measures of turn and compare angle sizes in everyday situations (ACMMG064)</p> <p>Walking Round a Triangle Six Places to Visit Olympic Turns</p>	<p>Compare angles and classify them as equal to, greater than, or less than, a right angle (ACMMG089)</p> <p>Take the Right Angle Olympic Turns National Flags</p>	<p>Estimate, measure and compare angles using degrees. Construct angles using a protractor (ACMMG112)</p> <p>The Numbers Give the Design Estimating Angles How Safe Are You? Olympic Turns Round a Hexagon National Flags</p>	<p>Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles (ACMMG141)</p> <p>The Numbers Give the Design Estimating Angles</p>