

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 task 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, other 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 section 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 Snap	
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 Sizing them up Can you do it too? Building towers	Tell time to the half-hour (ACMMG020) What is the time? Stop the clock Matching time Clocks Two clocks	Describe duration using months, weeks, days and hours (ACMMG021) Calendar muddle Timing Times of day The games' medals Snap Matching time	



Using units of measure

Year 2 content descriptors

<p>Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMG037)</p> <p>Making caterpillars Long creatures Wrapping parcels I have a box Water, water Sizing them up The animals' sports day Different sizes Bottles 1 Bottles 2 Wallpaper Thirsty? Order, order! Compare the cups Making longer, making shorter Packing</p>	<p>Compare the masses of objects using balance scales (ACMMG038)</p> <p>Balances Presents Spring scale Order, order! Weighted numbers</p>	<p>Tell time to the quarter-hour using the language of 'past' and 'to' (ACMMG039)</p> <p>What is the time? Matching time Clocks Two clocks</p>	<p>Name and order months and seasons (ACMMG040)</p> <p>Calendar muddle Matching time</p>
<p>Use a calendar to identify the date and determine the number of days in each month (ACMMG041)</p> <p>Calendar muddle</p>			



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
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			
<p>Use scaled instruments to measure and compare lengths, masses, capacities and temperatures (ACMMG084)</p> <p>Cooking Little man How tall? Order, order! Compare the cups Weighted numbers Car journey Oh! Harry!</p>	<p>Compare objects using familiar metric units of area and volume (ACMMG290)</p> <p>Area and perimeter Though the window (note: change to dollar sign for Australian context) Numerically equal Fitted Dicey perimeter, dicey area</p>	<p>Convert between units of time (ACMMG085)</p> <p>Order, order! Olympic starters Two clocks Approaching midnight Wonky watches</p>	<p>Use 'am' and 'pm' notation and solve simple time problems (ACMMG086)</p> <p>Matching time Approaching midnight Wonky watches Watch the clock Clock hands</p>

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) 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 Six places to visit	Calculate perimeter and area of rectangles using familiar metric units (ACMMG109) Area and perimeter Though the window (note: change to dollar sign for Australian context) Numerically equal Fitted Dicey perimeter, dicey area	Compare 12- and 24-hour time systems and convert between them (ACMMG110) The time is ... 5 on the clock Approaching midnight	Interpret and use timetables (ACMMG139)
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) 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	Connect volume and capacity and their units of measurement (ACMMG138) 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)	Recognise and classify familiar two-dimensional shapes and three-dimensional objects using obvious features (ACMMG022)	Describe and draw two-dimensional shapes, with and without the use of digital technologies (ACMMG042)	Describe the features of three-dimensional objects (ACMMG043)
<ul style="list-style-type: none"> Presents Mud kitchen Collecting Exploring 2D shapes Making footprints Building towers Packing Tubes and tunnels Shapes in a bag Matching triangles Data shapes Paper partners 	<ul style="list-style-type: none"> Presents Exploring 2D shapes Making a picture Building towers Shapes in a 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 What shape? Geoboards Where are they? Egyptian rope 	<ul style="list-style-type: none"> Making footprints Making a picture 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? 	<ul style="list-style-type: none"> Presents Packing Tubes and tunnels Always, sometimes or Never? KS1 Building with solid shapes Shadow play Sorting logic blocks

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 places Tetrafit Polydrons Four triangles puzzle Cut and make Square to L Tangram paradox Penta play Making rectangles</p>	<p>Connect three-dimensional objects with their nets and other two-dimensional representations (ACMMG 111)</p> <p>Rolling that cube Skeleton shapes Shadow play Cubes cut into four pieces Triple cubes Making boxes Building blocks A puzzling cube Arranging cubes Sponge sections The third dimension Inky cube Multilink cubes Construct-o-straws Little boxes Cereal packets Cut nets</p>

Shape			
Year 6 content descriptors			
Construct simple prisms and pyramids (ACMMG140)			
<ul style="list-style-type: none"> Skeleton shapes Cubes Next size up Building blocks Arranging cubes Sponge sections Multilink cubes Construct-o-straws Making cuboids 			

Location and transformation			
Foundation content descriptor	Year 1 content descriptor		
Describe position and movement (ACMMG010)	Give and follow directions to familiar locations (ACMMG023)		
<ul style="list-style-type: none"> Mud kitchen Paths Position with Wellies (note: may need to call them boots or gumboots) Small world play Two rings Olympic Rings 	<ul style="list-style-type: none"> Paths Position with Wellies (note: may need to call them boots or gumboots) Scooters, bikes and trikes Small world play Six places to visit 		

Location and transformation			
Year 2 content descriptors			
<p>Interpret simple maps of familiar locations and identify the relative positions of key features (ACMMG044)</p> <p>Six places to visit</p>	<p>Investigate the effect of one-step slides and flips, with and without the use of digital technologies (ACMMG045)</p> <p>Shaping it Jig shapes Overlaps Three squares Exploding squares Chain of changes Matching triangles Turning Olympic Rings Turning man Cover the camel Overlapping again Move those halves Tessellating triangles Penta places Tetrafit Polydrons Cut and make Tangram paradox Let us reflect Penta play</p>	<p>Identify and describe half-turns and quarter-turns (ACMMG046)</p> <p>Shaping it Jig shapes Overlaps Matching triangles Turning Turning man Cover the camel Overlapping again Move those halves Tessellating triangles Penta places Tetrafit Polydrons Penta play</p>	

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 Exploding squares Colouring triangles Poly plug pattern Repeating pattern Circles, circles School fair necklaces Stick images Seven sticks Jumping reindeer Tessellating triangles Penta places Two by one Tetrafit Polydrons Bracelets Cut and make Let us reflect Penta play 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)

[Overlaps](#)
[Three squares](#)
[Exploding squares](#)
[Colouring triangles](#)
[Matching triangles](#)
[Triple cubes](#)
[Square corners](#)
[Overlapping again](#)
[Move those halves](#)
[Inky cube](#)
[Nine-pin triangles](#)
[Tri.'s](#)
[Penta places](#)
[Tetrafit](#)
[Polydrons](#)

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

[Bracelets](#)
[Cut it out](#)
[Baravelle](#)
[Let us reflect](#)
[Penta play](#)
[Stringy quads](#)
[Logo challenge 1 - Star square](#)
[Triangles all around](#)
[National flags](#)
[Symmetry challenge](#)
[Reflector! Rotcelfer](#)
[Egyptian rope](#)
[Transformations on a pegboard](#)

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](#)

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 places
 Tetrafit
 Polydrons
 Shape draw
 Let us reflect
 Penta play
 Triangles all around
 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 Round a hexagon</p>	<p>Compare angles and classify them as equal to, greater than, or less than, a right angle (ACMMG089)</p> <p>Caterpillars 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 Logo challenge 1 - Star square 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>