

Nrich F-6 curriculum mapping document

Mapping to the Australian Curriculum - Number and Algebra

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 Number and Algebra. 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 Number and Algebra strand, two other resources have been developed that link to [Measurement and Geometry](#) 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



Number and place value

Foundation content descriptors

Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point (ACMNA001)

[The estimation station](#)
[Using books: Maisie goes camping](#)
[Number book](#)
[Owl's packing list](#)
[Tidying](#)

Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002)

[Number talks](#)
[The estimation station](#)
[Golden beans](#)
[Number rhymes](#)
[Dice](#)
[The box game](#)

Subitise small collections of objects (ACMNA003)

[Number talks](#)
[Hidden jewels](#)
[Show me](#)

Compare, order and make correspondences between collections, initially to 20, and explain reasoning (ACMNA289)

[The voting station](#)
[Show me](#)
[Dice](#)
[Number match](#)
[Using books: The doorbell rang](#)
[Maths story time](#)

Represent practical situations to model addition and sharing (ACMNA004)

[Using books: Maisie goes camping](#)
[Double trouble](#)
[Maths story time](#)
[Playing Incey Wincey spider](#)



Number and place value

Year 1 content descriptors

Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero (ACMNA012)

Buzzy bee
Dotty Six
100 square jigsaw
That number square
Five steps to 50
Noah
Making sticks
I like...
Heads and feet
Lots of biscuits!
Clapping times

Recognise, model, read, write and order numbers to at least 100; locate these numbers on a number line (ACMNA013)

Writing digits
Shut the box
Snail one hundred
Six beads
How would we count?
Tug of war
The eightness of eight
Count the digits
Two spinners
Number match

Count collections to 100 by partitioning numbers using place value (ACMNA014)

Snail one hundred
Six beads
How would we count?
Count the crayons

Represent and solve simple addition and subtraction problems using a range of strategies, including counting on, partitioning and rearranging parts (ACMNA015)

Shut the box
Two dice
Same length trains
Snail one hundred
Noah
Robot monsters
All change
Largest even
Eggs in baskets
Cuisenaire counting
Pairs of numbers
Weighted numbers
Ladybirds in the garden
Unit differences
Sealed solution
Roll these dice
Finding fifteen
Six numbered cubes



Number and place value

Year 2 content descriptors

<p>Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026)</p> <p>Five steps to 50 Biscuit decorations Same length trains</p>	<p>Recognise, model, represent and order numbers to at least 1000 (ACMNA027)</p> <p>Count the crayons</p>	<p>Group, partition and rearrange collections of up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028)</p> <p>Snail one hundred Two-digit targets Six beads Count the crayons Two spinners Which is quicker?</p>	<p>Explore the connection between addition and subtraction (ACMNA029)</p> <p>Tug of war How do you see it? 2, 4, 6, 8 Getting the balance right Number balance Number lines Strike it out Sort them out (1) Find the difference The add and take-away path How many? Secret number</p>
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Number and place value

Solve simple addition and subtraction problems using a range of efficient mental and written strategies (ACMNA030)

I'm eight
Two-digit targets
Tug of war
Robot monsters
Dotty Six
Making sticks
Round the two dice
How do you see it?
What could it be?
2, 4, 6, 8
Heads and feet
One big triangle
Strike it out
Number round up
Dicey addition
Dice in a corner
Maze 100
Six numbered cubes

Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031)

Same length trains
Grouping goodies
Making sticks
Heads and feet
The Brown family
Doubling fives
Catrina's cards
Sweets in a box
I'm eight
Sitting round the party tables
Lots of biscuits!

Recognise and represent division as grouping into equal sets (ACMNA032)

Sitting round the party tables
Lots of biscuits!
Share bears
Birthday sharing
Let us divide!
Remainders
Sweets in a box



Number and place value

Year 3 content descriptors

Investigate the conditions required for a number to be even or odd and identify even and odd numbers (ACMNA051)

- Grouping goodies
- Largest even
- Light the lights
- Domino sorting
- Even and odd
- Ring a ring of numbers
- Always, sometimes or never?
- How odd
- Two numbers under the microscope
- More numbers in the ring
- Number differences
- Light the lights again

Recognise, model, represent and order numbers to at least 10 000 (ACMNA052)

- How would we count?
- Coded hundred square
- Which scripts?
- Nice or nasty
- Four-digit targets
- Ordering journeys
- Representing numbers
- Which is quicker?

Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems (ACMNA053)

- Coded hundred square
- Which scripts?
- Space distances
- Round the four dice

Recognise and explain the connection between addition and subtraction (ACMNA054)

- Strike it out
- Sort them out (1)
- Find the difference
- The add and take-away path
- How many?
- Which distance?
- Number lines in disguise
- Build it up
- Number balance



Number and place value

Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation (ACMNA055)

- Number lines
- Butterfly facts
- Strike it out
- Number round up
- 4 Dom
- Jumping squares
- Sometimes, always, never? KS1
- Double or halve
- Two numbers under the microscope
- Number detectives
- Our numbers
- Number lines in disguise
- A mixed-up clock
- Magic V
- Fifteen cards
- Amy's dominoes
- Sealed solution
- Roll these dice
- Play to 37
- Finding fifteen
- Domino square
- Make 37
- Dice in a corner
- Maze 100
- Six ten total
- Six numbered cubes

Recall multiplication facts of two, three, five and ten and related division facts (ACMNA056)

- Double or halve
- Odd times even
- Count me in
- The deca tree
- Representing numbers
- Multiples grid
- Times table shifts
- Table patterns go wild!
- Multiplication squares
- Round and round the circle

Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies (ACMNA057)

- Doing and undoing
- Secret number
- Number detectives
- Our numbers
- Dicey operations
- The deca tree
- Four-digit targets
- Sitting round the party tables
- Six ten total
- Sweets in a box



Number and place value

Year 4 content descriptors

Investigate and use the properties of even and odd numbers (ACMNA071)

What could it be?
Domino sorting
Number round up
Lots of biscuits!
Even and odd
Ring a ring of numbers
Always, sometimes or never?
How odd
Two numbers under the microscope
More numbers in the ring
Number detectives
Four-digit targets
Take three numbers
Number differences
Play to 37
Consecutive numbers
Subtraction surprise

Recognise, represent and order numbers to at least tens of thousands (ACMNA072)

Which distance?
Space distances
Nice or nasty
Four-digit targets
Ordering journeys
Which is quicker?
Nice or nasty
Four-digit targets
Number lines in disguise
Ordering journeys

Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems (ACMNA073)

Coded hundred square
Which scripts?
Which distance?
Space distances
Tug harder!
Dicey operations
Dicey operations in line
Round the four dice
Got it
Make 37
Twenty divided into six
Reach 100
Subtraction surprise

Investigate number sequences involving multiples of 3, 4, 6, 7, 8 and 9 (ACMNA074)

Odd times even
Number lines in disguise
Music to my ears
Carrying cards
Multiples grid
Times table shifts
Table patterns go wild!
Follow the numbers
Round and round the circle

Number and place value

Recall multiplication facts up to 10×10 and related division facts (ACMNA075)

- I'm eight
- Double or halve
- Odd times even
- Count me in
- Multiplication square jigsaw
- Multiples grid
- Times table shifts
- Table patterns go wild!
- Multiplication squares
- Round and round the circle

Develop efficient mental and written strategies, and use appropriate digital technologies, for multiplication and for division where there is no remainder (ACMNA076)

- Double or halve
- Our numbers
- Lots of lollies
- Dicey operations
- Four-digit targets
- A mixed-up clock
- Twenty divided into six
- Six ten total
- Multiplication square jigsaw
- Shape times shape
- Let us divide!
- Carrying cards
- Zios and Zepts
- What do you need?
- Mystery matrix
- Make 100



Number and place value

Year 5 content descriptors

Identify and describe factors and multiples of whole numbers and use them to solve problems (ACMNA098)

[The deca tree](#)
[Four-digit targets](#)
[Satisfying four statements](#)
[Flashing lights](#)
[Abundant numbers](#)
[Factors and multiples game](#)
[Three dice](#)
[Factor track](#)
[What do you need?](#)
[Factor lines](#)
[Factor-multiple chains](#)
[Counting cogs](#)

Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)

[Round the four dice](#)
[Reasoned rounding](#)

Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291)

[Tug harder!](#)
[Swimming pool](#)
[Sea level](#)
[First connect three](#)
[Dicey operations](#)
[Dicey operations in line](#)
[Round the four dice](#)
[Number lines in disguise](#)
[Fifteen cards](#)
[Domino square](#)
[Got it](#)

Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies and appropriate digital technologies (ACMNA100)

[Dicey operations](#)
[The deca tree](#)
[Four-digit targets](#)
[Dicey operations in line](#)
[A square of numbers](#)
[All the digits](#)
[Trebling](#)
[Curious number](#)
[Four go](#)
[Highest and lowest](#)
[Make 100](#)

Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)

[Dicey operations](#)
[Dicey operations in line](#)
[Remainders](#)
[Remainders game](#)
[Division rules](#)
[Grouping goodies](#)
[Lots of lollies](#)
[Growing garlic](#)

Number and place value

Year 6 content descriptors

<p>Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)</p> <p>Square subtraction Satisfying four statements Two primes make one square Up and down staircases One wasn't square Cycling squares Picture a pyramid ... Always, sometimes or never? Number Odd squares Cubes within cubes</p>	<p>Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition and subtraction with whole numbers (ACMNA123)</p> <p>Tug harder! First connect three Dicey operations Dicey operations in line Round the four dice Amy's dominoes Build it up Dice in a corner Twenty divided into six Reach 100 Subtraction surprise How do you do it? Four-digit targets Remainders game</p>	<p>Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition and subtraction with whole numbers (ACMNA123)</p> <p>continued ...</p> <p>A square of numbers This Pied Piper of Hamelin All the digits Trebling Mystery matrix Division rules Highest and lowest Make 100 Four goodness sake Orange drink Pumpkin pie problem Finding 3D stacks</p>	<p>Investigate everyday situations that use integers; locate and represent these numbers on a number line (ACMNA124)</p> <p>Tug harder! Swimming pool Sea level First connect three</p>
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Fractions and decimals			
Year 1 content descriptor	Year 2 content descriptor	Year 3 content descriptor	
<p>Recognise and describe one-half as one of two equal parts of a whole (ACMNA016)</p> <p>Fair feast Halving Using books: The doorbell rang Two halves</p>	<p>Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033)</p> <p>Fair feast Halving Happy halving Fractional wall Matching fractions</p>	<p>Model and represent unit fractions, including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{5}$ and their multiples, to a complete whole (ACMNA058)</p> <p>Halving Happy halving Chocolate Fractional wall Fractional triangles Bryony's triangle Fraction match Balance of halves</p>	
Year 4 content descriptors			
<p>Investigate equivalent fractions used in contexts (ACMNA077)</p> <p>Fractional wall Fraction match Tumbling down More fraction bars Extending fraction bars Fraction lengths Rectangle tangle</p>	<p>Count by quarters, halves and thirds, including with mixed numerals; locate and represent these fractions on a number line (ACMNA078)</p> <p>Chocolate Fractional triangles Fraction match Tumbling down Balance of halves Matching fractions</p>	<p>Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation (ACMNA079)</p> <p>Greater than or less than?</p>	

Fractions and decimals			
Year 5 content descriptors			
<p>Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)</p>	<p>Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator (ACMNA103)</p> <p>Chocolate Fractional triangles More fraction bars Extending fraction bars Balance of halves Fraction lengths A4 fraction addition A4 fraction subtraction Linked chains</p>	<p>Recognise that the place value system can be extended beyond hundredths (ACMNA104)</p> <p>Greater than or less than? Spiralling decimals</p>	<p>Compare, order and represent decimals (ACMNA105)</p> <p>Greater than or less than? Spiralling decimals</p>
Year 6 content descriptors			
<p>Compare fractions with related denominators and locate and represent them on a number line (ACMNA125)</p> <p>Rectangle tangle</p>	<p>Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126)</p> <p>More fraction bars Extending fraction bars Fraction lengths A4 fraction addition A4 fraction subtraction Linked chains Fraction fascination</p>	<p>Find a simple fraction of a quantity where the result is a whole number, with and without the use of digital technologies (ACMNA127)</p> <p>How do you do it? Andy's marbles Fractions in a box</p>	<p>Add and subtract decimals, with and without the use of digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128)</p> <p>Round the dice decimals 1 Round the dice decimals 2 Jumping</p>



Fractions and decimals

Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without the use of digital technologies (ACMNA129)

[How do you do it?](#)
[Route product](#)
[Forgot the numbers](#)

Multiply and divide decimals by powers of 10 (ACMNA130)

Make connections between equivalent fractions, decimals and percentages (ACMNA131)

[Doughnut percents](#)
[Matching fractions, decimals and percentages](#)

Money and financial mathematics			
Year 1 content descriptor	Year 2 content descriptor	Year 3 content descriptor	Year 4 content descriptor
<p>Recognise, describe and order Australian coins according to their value (ACMNA017)</p> <p>Shopping - Pirate Poundland (note: use of UK pounds, will need to adapt to cents)</p>	<p>Count and order small collections of Australian coins and notes according to their value (ACMNA034)</p> <p>Shopping - Pirate Poundland (note: need to adapt to cents)</p>	<p>Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059)</p> <p>How do you see it? Money bags (note: use of UK pence, will need to adapt to Australian cents) Price match (note: use of UK pounds/pence, will need to adapt to Australian cents)</p>	<p>Solves problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (ACMNA080)</p> <p>How do you see it? Planning a school trip Money bags (note: use of UK pence, will need to adapt to Australian cents) Buying a balloon Plenty of pens (note: use of UK pounds/pence, will need to adapt to Australian cents) Price match (note: use of UK pounds/pence, will need to adapt to Australian cents)</p>
Year 5 content descriptor	Year 6 content descriptor		
<p>Create simple financial plans (ACMNA106)</p> <p>Planning a school trip</p>	<p>Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without the use of digital technologies (ACMNA132)</p> <p>Would you rather? (Note: This task needs to be modified to reference Australian notes/ coins)</p>		

Patterns and Algebra			
Foundation content descriptor	Year 1 content descriptor	Year 2 content descriptors	
<p>Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings (ACMNA005)</p> <p>Double trouble</p>	<p>Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018)</p> <p>Five steps to 50 Biscuit decorations Noah Domino sequences I like... Light the lights Light the lights again</p>	<p>Describe patterns with numbers and identify missing elements (ACMNA035)</p> <p>Buzzy bee Writing digits Domino sequences Domino number patterns What could it be? Half time Eggs in baskets The tall tower</p>	<p>Solve problems by using number sentences for addition or subtraction (ACMNA036)</p> <p>Same length trains Birthday cakes 4 Dom Unit differences Dicey addition Jumping squares The add and take-away path What was in the box? Super shapes</p>

Patterns and Algebra			
Year 3 content descriptor	Year 4 content descriptors		
<p>Describe, continue and create number patterns resulting from performing addition or subtraction (ACMNA060)</p> <p>Writing digits Eggs in baskets Birthday cakes What was in the box? Doing and undoing Secret number Ordering cards Which symbol? Ip Dip The tomato and the bean Number lines in disguise A mixed-up clock Three neighbours Magic V Build it up Diagonal sums</p>	<p>Explore and describe number patterns resulting from performing multiplication (ACMNA081)</p> <p>Doubling fives Double or halve Odd times even Ordering cards Which symbol? Magic plant The amazing splitting plant The tomato and the bean The deca tree Table patterns go wild! Flashing lights Pebbles Round and round the circle Holes</p>	<p>Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)</p> <p>Are you well balanced? Pebbles Multiply multiples 1 Multiply multiples 2 Multiply multiples 3</p>	<p>Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)</p> <p>Getting the balance right Number balance Which symbol? Super shapes Shape times shape Follow the numbers Two and two</p>

Patterns and Algebra

Year 5 content descriptors		Year 6 content descriptors	
Describe, continue and create patterns with fractions, decimals and whole numbers resulting from addition and subtraction (ACMNA107)	Use equivalent number sentences involving multiplication and division to find unknown quantities (ACMNA121)	Continue and create sequences involving whole numbers, fractions and decimals; describe the rule used to create the sequence (ACMNA133)	Explore the use of brackets and the order of operations to write number sentences (ACMNA134)
Number lines in disguise Three neighbours Magic V Diagonal sums Domino sets Break it up! Holes Two and two	A square of numbers Trebling Becoming maths detectives Exploring number patterns you make Multiply multiples 1 Multiply multiples 2 Multiply multiples 3	Consecutive numbers Music to my ears Pebbles Becoming maths detectives Exploring number patterns you make The moons of Vuvv Up and down staircases Domino sets Break it up! Holes Button up Button up some more	