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 tasks 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 that 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

Primary Learning

https://primarylearning.com.au

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) Estimation Station Using Books: Maisy Goes Camping Number Book Owl's Packing List Tidying The Box Game	Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond (ACMNA002) Golden Beans Number Rhymes Dice Owl's Packing List	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: Maisy Goes Camping Using Books: The Doorbell Rang Double Trouble Maths Story Time Incey Wincey			

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)	Recognise, model, read, write and order numbers to at least 100; locate these numbers on a number line (ACMNA013)	Count collections to 100 by partitioning numbers using place value (ACMNA014)	Represent and solve simple addition and subtraction problems using a range of strategies, including counting on, partitioning and rearranging parts (ACMNA015)
Buzzy Bee	Writing Digits	Snail One Hundred	Shut the Box
Dotty Six	Shut the Box	6 Beads	Two Dice
100 Square Jigsaw	How Would We Count?	How Would We Count?	Same Length Trains
That Number Square!	Tug of War	Count the Crayons	Noah
Five Steps to 50	Eightness of Eight	Two Spinners	Robot Monsters
I Like …	Count the Digits		All Change
Clapping Times	Number Match		Largest Even
			Eggs in Baskets
			Cuisenaire Counting
			Pairs of Numbers
			Weighted Numbers
			Ladybirds in the Garden
			Unit Differences

Number and place value			
Year 2 content descriptors			
Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences (ACMNA026) Five Steps to 50 Biscuit Decorations Making Sticks	Recognise, model, represent and order numbers to at least 1000 (ACMNA027) Count the Crayons	Group, partition and rearrange collections of up to 1000 in hundreds, tens and ones to facilitate more efficient counting (ACMNA028) Snail One Hundred Two-digit Targets 6 Beads Two Spinners Which Is Quicker?	Explore the connection between addition and subtraction (ACMNA029) Tug of War How Do You See It? 2,4,6,8 Getting the Balance Number Balance Number Lines Strike it Out Sort Them Out (1) Find the Difference The Add and Take-away Path How Many? Secret Number

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 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 Sitting Round the Party Tables	Recognise and represent multiplication as repeated addition, groups and arrays (ACMNA031) Same Length Trains Grouping Goodies Making Sticks Doubling Fives Catrina's Cards Sweets in a Box	Recognise and represent division as grouping into equal sets (ACMNA032) Lots of Biscuits! Share Bears Birthday Sharing Let Us Divide! 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) 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? What 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 Always, Sometimes or Never? KS1 Two Numbers Under the Microscope Number Detective Our Numbers Number Lines in Disguise A Mixed-up Clock Magic Vs 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 Multiples Grid Times Tables 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 Detective Our Numbers The Deca Tree Four-digit Targets 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 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 Detective Four-digit Targets Take Three Numbers Number Differences Play to 37 Consecutive Numbers	Recognise, represent and order numbers to at least tens of thousands (ACMNA072) What Distance? Space Distances Nice or Nasty Four-digit Targets Ordering Journeys Which Is Quicker?	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? Dicey Operations Dicey Operations in Line Round the Four Dice 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 Tables 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? Count Me In Multiplication Square Jigsaw Multiples Grid Times Tables 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) Our Numbers Dicey Operations Six Ten Total Multiplication Square Jigsaw Shape Times Shape Let Us Divide! Zios and Zepts 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)	Use estimation and rounding to check the reasonableness of answers to calculations (ACMNA099)	Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental and written strategies and appropriate digital technologies (ACMNA100)	Solve problems involving division by a one-digit number, including those that result in a remainder (ACMNA101)
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	Round the Four Dice Reasoned Rounding Use efficient mental and written strategies and apply appropriate digital technologies to solve problems (ACMNA291) First Connect Three Dicey Operations Dicey Operations in Line Round the Four Dice Number Lines in Disguise Fifteen Cards Domino Square Got It	Dicey Operations The Deca Tree Four-digit Targets Dicey Operations in Line All the Digits Trebling Curious Number Four Go	Dicey Operations Dicey Operations in Line Remainders The Remainders Game Division Rules Grouping Goodies Lots of Lollies Growing Garlic

Number and place value
Year 6 content descriptors

Identify and describe properties of prime, composite, square and triangular numbers (ACMNA122)	Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving addition and subtraction with whole numbers (ACMNA123)	Investigate everyday situations that use integers; locate and represent these numbers on a number line (ACMNA124)	
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	Tug Harder! First Connect Three Dicey Operations Dicey Operations in Line Amy's Dominoes Build it Up Dice in a Corner Twenty Divided Into Six Reach 100 Subtraction Surprise Four-digit Targets This Pied Piper of Hamelin Highest and Lowest Make 100 Four Goodness Sake	Tug Harder! Swimming Pool Sea Level First Connect Three	

Fractions and decimals			
Year 1 content descriptor	**Year 2 content descriptor**	**Year 3 content descriptor**	
Recognise and describe one-half as one of two equal parts of a whole (ACMNA016) Fair Feast Halving Using Books: The Doorbell Rang Two Halves	Recognise and interpret common uses of halves, quarters and eighths of shapes and collections (ACMNA033) Fair Feast Halving Happy Halving Fractional Wall Matching Fractions	Model and represent unit fractions, including 1/2, 1/4, 1/3 and 1/5 and their multiples, to a complete whole (ACMNA058) Halving Happy Halving Fractional Wall Fractional Triangles Bryony's Triangle Fraction Match	

Fractions and decimals			
Year 4 content descriptors			
Investigate equivalent fractions used in contexts (ACMNA077) Fractional Wall Fraction Match Tumbling Down More Fraction Bars Extending Fraction Bars Fraction Lengths Rectangle Tangle	Count by quarters, halves and thirds, including with mixed numerals; locate and represent these fractions on a number line (ACMNA078) Fractional Triangles Fraction Match Tumbling Down Balance of Halves Matching Fractions	Recognise that the place value system can be extended to tenths and hundredths, and make connections between fractions and decimal notation (ACMNA079) Greater Than or Less Than?	

Fractions and decimals			
Year 5 content descriptors			
Compare and order common unit fractions and locate and represent them on a number line (ACMNA102)	Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator (ACMNA103) Chocolate More Fraction Bars Extending Fraction Bars Balance of Halves Fraction Lengths A4 Fraction Addition A4 Fraction Subtraction Linked Chains	Recognise that the place value system can be extended beyond hundredths (ACMNA104) Greater Than or Less Than? Spiralling Decimals	Compare, order and represent decimals (ACMNA105) Greater Than or Less Than? Spiralling Decimals
Year 6 content descriptors			
Compare fractions with related denominators and locate and represent them on a number line (ACMNA125) Rectangle Tangle	Solve problems involving addition and subtraction of fractions with the same or related denominators (ACMNA126) More Fraction Bars Extending Fraction Bars Fraction Lengths A4 Fraction Addition A4 Fraction Subtraction Linked Chains Fraction Fascination	Find a simple fraction of a quantity where the result is a whole number, with and without the use of digital technologies (ACMNA127) How Do You Do It? Andy's Marbles Fractions in a Box	Add and subtract decimals, with and without the use of digital technologies, and use estimation and rounding to check the reasonableness of answers (ACMNA128) Round the Dice Decimals 1 Round the Dice Decimals 2 Jumping

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**
Recognise, describe and order Australian coins according to their value (ACMNA017) Shopping - Pirate Poundland *(note: use of UK pounds, will need to adapt to Australian cents)*	Count and order small collections of Australian coins and notes according to their value (ACMNA034) Shopping - Pirate Poundland *(note: use of UK pounds, will need to adapt to Australian cents)*	Represent money values in multiple ways and count the change required for simple transactions to the nearest five cents (ACMNA059) 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)*	Solves problems involving purchases and the calculation of change to the nearest five cents with and without digital technologies (ACMNA080) 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)*

Money and financial mathematics			
Year 5 content descriptor	**Year 6 content descriptor**		
Create simple financial plans (ACMNA106)

Planning a School Trip | Investigate and calculate percentage discounts of 10%, 25% and 50% on sale items, with and without the use of digital technologies (ACMNA132)

Would You Rather? *(note: use of UK pounds/pence, will need to adapt to Australian cents)* | | |

Patterns and Algebra			
Foundation content descriptor	**Year 1 content descriptor**	**Year 2 content descriptors**	
Sort and classify familiar objects and explain the basis for these classifications. Copy, continue and create patterns with objects and drawings (ACMNA005) Double Trouble Sort the Street	Investigate and describe number patterns formed by skip counting and patterns with objects (ACMNA018) Five Steps to 50 Biscuit Decorations Noah Domino Sequences I Like … Light the Lights Light the Lights Again	Describe patterns with numbers and identify missing elements (ACMNA035) Buzzy Bee Writing Digits Domino Sequences Domino Number Patterns What Could It Be? Half Time Eggs in Baskets The Tall Tower	Solve problems by using number sentences for addition or subtraction (ACMNA036) Same Length Trains Birthday Cakes 4 Dom Unit Differences Dicey Addition Jumping Squares The Add and Take-away Path What Was in the Box?

Patterns and Algebra			
Year 3 content descriptor	**Year 4 content descriptors**		
Describe, continue and create number patterns resulting from performing addition or subtraction (ACMNA060)	Explore and describe number patterns resulting from performing multiplication (ACMNA081)	Solve word problems by using number sentences involving multiplication or division where there is no remainder (ACMNA082)	Use equivalent number sentences involving addition and subtraction to find unknown quantities (ACMNA083)
Writing Digits	Doubling Fives	Are You Well Balanced?	Getting the Balance
Eggs in Baskets	Double or Halve?	Pebbles	Number Balance
Birthday Cakes	Odd Times Even	Multiply Multiples 1	Which Symbol?
What Was in the Box?	Ordering Cards	Multiply Multiples 2	Super Shapes
Doing and Undoing	Which Symbol?	Multiply Multiples 3	Shape Times Shape
Secret Number	Magic Plant		Two and Two
Ordering Cards	The Amazing Splitting Plant		
Which Symbol?	The Tomato and the Bean		
Ip Dip	The Deca Tree		
The Tomato and the Bean	Table Patterns Go Wild!		
Number Lines in Disguise	Flashing Lights		
A Mixed-up Clock	Pebbles		
Three Neighbours	Round and Round the Circle		
Magic Vs	Holes		
Build it Up	Follow the Numbers		
Diagonal Sums			

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) Number Lines in Disguise Three Neighbours Magic Vs Diagonal Sums Domino Sets Break it Up! Holes Two and Two	Use equivalent number sentences involving multiplication and division to find unknown quantities (ACMNA121) A Square of Numbers Trebling Become Maths Detectives Exploring Number Patterns You Make Multiply Multiples 1 Multiply Multiples 2 Multiply Multiples 3	Continue and create sequences involving whole numbers, fractions and decimals; describe the rule used to create the sequence (ACMNA133) Consecutive Numbers Music to My Ears Pebbles Become Maths Detectives Exploring Number Patterns You Make The Mons of Vuvv Up and Down Staircases Domino Sets Break it Up! Holes Button-up Button-up Some More	Explore the use of brackets and the order of operations to write number sentences (ACMNA134)