Mathletics
NSW Curriculum – AC Aligned v9 2022
Skill Quests

Stage 3

August, 2023

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Contents

Stage 3

1 Number and Algebra

Represents numbers (A): MA3-RN-01	
Applies an understanding of place value and the role of zero to represent the properties of numbers	
Skill Quests	**Skills**
Represent numbers of any size	Representing & ordering numbers of any size
	Rounding numbers to a specified place
	Partitioning numbers of any size
Course Topic	**Activities Title**
A. Whole Numbers	Numbers from Words to Digits 2
	Numbers from Words to Digits 3
	Place Value – Millions
	Place Value to Millions
	Place Value to Billions
	Equal, Less or Greater than?
	Comparing Numbers

Represents numbers (B): MA3-RN-01	
Applies an understanding of place value and the role of zero to represent the properties of numbers	
Skill Quests	**Skills**
Represent integers	Locating & representing integers on a number line
	Interpreting integers in context
Course Topic	**Activities Title**
B. Locate Whole Numbers	Directed Numbers

Represents numbers (A): MA3-RN-02	
Compares and orders decimals up to 3 decimal places	
Skill Quests	**Skills**
Compare & order decimals	Recognising decimals up to thousandths
	Partitioning decimals up to thousandths
	Comparing & ordering decimals up to thousandths
Course Topic	**Activities Title**
A. Decimals	Decimals from Words to Digits 1
	Decimals from Words to Digits 2
	Decimal Place Value
	Comparing Decimals 1
	Comparing Decimals
	Comparing Decimals 2
	Decimal Order
	Decimal Order 2
	Decimals on the Number Line
	Rounding Decimals 1

Represent numbers (A): MA3-RN-03

Determines percentages of quantities, and finds equivalent fractions and decimals for benchmark percentage values

Skill Quests	Skills
Convert fraction, decimal & percentage	Converting between decimals & fractions
	Converting between fractions & percentages
	Converting between decimals & percentages
	Converting fractions, decimals & percentages
Calculate percentage of an amount	Calculating a percentage of an amount using 10%
	Calculating percentage discounts
Course Topic	**Activities Title**
Teacher directed	Teacher directed

Represent number (B): MA3-RN-03

Determines percentages of quantities, and finds equivalent fractions and decimals for benchmark percentage values

Skill Quests	Skills
Teacher directed	Teacher directed
Course Topic	**Activities Title**
B. Decimals & Percentages	Modelling Percentages
	Percents and Decimals
	Calculating Percentages (Mental)
	Match Decimals and Percentages
	Complementary Percentages
	Percentage of an amount using Fractions (<100%)

Additive relations (A): MA3-AR-01

Selects and applies appropriate strategies to solve addition and subtraction problems

Skill Quests	Skills
Add & subtract numbers of any size	Adding strategies with numbers of any size
	Subtracting strategies with numbers of any size
	Selecting efficient strategies to add & subtract
	Using rounding to estimate
	Checking the accuracy of answers

Additive relations (B): MA3-AR-01

Selects and applies appropriate strategies to solve addition and subtraction problems

Skill Quests	Skills
Solve problems with numbers of any size	Adding & subtracting to solve problems
Add & subtract to 1 decimal place	Adding decimals to 1 decimal place (models)
	Adding decimals to 1 decimal place (no models)
	Subtracting decimals to 1 decimal place (models)
	Subtracting to 1 decimal place (no models)
	Adding & subtracting decimals to 1 decimal place
Add & subtract to 2 decimal places	Adding decimals to 2 decimal places
	Subtracting decimals to 2 decimal places

	Adding & subtracting decimals to 2 decimal places
Add & subtract to 3 decimal places	Adding & subtracting a whole & a decimal
	Adding decimals to 3 decimal places (models)
	Adding decimals to 3 decimal places (no models)
	Subtracting decimals to 3 decimal places (models)
	Subtracting to 3 decimal places (no models)

Course Topic	Activities Title
A. Addition & subtraction mentally & estimation	Magic Mental Addition/Mental Addition (US)
	Magic Mental Subtraction/Mental Subtraction (US)
	Split Add and Subtract
	Pyramid Puzzles 1
	Pyramid Puzzles 2
	Partition Puzzles 1
	Partition Puzzles 1
	Addition Properties
	Estimation: Add and Subtract
	Estimate Sums
	Estimate Differences

Multiplicative relations (A): MA3-MR-01	
Selects and applies appropriate strategies to solve multiplication and division problems	
Skill Quests	**Skills**
Use products, factors & primes	Determining products & factors
	Primes & composite numbers
Multiply by multiples of 10	Multiplying up to 4 digits by 100 & 1000
Multiply using double & halve strategy	Using doubling & related facts to multiply by 2
	Using doubling & related facts to multiply by 4
	Using doubling & related facts to multiply by 8
	Partitioning & compensating to double & halve
	Using double & halve to multiply
	Using double/halve or triple/third
Multiply up to 4 digits by 1 digit	Multiplying using place value
	Multiplying using factorising
	Multiplying using the area model
	Multiplying using the round & compensate strategy
	Multiplying using an expanded algorithm
	Multiplying using a contracted algorithm
Multiply up to 4 digits by 2 digits	Strategies to multiply by a 2-digit number
Division with remainders	Introducing division with remainders
Divide up to 4 digits by 1-digit numbers	Using known facts to divide by a 1-digit divisor
	Partitioning to divide by a 1-digit divisor
	Using area models to divide by a 1-digit divisor
	Extended algorithm to divide 2 digits by 1 digit
	Extended algorithm to divide 3 digits by 1 digit
	Extended algorithm to divide 4 digits by 1 digit
	Contracted algorithm to divide 2 digits by 1 digit
	Contracted algorithm to divide 3 digits by 1 digit
	Contracted algorithm to divide 4 digits by 1 digit
	Solving division problems with 1-digit divisors
	Using estimation/rounding to check answers

Course Topic	Activities Title
A. Multiplication & division	Fact Families: Multiply and Divide
	Multiplication Turnarounds
	Missing Numbers: × and ÷ facts
	Times Tables
	Lowest Common Multiple
	Find the Factor
	Factors
	Highest Common Factor
	Prime or Composite?
	Solve Equations: Multiply, Divide 1
	Bar model × ÷
	Multiply 2 Digits Area Model
	Multiply 3 single-digit numbers
	Multiply Multiples of 10
	Multiply More Multiples of 10
	Multiplying Whole Numbers by 10, 100, and 1000
	Double and Halve to Multiply
	Mental Methods Multiplication 1

Multiplicative relations (B): MA3-MR-01	
Selects and applies appropriate strategies to solve multiplication and division problems	
Skill Quests	**Skills**
Multiply/divide to 4 digits by 2 digits	Multiplying 4-digit numbers by up to 2 digits
	Dividing up to 4-digit numbers by 2 digits
	Selecting efficient strategies to multiply/divide
	Solving multiplication & division word problems
Multiply & divide decimals	Multiplying decimals by powers of 10
	Dividing decimals by powers of 10
Course Topic	**Activities Title**
B. Multiplication & division	Grid Methods 1
	Grid Methods 2
	Grid Methods 3
	Equivalent Facts: Multiply
	Division Facts to Twelve
	Short Division
	Multiply Decimals and Powers of 10
	Estimate Quotients
	Divide by Powers of 10
	Table of Values
	Decreasing Patterns
	Patterns – Decreasing
	Order of Operations 1 (BIDMAS)/Order of Operations 1 (BEDMAS)
	Identifying Errors in Applying the Order of Operations

Multiplicative relations (B): MA3-MR-02
Constructs and completes number sentences involving multiplicative relations, applying the order of operations to calculations

Skill Quests	Skills
Multiplicative number sentences	Finding unknown quantities - multiply/divide
	Introducing order of operations
	Applying order of operations & grouping symbols

Course Topic	Activities Title
B. Multiplication & division	Grid Methods 1
	Grid Methods 2
	Grid Methods 3
	Equivalent Facts: Multiply
	Division Facts to Twelve
	Short Division
	Multiply Decimals and Powers of 10
	Estimate Quotients
	Divide by Powers of 10
	Table of Values
	Decreasing Patterns
	Patterns – Decreasing
	Order of Operations 1 (BIDMAS)/Order of Operations 1 (BEDMAS)
	Identifying Errors in Applying the Order of Operations

Representing quantity fractions (A): MA3-RQF-01
Compares and orders fractions with denominators of 2, 3, 4, 5, 6, 8 and 10

Skill Quests	Skills
Compare fractions with same denominator	Identifying fractions equivalent to 1 whole
	Comparing & ordering common unit fractions
Add/subtract fractions: same denominator	Adding/subtracting a fraction to a whole number
	Adding/subtracting fractions: same denominator
	Adding/subtracting mixed numbers: same denominator

Course Topic	Activities Title
A. Fractions	Compare Fractions 1a
B.More fractions	Compare Fractions 2

Representing quantity fractions (A): MA3-RQF-02
Determines 1/2, 1/4, 1/5, and 1/10 of measures and quantities

Skill Quests	Skills
Teacher directed	Teacher directed

Course Topic	Activities Title
Fractions	Add: Common Denominator
	Subtract: Common Denominator
	Common Denominator
	Unit Fractions
	One Take Fraction
	Add Subtract Fractions 1

Representing quantity fractions (B): MA3-RQF-01	
Compares and orders fractions with denominators of 2, 3, 4, 5, 6, 8 and 10	
Skill Quests	**Skills**
Compare fractions: related denominators	Recognising a fraction as division
	Finding equivalent fractions & simplifying
	Comparing fractions with related denominators
	Building up to the whole from a fractional part
Add/sub fractions: related denominators	Adding/subtracting fractions: related denominators
	Adding/subtracting simple fractions: related
	Adding/subtracting mixed numbers: related
Course Topic	**Activities Title**
Teacher directed	Teacher directed

Representing quantity fractions (B): MA3-RQF-02	
Determines 1/2, 1/4, 1/5, and 1/10 of measures and quantities	
Skill Quests	**Skills**
Calculate fraction of an amount	Calculating a fraction of a whole
	Solving word problems: fraction of an amount
Course Topic	**Activities Title**
More fractions	Compare Fractions 2
	Shading Equivalent Fractions
	Selecting Equivalent Fractions
	The Equivalent Fraction
	Equivalent Fraction Wall 1
	Equivalent Fraction Wall 2
	Equivalent Fractions on a Number Line 1
	Equivalent Fractions on a Number Line 2
	Counting with Fractions on a Number Line
	What Mixed Number Is Shaded?
	Fractions of a Collection 1
	Fractions of a Collection 2
	Fraction Fruit Sets 1
	Fraction Fruit Sets 2
	Fractions of a Collection

2 Measurement & Space

<table>
<tr><td colspan="2" align="center">Geometric measure (A): MA3-GM-01
Locates and describes points on a coordinate plane</td></tr>
<tr><td align="center">Skill Quests</td><td align="center">Skills</td></tr>
<tr><td rowspan="2">Locate position in the first quadrant</td><td>Using the first quadrant to locate position</td></tr>
<tr><td>Plotting coordinates in the first quadrant</td></tr>
<tr><td align="center">Course Topic</td><td align="center">Activities Title</td></tr>
<tr><td rowspan="4">A/B. Coordinate plane position</td><td>Coordinate Graphs: 1st Quadrant</td></tr>
<tr><td>Ordered Pairs</td></tr>
<tr><td>Horizontal and Vertical Change</td></tr>
<tr><td>Transformations: Coordinate Plane</td></tr>
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Locates and describes points on a coordinate plane</td></tr>
<tr><td align="center">Skill Quests</td><td align="center">Skills</td></tr>
<tr><td>Locate position in the four quadrants</td><td>Using the four quadrants to locate position</td></tr>
<tr><td align="center">Course Topic</td><td align="center">Activities Title</td></tr>
<tr><td rowspan="4">A/B. Coordinate plane position</td><td>Coordinate Graphs: 1st Quadrant</td></tr>
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Selects and uses the appropriate unit and device to measure lengths and distances including perimeters</td></tr>
<tr><td align="center">Skill Quests</td><td align="center">Skills</td></tr>
<tr><td rowspan="2">Use appropriate measures for length</td><td>Selecting & using appropriate measures for length</td></tr>
<tr><td>Comparing & ordering lengths</td></tr>
<tr><td>Calculate perimeter</td><td>Calculating the perimeter of rectangles</td></tr>
<tr><td align="center">Course Topic</td><td align="center">Activities Title</td></tr>
<tr><td rowspan="4">A. Length and perimeter</td><td>Kilometre Conversions</td></tr>
<tr><td>Perimeter: Squares and Rectangles</td></tr>
<tr><td>Perimeter: Triangles 2</td></tr>
<tr><td>Perimeter Detectives 1</td></tr>
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Selects and uses the appropriate unit and device to measure lengths and distances including perimeters</td></tr>
<tr><td align="center">Skill Quests</td><td align="center">Skills</td></tr>
<tr><td rowspan="3">Understand the metric system for length</td><td>Using decimal representations for length</td></tr>
<tr><td>Converting between metric units for length</td></tr>
<tr><td>Solving problems involving length</td></tr>
<tr><td align="center">Course Topic</td><td align="center">Activities Title</td></tr>
<tr><td rowspan="2">B. Application of measurement/length</td><td>Converting Units of Length</td></tr>
<tr><td>Metres and Kilometres</td></tr>
</table>

	Perimeter: Triangles
	Perimeter Detectives 2
	Operations with Length

Geometric measure (A): MA3-GM-03
Measures and constructs angles, and identifies the relationships between angles on a straight line and angles at a point

Skill Quests	Skills
Measure & identify angles	Estimating, measuring & comparing angles
	Constructing angles & identifying different types
Course Topic	**Activities Title**
A/B Identifying angles	Estimating Angles
	Measuring Angles
	What Type of Angle?
	Classifying Angles

Geometric measure (B): MA3-GM-03
Measures and constructs angles, and identifies the relationships between angles on a straight line and angles at a point

Skill Quests	Skills
Identify angle relationships	Adjacent, complementary & supplementary angles
	Exploring angle relationships
Course Topic	**Activities Title**
A/B Identifying angles	Estimating Angles
	Measuring Angles
	What Type of Angle?
	Classifying Angles

Two-dimensional spatial structure (A): MA3-2DS-01
Investigates and classifies two-dimensional shapes, including triangles and quadrilaterals based on their properties

Skill Quests	Skills
Describe properties of 2D shapes	Classifying 2D shapes & describe properties
Course Topic	**Activities Title**
A. Classify Two-Dimensional shapes	Triangle Tasters
	Sides, Angles and Diagonals
	Plane Figure Terms
	Collect the Polygons

Two-dimensional spatial structure (B): MA3-2DS-01
Investigates and classifies two-dimensional shapes, including triangles and quadrilaterals based on their properties

Skill Quests	Skills
Transform 2-dimensional shapes	Translating points on the Cartesian plane
	Reflecting points on the Cartesian plane
	Rotating shapes & find the order of symmetry
	Creating patterns using transformations

	Combinations of transformations
Course Topic	**Activities Title**
B. Translation, reflection and rotation of 2D shapes	Flip, Side, Turn
	Transformations
	Rotational Symmetry
	Rotational Symmetry of Shapes

Two-dimensional spatial structure (A): MA3-2DS-02
Selects and uses the appropriate unit to calculate areas, including areas of rectangles

Skill Quests	**Skills**
Calculate area of rectangles	Calculating area of rectangles
Course Topic	**Activities Title**
A/B Area of rectangles & parallelograms	Area: Squares and Rectangles
	Calculate Areas of Squares and Rectangles
	Converting Units of Area
	Equal Areas

Two-dimensional spatial structure (B): MA3-2DS-03
Combines, splits and rearranges shapes to determine the area of parallelograms and triangles

Skill Quests	**Skills**
Calculate area of shapes	Calculating area of composite shapes
	Calculating area of parallelograms
	Calculating area of triangles
Course Topic	**Activities Title**
A/B Area of rectangles & parallelograms	Area: Parallelograms (Metric)

Three-dimensional spatial structure (A): MA3-3DS-01
Visualises, sketches and constructs three-dimensional objects, including prisms and pyramids, making connections to two-dimensional representations

Skill Quests	**Skills**
Connect 3D with 2D representations	Naming prisms & pyramids
	Connecting prisms with their nets
	Connecting 3D objects with their nets
Course Topic	**Activities Title**
A. Prisms & pyramids	What Prism Am I?
	What Pyramid Am I?
	Prisms and Pyramids

Three-dimensional spatial structure (B): MA3-3DS-01
Visualises, sketches and constructs three-dimensional objects, including prisms and pyramids, making connections to two-dimensional representations

Skill Quests	**Skills**
Construct prisms & pyramids	Constructing prisms & pyramids
Course Topic	**Activities Title**
Teacher directed	Teacher directed

Three-dimensional spatial structure (A): MA3-3DS-02	
Selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities	
Skill Quests	**Skills**
Use appropriate units for capacity	Using appropriate units for capacity (L & mL)
Course Topic	**Activities Title**
A/B. Volume	Millilitres and Litres
	Volume of Solids and Prisms - 1cm³ blocks
	Volume: Rectangular Prisms 1

Three-dimensional spatial structure (B): MA3-3DS-02	
Selects and uses the appropriate unit to estimate, measure and calculate volumes and capacities	
Skill Quests	**Skills**
Calculate volume in m³ & cm³	Calculating volume of cubes (m³ & cm³)
	Calculating volume rectangular prisms (m³ & cm³)
Course Topic	**Activities Title**
A/B. Volume	Millilitres and Litres
	Volume of Solids and Prisms - 1cm³ blocks
	Volume: Rectangular Prisms 1

Non spatial structure (A): MA3-NSM-01	
Selects and uses the appropriate unit and device to measure the masses of objects	
Skill Quests	**Skills**
Use appropriate units for mass	Choosing appropriate units for mass
	Decimal representations to metric system
Course Topic	**Activities Title**
A/B. Mass	Kilogram Conversions
	Grams and Kilograms
	Converting Units of Mass
	Mass Word Problems

Non spatial structure (B): MA3-NSM-01	
Selects and uses the appropriate unit and device to measure the masses of objects	
Skill Quests	**Skills**
Convert between units of mass	Converting between metric units of mass
Course Topic	**Activities Title**
A/B. Mass	Kilogram Conversions
	Grams and Kilograms
	Converting Units of Mass
	Mass Word Problems

Non spatial structure (A): MA3-NSM-02	
Measures and compares duration, using 12- and 24-hour time and am and pm notation	
Skill Quests	**Skills**
Use 12 & 24 hour time	Converting between 12 & 24 hour time
	Using timetables
Course Topic	**Activities Title**
A. Time	24 Hour Time
	Using Timetables
	Time Conversions: Whole Numbers 1
	Time Conversions: Whole Numbers 2
	Time Conversions: Simple Fractions

Non spatial structure (B): MA3-NSM-02	
Measures and compares duration, using 12- and 24-hour time and am and pm notation	
Skill Quests	**Skills**
Solve duration problems	Solving problems with duration using 12 & 24 hours
Course Topic	**Activities Title**
B. Solving problems involving time	Time Mentals

3 Statistics & Probability

Data (A): MA3-DATA-01	
Constructs graphs using many-to-one scales	
Skill Quests	**Skills**
Collect & display discrete data	Collecting discrete data
	Choosing & using appropriate tables/graphs
Course Topic	**Activities Title**
A. Displaying numerical data	Tallies
	Sorting Data
	Column Graphs

Data (A): MA3-DATA-02	
Interprets data displays, including timelines and line graphs	
Skill Quests	**Skills**
Interpret discrete data	Interpreting discrete data using various displays
	Interpreting line graphs
Course Topic	**Activities Title**
A. Interpret data	Interpreting Tables
	Reading from a Column Graph
	Line Graphs: Interpretation

Data (B): MA3-DATA-02	
Interprets data displays, including timelines and line graphs	
Skill Quests	**Skills**
Interpret data displays	Interpreting & comparing data in various displays
	Calculating & interpreting the range
	Calculating & interpreting the mode
	Interpreting data presented in digital media
Course Topic	**Activities Title**
B. Mode and Range	Mode
	Data Extremes and Range

Chance (A): MA3-CHAN-01	
Conducts chance experiments and quantifies the probability	
Skill Quests	**Skills**
List outcomes of probability experiments	Listing outcomes of equally likely experiments
Course Topic	**Activities Title**
A. Chance	How many Combinations?
	Counting Techniques 1
	What are the Chances?
	Introductory probability

Chance (B): MA3-CHAN-01	
Conducts chance experiments and quantifies the probability	
Skill Quests	**Skills**
Compare observed with expected results	Comparing observed frequency with expected results
	Describing probability of single events
Course Topic	**Activities Title**
B. Probability	Fair Games

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A 3P Learning Product