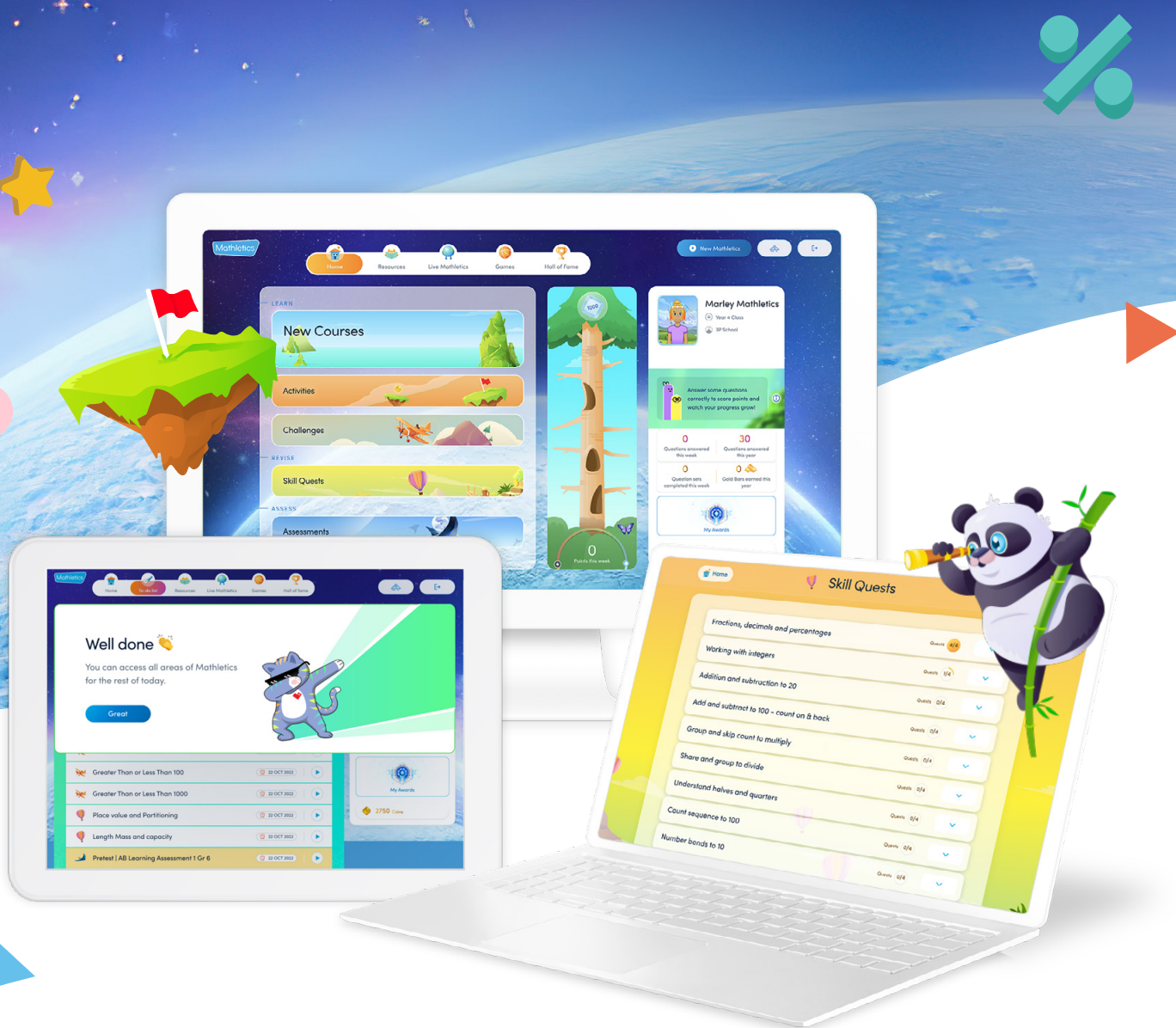


# Mathletics

## Australian Curriculum v9

### Activities (Courses) and Skill Quests



Years 3 – 6

March, 2023



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# Year 3 – Skill Quests

## 1 Number and Algebra

| Outcome   | Quests                            | Content                                      |
|---|-----------------------------------|--|
| AC9M3N01 - Recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000   | Numbers to 10 000                 | Identifying & counting numbers to 4 digits   |
|   |                                   | Reading & representing numbers to 4 digits   |
|   |                                   | Comparing & ordering numbers to 4 digits     |
|   |                                   | Place value to 4 digits                      |
|   |                                   | Partitioning numbers to 4 digits             |
|   |                                   | Rounding numbers to 4 digits                 |
|   | Numbers to 100 000                | Comparing & ordering numbers to 5 digits     |
|   |                                   | Place value to 5 digits                      |
|   |                                   | Partitioning numbers to 5 digits             |
|   |                                   | Rounding numbers to 5 digits                 |
|   | Numbers to 1 000 000              | Reading & representing numbers to 6 digits   |
|   |                                   | Comparing & ordering numbers to 6 digits     |
|   |                                   | Place value to 6 digits                      |
|   |                                   | Partitioning numbers to 6 digits             |
|   |                                   | Counting by ones, tens & hundreds            |
|   | Numbers of any size               | Reading & representing numbers of any size   |
| Comparing & ordering numbers of any size  |                                   |  |
| Place value of numbers of any size  |                                   |  |
| Partitioning numbers of any size  |                                   |  |
| AC9M3N02 - Recognise and represent unit fractions including $\frac{1}{2}$ , $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{1}{10}$ and their multiples in different ways; combine fractions with the same denominator to complete the whole | Fraction symbols                  | Exploring the meaning of fraction symbols    |
|   |                                   | Introducing terms numerator & denominator    |
|   | Find & count in halves & quarters | Finding half of a set or quantity (symbols)  |
|   |                                   | Finding quarters of sets or shapes (symbols) |
|   |                                   | Finding halves & quarters (symbols)          |
|   |                                   | Counting in halves & quarters to 1           |

|   |  |  |
|---|--|--|
|   | Introduce eighths                        | Introducing eighths                              |
|   |  | Using fractions: halves, quarters & eighths      |
|   | Introduce thirds                         | Introducing thirds                               |
|   |  | Using fractions: halves, thirds & quarters       |
|   | Introduce sixths                         | Introducing sixths                               |
|   | Introduce fifths                         | Introducing fifths                               |
| Introduce tenths  | Introducing tenths                       |  |
| AC9M3N03 - Add and subtract two- and three-digit numbers using place value to partition, rearrange and regroup numbers to assist in calculations without a calculator       | Addition & subtraction using place value | Add & subtract using number facts within 1000    |
|   |  | Add & subtract 2- & 3-digit using jump strategy  |
|   |  | Add & subtract 2- & 3-digit using place value    |
|   |  | Add & subtract 2- & 3-digit using bridging to 10 |
|   |  | Adding & subtracting - bridging with unknowns    |
|   |  | Adding & subtracting 3-digits using partitioning |
|   |  | Adding & subtracting 3-digits using place value  |
|   |  | Add & subtract 2- & 3-digit using split strategy |
|   |  | Add & subtract 2-digit rounding & compensation   |
|   |  | Add & subtract 3-digit rounding & compensation   |
|   |  | Adding & subtracting to make 100                 |
|   |  | Add & subtract multiples of 100, 1000 & 10 000   |
|   |  | Add & subtract using non-standard partitioning   |
|   |  | Add & subtract: choosing efficient strategies    |
| AC9M3N04 - Multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies | Multiplication & division                | Using repeated addition to multiply              |
|   |  | Using repeated subtraction to divide             |
|   |  | Relating multiplication & division               |
|   |  | Interpreting & solving mult/div word problems    |
|   |  | Multiplication strategies: 1-digit numbers       |
|   |  | Multiplying 2-digit numbers by a 1-digit number  |
| AC9M3N05 - Estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations                         | Estimation strategies                    | Estimating additions                             |
|   |  | Estimating subtractions                          |
|   |  | Judging the reasonableness of answers            |

|  |   |  |
|--|---|--|
| AC9M3N06 - Use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate problems using number sentences and choose calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation | Solve practical problems                        | Solving addition & subtraction practical problems  |
|  |   | Solve multiplication & division practical problems |
|  |   | Missing number problems using all four operations  |
| AC9M3N07 - Follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns   | Create algorithms to investigate numbers        | Identifying & creating number patterns             |
|  |   | Working with code to create algorithms             |
| AC9M3A01 - Recognise and explain the connection between addition and subtraction as inverse operations, apply to partition numbers and find unknown values in number sentences   | Addition & subtraction relationship             | Relationship between addition & subtraction        |
|  |   | Equivalent number sentences                        |
|  |   | Word problems for finding unknown quantities       |
|  |   | Representing add & subtract using a bar model      |
| AC9M3A02 - Extend and apply knowledge of addition and subtraction facts to 20 to develop efficient mental strategies for computation with larger numbers without a calculator  | Apply knowledge of facts to 20                  | Finding fact families                              |
|  |   | Numbers bonds to 20                                |
|  |   | Applying facts to 20 to larger numbers             |
| AC9M3A03 - Recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts   | Multiplication & division facts for 2           | Recalling multiplication & division facts for 2    |
|  | Multiplication & division facts for 10          | Exploring multiplication by 10                     |
|  |   | Recalling multiplication & division facts for 10   |
|  | Multiplication & division facts for 5           | Exploring multiplication by 5                      |
|  |   | Recalling multiplication & division facts for 5    |
|  | Mult/div facts for 2, 5 & 10                    | Multiplication & division facts for 2, 5, 10       |
|  | Multiplication & division facts for 3           | Exploring multiplication by 3                      |
|  |   | Recalling multiplication & division facts for 3    |
| Multiplication & division facts for 4  | Exploring multiplication by 4                   |  |
|  | Recalling multiplication & division facts for 4 |  |

## 2 Measurement and Space

| Outcome  | Quests                           | Content  |
|--|----------------------------------|--|
| AC9M3M01 - Identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates                      | Identify metric units of measure | Introducing centimetres                          |
|  |                                  | Introducing millimetres                          |
|  |                                  | Selecting appropriate units to measure length    |
|  |                                  | Introducing litres                               |
|  |                                  | Introducing millilitres                          |
|  |                                  | Selecting appropriate units to measure capacity  |
|  |                                  | Introducing kilograms                            |
|  |                                  | Introducing grams                                |
|  |                                  | Selecting appropriate units to measure mass      |
|  |                                  | Identifying correct units of measurement         |
| AC9M3M02 - Measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings                              | Length, mass & capacity          | Comparing, ordering & measuring length           |
|  |                                  | Comparing, ordering & measuring capacity         |
|  |                                  | Comparing, ordering & measuring mass             |
| AC9M3M03 - Recognise and use the relationship between formal units of time including days, hours, minutes and seconds to estimate and compare the duration of events | Introduce units of time          | Introducing hours                                |
|  |                                  | Introducing minutes                              |
|  |                                  | Introducing seconds                              |
|  | Duration & units of time         | Understanding relationship between units of time |
| Understanding duration   |                                  |  |
| AC9M3M04 - Describe the relationship between the hours and minutes on analogue and digital clocks, and read the time to the nearest minute                           | Tell time                        | Telling time to five minutes                     |
|  |                                  | Telling time to the minute                       |
| AC9M3M05 - Identify angles as measures of turn and compare angles with right angles in everyday situations   | Identify & compare angles        | Introducing angles                               |
|  |                                  | Introducing right angles                         |
| AC9M3M06 - Recognise the relationships between dollars and cents and represent money values in different ways  | Money                            | Recognising Australian notes & coins             |
|  |                                  | Counting Australian dollars & cents              |
|  |                                  | Using money to make purchases                    |
| AC9M3SP01 - Make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses                            | 3D objects                       | Exploring prisms & pyramids                      |
|  |                                  | Introducing nets                                 |
|  |                                  | Recognising & comparing 3D objects               |
|  |                                  | Describing & sorting 3D objects                  |
|  |                                  | Comparing 2D shapes & 3D objects                 |

|  |                         |                          |
|--|-------------------------|--------------------------|
| AC9M3SP02 - Interpret and create two-dimensional representations of familiar environments, locating key landmarks and objects relative to each other | Interpret & create maps | Interpreting simple maps |
|--|-------------------------|--------------------------|

### 3 Statistics and Probability

| Outcome  | Quests                                | Content   |
|--|---------------------------------------|---|
| AC9M3ST01 - Acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods including frequency tables and spreadsheets | Collect & record data                 | Collecting & recording category data              |
|  |                                       | Using tables                                      |
| AC9M3ST02 - Create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context   | Create & compare data representations | Representing & interpreting data displays         |
|  |                                       | Comparing data displays                           |
| AC9M3ST03 - Conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest   | Understand statistical investigations | Introducing the statistical investigation process |
|  |                                       | Conducting a statistical investigation            |
| AC9M3P01 - Identify practical activities and everyday events that involve chance; describe possible outcomes and events as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' explaining reasoning                                   | Language of chance                    | Using basic probability language                  |
| AC9M3P02 - Conduct repeated chance experiments; identify and describe possible outcomes, record the results, recognise and discuss the variation   | Chance experiments                    | Conducting chance experiments                     |



# Year 3 – Activities

## 1 Number and Algebra

| Outcome  | Topic                               | Activity Title                         |
|--|-------------------------------------|--|
| AC9M3N01 - recognise, represent and order natural numbers using naming and writing conventions for numerals beyond 10 000  | Numbers beyond 10 000 with 5 digits | Place Value 3                          |
|  |                                     | Place Value - Thousands                |
|  |                                     | Partition and Rename 2                 |
|  |                                     | Partition and Rename 3                 |
|  |                                     | Ascending Order                        |
|  |                                     | Descending Order                       |
|  |                                     | Smallest and largest numbers           |
|  |                                     | Numbers from Words to Digits 1         |
| AC9M3N02 - recognise and represent unit fractions including $\frac{1}{2}$ , $\frac{1}{3}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{1}{10}$ and their multiples in different ways; combine fractions with the same denominator to complete the whole  | Unit fractions                      | Rounding Numbers                       |
|  |                                     | Shade fractions                        |
|  |                                     | Identifying Fractions on a Number Line |
|  |                                     | Fractions of a Collection 1            |
|  |                                     | Fraction Length Models 1               |
| AC9M3N03 - add and subtract two- and three-digit numbers using place value to partition, rearrange and regroup numbers to assist in calculations without a calculator  | Up to 3 digit add & subtract        | Unit Fractions                         |
|  |                                     | Add 3 Numbers: Bonds to 100            |
| AC9M3N05 - estimate the quantity of objects in collections and make estimates when solving problems to determine the reasonableness of calculations  |                                     | Partition Puzzles 2                    |
|  |                                     | Repartition to Subtract                |
|  |                                     | Nearest 1000?                          |
|  |                                     | Estimation: Add and Subtract           |
|  |                                     | Estimate Differences                   |
|  |                                     | Estimate Sums                          |
|  |                                     | Bar Model Problems 1                   |
| Bar Model Problems 2   |                                     |  |
| AC9M3N04 - multiply and divide one- and two-digit numbers, representing problems using number sentences, diagrams and arrays, and using a variety of calculation strategies  | Multiply & divide                   | Related Facts 2                        |
|  |                                     | Frog Jump Multiplication               |
| AC9M3N06 - use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate problems using number sentences and choose calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation |                                     | Frog Jump Division                     |
|  |                                     | Equivalent Facts: Multiply             |
|  |                                     | Divide Into Equal Groups               |

|  |   |                           |
|--|---|---------------------------|
| AC9M3N07 - follow and create algorithms involving a sequence of steps and decisions to investigate numbers; describe any emerging patterns                                     | Teacher directed                            |                           |
| AC9M3A01 - recognise and explain the connection between addition and subtraction as inverse operations, apply to partition numbers and find unknown values in number sentences | Patterns & missing numbers                  | Odd and Even Numbers 1    |
| AC9M3A03 - recall and demonstrate proficiency with multiplication facts for 3, 4, 5 and 10; extend and apply facts to develop the related division facts                       |   | Pick the Next Number      |
|  |   | Describing Patterns       |
|  |   | Find the Missing Number 1 |
|  |   | Missing Values            |
|  |   | Counting by Twos          |
|  |   | Counting by Fives         |
|  |   | Counting by Tens          |
|  |   | Count by 2s, 5s and 10s   |
|  |   | Dividing Twos             |
|  |   | Dividing Fives            |
|  |   | Dividing Tens             |
|  |   | Skip Counting with Coins  |
|  |   | Grouping in Fours         |
| Dividing Fours   |   |                           |
| Grouping in Threes   |   |                           |
| Dividing Threes  |   |                           |
| AC9M3A02 - extend and apply knowledge of addition and subtraction facts to 20 to develop efficient mental strategies for computation with larger numbers without a calculator  | Skill Quest: Apply knowledge of facts to 20 | Finding fact families     |

## 2 Measurement and Space

| Outcome  | Topic                                   | Activity Title                                   |
|--|---|--|
| AC9M3M01 - identify which metric units are used to measure everyday items; use measurements of familiar items and known units to make estimates                      | Measurements                            | Which Unit of Measurement?                       |
| AC9M3M02 - measure and compare objects using familiar metric units of length, mass and capacity, and instruments with labelled markings                              |   |  |
| AC9M3M04 - describe the relationship between the hours and minutes on analog and digital clocks, and read the time to the nearest minute                             |   | Which Measuring Tool?                            |
|  |   | Using a Litre                                    |
|  |   | How Long is That?                                |
|  |   | Measure to the Nearest Half Centimetre           |
|  |   | How Heavy?                                       |
|  |   | Ordering Mass (g)                                |
|  |   | Five Minute Times                                |
| What is the Time?  |   |  |
| AC9M3M03 - recognise and use the relationship between formal units of time including days, hours, minutes and seconds to estimate and compare the duration of events | Skill quest: Introduce units of time    | Introducing hours                                |
|  |   | Introducing minutes                              |
|  |   | Introducing seconds                              |
|  | Skill quest: Duration and units of time | Understanding relationship between units of time |
|  |   | Understanding duration                           |
| AC9M3M06 - recognise the relationships between dollars and cents and represent money values in different ways  | Money, dollars & cents                  | Money  |
|  |   | Who's got the Money?                             |
|  |   | How much Change?                                 |
| AC9M3SP01 - make, compare and classify objects, identifying key features and explaining why these features make them suited to their uses                            | Shape & space                           | How Many Faces?                                  |
| AC9M3SP02 - interpret and create two-dimensional representations of familiar environments, locating key landmarks and objects relative to each other                 |   | How many Edges?                                  |
|  |   | Count the Corners                                |
| AC9M3M05 - identify angles as measures of turn and compare angles with right angles in everyday situations   |   | Relate Shapes and Solids                         |
|  |   | Collect the Objects                              |
|  |   | Comparing Angles                                 |
|  |   | Equal Angles                                     |
|  |   | Following Directions                             |
|  |   | Coordinate Meeting Place                         |
|  |   | Map Coordinates                                  |
|  |   | Where is it?                                     |
| Symmetry   |   |  |

### 3 Statistics and Probability

| Outcome  | Topic                               | Activity Title                |
|--|-------------------------------------|-------------------------------|
| AC9M3ST01 - acquire data for categorical and discrete numerical variables to address a question of interest or purpose by observing, collecting and accessing data sets; record the data using appropriate methods including frequency tables and spreadsheets | Record, sort, read & interpret data | Tallies                       |
| AC9M3ST02 - create and compare different graphical representations of data sets including using software where appropriate; interpret the data in terms of the context   |                                     | Sorting Data                  |
|  |                                     | Pictographs                   |
|  |                                     | Interpreting Tables           |
|  |                                     | Reading from a Column Graph   |
|  |                                     | Column Graphs                 |
| AC9M3ST03 - conduct guided statistical investigations involving the collection, representation and interpretation of data for categorical and discrete numerical variables with respect to questions of interest   | Teacher directed                    | Add and Subtract Using Graphs |
| AC9M3P01 - identify practical activities and everyday events that involve chance; describe possible outcomes and events as 'likely' or 'unlikely' and identify some events as 'certain' or 'impossible' explaining reasoning                                   | Probability and chance              | Will it Happen?               |
| AC9M3P02 - conduct repeated chance experiments; identify and describe possible outcomes, record the results, recognise and discuss the variation   |                                     | Most Likely and Least Likely  |
|  |                                     | Introductory probability      |
|  |                                     | What are the Chances?         |
|  |                                     | How many Combinations?        |

# Year 4 – Skill Quests

## 1 Number and Algebra

| Outcome  | Quests  | Content   |
|--|---|---|
| AC9M4N01 - Recognise and extend the application of place value to tenths and hundredths and use the conventions of decimal notation to name and represent decimals | Place value to hundredths   | Introducing decimal notation                      |
|  |   | Understanding decimal tenths                      |
|  |   | Understanding decimal hundredths                  |
|  |   | Partitioning decimal hundredths                   |
|  | Connect decimals & fraction   | Connecting fractions & decimal notation           |
| Round decimal tenths & hundredths  | Rounding decimal tenths & hundredths  |   |
|  | Decimals used in money  | Understanding decimals used in money              |
| AC9M4N02 - Explain and use the properties of odd and even numbers  | Odd & even numbers  | Odd & even number patterns (up to 20)             |
|  |   | Identifying odd & even numbers & patterns         |
|  |   | Properties of odd & even numbers                  |
| AC9M4N03 - Find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation                     | Equivalent fractions  | Investigating equivalent fractions less than 1    |
|  |   | Investigating equivalent fractions greater than 1 |
|  |   | Patterns in equivalent fractions                  |
|  |   | Using multiplication to find equivalent fractions |
| AC9M4N04 - Count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines  | Count by fractions & mixed numerals   | Counting in halves & quarters                     |
|  |   | Counting in halves, quarters & eighths            |
|  |   | Counting in thirds                                |
|  |   | Counting in tenths                                |
|  | Counting in simple fractions on a number line   |   |
| Convert fraction types using models  | Converting mixed numerals to improper fractions   |   |
|  | AC9M4N05 - Solve problems involving multiplying or dividing natural numbers by multiples and powers of 10 without a calculator, using the multiplicative relationship between the place value of digits | Mult/div by multiples of 10, 100 & 1000           |
| Multiplying by multiples of 100  |   |   |
| Multiplying by 1000  |   |   |
| Dividing by multiples of 10  |   |   |
| Dividing by multiples of 100   |   |   |
| Dividing by 1000   |   |   |
| AC9M4N06 - Develop efficient strategies and use appropriate digital tools for solving problems involving addition and subtraction,                                 | Addition & subtraction using algorithms   | Addition algorithms (without regrouping)          |
|  |   | Addition algorithms (with regrouping)             |

|   |                                      |  |
|---|--------------------------------------|--|
| and multiplication and division where there is no remainder   |                                      | Addition algorithms (with & without regrouping)    |
|   |                                      | Subtraction algorithms (without decomposing)       |
|   |                                      | Subtraction algorithms (with decomposing)          |
|   | Addition & subtraction strategies    | Add & subtract using efficient strategies          |
|   |                                      | Add & subtract using a bar model                   |
|   |                                      | Add & subtract using place value partitioning      |
|   |                                      | Add & subtract using jump strategies               |
|   |                                      | Add & subtract using split strategies              |
|   |                                      | Add & subtract using round & compensate strategies |
|   | Mult & div strategies, no remainder  | Multiplication strategies: 1-digit numbers         |
|   |                                      | Using the conventions of multiplication            |
|   |                                      | Inverse facts: multiplication & division           |
|   |                                      | Practising multiplication strategies               |
|   |                                      | Multiplying 2-digit numbers by a 1-digit number    |
| Multiplying 2-digit numbers using doubling  |                                      |  |
| Multiplying 2-digit numbers using factorising   |                                      |  |
| Selecting effective multiplication strategies   |                                      |  |
| Selecting effective division strategies   |                                      |  |
| Comparisons using the language of multiplication  |                                      |  |
| Dividing a 2-digit number by a 1-digit number   |                                      |  |
| AC9M4N07 - Choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions | Use estimation & rounding            | Rounding & estimating with addition                |
|   |                                      | Rounding & estimating with subtraction             |
|   |                                      | Checking accuracy of addition & subtraction        |
|   |                                      | Estimating with multiplication & division          |
|   |                                      | Using estimating with money                        |
| AC9M4N08 - Use mathematical modelling to solve practical problems that involve additive and multiplicative situations including                           | Addition & subtraction word problems | Addition & subtraction word problems               |
|   |                                      | Posing addition & subtraction problems             |

|  |   |  |
|--|---|--|
| financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation                      |   | Expressing word problems as equations              |
|  | Multiplication & division word problems       | Expressing equations as word problems              |
|  |   | Solving multiplication & division word problems.   |
| Addition & subtraction money problems  | Solving addition & subtraction money problems |  |
| AC9M4N09 - Follow and create algorithms involving a sequence of steps and decisions that use addition or multiplication to generate sets of numbers; identify and describe any emerging patterns   | Sequences & patterns                          | Investigating sequences with multiples             |
|  |   | Exploring number patterns                          |
|  |   | Finding & generating shape patterns from a rule    |
|  |   | Generating add/sub patterns from a rule            |
|  |   | Generating multiplication patterns from a rule     |
|  |   | Using a function machine to apply rules to numbers |
| AC9M4A01 - Find unknown values in numerical equations involving addition and subtraction, using the properties of numbers and operations   | Addition & subtraction number sentences       | Using inverse operations for add/sub equations     |
|  |   | Relationship between addition & subtraction        |
|  |   | Equivalent number sentences                        |
|  |   | Word problems for finding unknown quantities       |
| AC9M4A02 - Recall and demonstrate proficiency with multiplication facts up to 10 x 10 and related division facts; extend and apply facts to develop efficient mental strategies for computation with larger numbers without a calculator | Multiplication & division facts               | Multiplication & division facts up to 5            |
|  |   | Multiplying & dividing by 6 up to 60               |
|  |   | Multiplying & dividing by 7 up to 70               |
|  |   | Multiplying & dividing by 8 up to 80               |
|  |   | Multiplying & dividing by 9 up to 90               |
|  |   | Multiplying & dividing to 10 x 10                  |

## 2 Measurement and Space

| Outcome   | Quests                                  | Content  |
|---|---|--|
| AC9M4M01 - Interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units | Length, mass, capacity & temperature    | Metric units of length                           |
|   |   | Length & 3D objects                              |
|   |   | Measuring temperature                            |
|   |   | Measuring capacity in millilitres                |
|   |   | Measuring mass in grams & kilograms              |
|   |   | Reading scales with metric units                 |
| AC9M4M02 - Recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units  | Measure perimeter                       | Introducing perimeter                            |
|   |   | Measuring perimeter                              |
|   | Measure area                            | Measuring & estimating area using square units   |
|   |   | Introducing area using formal units              |
|   |   | Measuring & comparing regular & irregular shapes |
| Measuring area using formal units   |   |  |
| AC9M4M03 - Solve problems involving the duration of time including situations involving “am” and “pm” and conversions between units of time   | Convert units of time                   | Converting units of time                         |
|   | Solve duration of time problems         | Understanding am & pm notation                   |
|   |   | Solving duration of time problems                |
| AC9M4M04 - Estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle                              | Classify angles                         | Classifying angles                               |
| AC9M4SP01 - Represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects  | Identify composite shapes & objects     | Composing & decomposing 2D shapes                |
| AC9M4SP02 - Create and interpret grid reference systems using grid references and directions to locate and describe positions and pathways  | Create & interpret grid references      | Working with grid reference systems              |
| AC9M4SP03 - Recognise line and rotational symmetry of shapes and create symmetrical patterns and pictures, using dynamic geometric software where appropriate   | Line & rotational symmetry              | Recognising & drawing line symmetry              |
|   |   | Rotational symmetry                              |
|   | Symmetrical patterns, pictures & shapes | Creating & drawing symmetrical designs           |
|   |   | Recognising tessellations                        |



### 3 Statistics and Probability

| Outcome   | Quests                                 | Content   |
|---|--|---|
| AC9M4ST01 - Acquire data for categorical and discrete numerical variables to address a question of interest or purpose using digital tools; represent data using many-to-one pictographs, column graphs and other displays or visualisations; interpret and discuss the information that has been created | Represent data with many-to-one graphs | Column graphs using many-to-one correspondence  |
|   |  | Picture graphs with many-to-one correspondence  |
| AC9M4ST02 - Analyse the effectiveness of different displays or visualisations in illustrating and comparing data distributions, then discuss the shape of distributions and the variation in the data   | Evaluate & compare data displays       | Evaluating & comparing data displays            |
| AC9M4ST03 - Conduct statistical investigations, collecting data through survey responses and other methods; record and display data using digital tools; interpret the data and communicate the results   | Methods of data collection             | Surveys & sorting data                          |
| AC9M4P01 - Describe possible everyday events and the possible outcomes of chance experiments and order outcomes or events based on their likelihood of occurring; identify independent or dependent events  | Chance events                          | Describing the chance of events occurring       |
|   | Non-simultaneous everyday events       | Exploring non-simultaneous everyday events      |
|   | Independent & dependent events         | Independent & dependent events                  |
| AC9M4P02 - Conduct repeated chance experiments to observe relationships between outcomes; identify and describe the variation in results  | Conduct chance experiments             | Conducting chance experiments                   |
|   |  | Investigating equally likely outcomes of chance |

# Year 4 – Activities

## 1 Number and Algebra

| Outcome   | Topic                     | Activity Title                                |
|---|---------------------------|---|
| AC9M4N01 - recognise and extend the application of place value to tenths and hundredths and use the conventions of decimal notation to name and represent decimals                                      | Introducing decimals      | Decimals from Words to Digits 1               |
|   |                           | Decimals on the Number Line                   |
|   |                           | Decimal Place Value                           |
|   |                           | Who's got the Money?                          |
|   |                           | Money   |
|   |                           | Grams and Kilograms                           |
|   |                           | Millilitres and Litres                        |
| Centimetres and Metres  |                           |   |
| AC9M4N03 - find equivalent representations of fractions using related denominators and make connections between fractions and decimal notation  | Fractions & equivalents   | What Fraction is Shaded?                      |
| AC9M4N04 - count by fractions including mixed numerals; locate and represent these fractions as numbers on number lines   |                           | What fraction is Shaded 1                     |
|   |                           | What Mixed Number Is Shaded?                  |
|   |                           | Equivalent Fraction Wall 1                    |
|   |                           | Equivalent Fraction Wall 2                    |
|   |                           | Simplifying Fractions                         |
|   |                           | Improper to Mixed                             |
|   |                           | Mixed to Improper                             |
|   |                           | Converting Mixed and Improper                 |
|   |                           | Identifying Fractions on a Number Line        |
|   |                           | Identifying Fractions Beyond 1                |
|   |                           | Counting with Fractions on a Number Line      |
|   |                           | Mixed and Improper Fractions on a Number Line |
| Thirds and Sixths   |                           |   |
| AC9M4N05 - solve problems involving multiplying or dividing natural numbers by multiples and powers of 10 without a calculator, using the multiplicative relationship between the place value of digits | Multiplication & division | Grouping in Threes                            |
|   |                           | Grouping in Fours                             |
|   |                           | Grouping in Sixes                             |
|   |                           | Grouping in Sevens                            |
|   |                           | Grouping in Eights                            |
|   |                           | Grouping in Nines                             |
|   |                           | Dividing Threes                               |
|   |                           | Dividing Fours                                |
|   |                           | Dividing Sixes                                |
|   |                           | Dividing Sevens                               |
|   |                           | Dividing Eights                               |
|   |                           | Dividing Nines                                |
| Multiplication Turnarounds  |                           |   |

|   |                                      |  |
|---|--------------------------------------|--|
|   |                                      | Missing Numbers: $\times$ and $\div$ facts |
|   |                                      | Times Tables                               |
|   |                                      | Multiply 3 single-digit numbers            |
|   |                                      | Multiplying by 10, 100, 1000               |
|   |                                      | Dividing by 10, 100, 1000                  |
| AC9M4A02 - recall and demonstrate proficiency with multiplication facts up to $10 \times 10$ and related division facts; extend and apply facts to develop efficient mental strategies for computation with larger numbers without a calculator   |                                      |  |
| AC9M4N06 - develop efficient strategies and use appropriate digital tools for solving problems involving addition and subtraction, and multiplication and division where there is no remainder  | Efficient strategies with operations | Bump Add and Subtract                      |
| AC9M4N07 - choose and use estimation and rounding to check and explain the reasonableness of calculations including the results of financial transactions   |                                      | Jump Add and Subtract                      |
|   |                                      | Complements to 10, 20, 50                  |
|   |                                      | Split Add and Subtract                     |
|   |                                      | Compensation - Add                         |
|   |                                      | Column Addition 1                          |
|   |                                      | Columns that Subtract                      |
|   |                                      | Subtract Numbers                           |
|   |                                      | Estimate Sums                              |
|   |                                      | Estimate Differences                       |
|   |                                      | Magic Symbols 1                            |
|   |                                      | Double and Halve to Multiply               |
|   |                                      | Fact Families: Multiply and Divide         |
|   |                                      | Multiplication Arrays                      |
|   |                                      | Arrays 1                                   |
|   |                                      | Arrays 2                                   |
|   |                                      | Related Facts 2                            |
|   |                                      | Model multiplication to $5 \times 5$       |
|   |                                      | Grid Methods 1                             |
|   |                                      | Problems: Times and Divide                 |
| AC9M4N08 - use mathematical modelling to solve practical problems that involve additive and multiplicative situations including financial contexts; formulate the problems using number sentences and choose efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation | Problem solving with models          | Bar Model Problems 1                       |
|   |                                      | Bar Model Problems 2                       |
|   |                                      | Fractions of a Collection 1                |
|   |                                      | Fractions of a Collection 2                |
| AC9M4A01 - find unknown values in numerical equations involving addition and subtraction, using the   | Patterns & missing numbers           | Describing Patterns                        |
|   |                                      | Missing Values                             |

|   |                           |   |
|---|---------------------------|---|
| properties of numbers and operations  |                           |   |
| AC9M4N02 - explain and use the properties of odd and even numbers   |                           | I am Thinking of a Number!<br>Balance Numbers to 20<br>Odd and Even Numbers 1   |
| AC9M4A02 - explain and use the properties of odd and even numbers   | Multiplication & division | Grouping in Threes<br>Grouping in Fours<br>Grouping in Sixes<br>Grouping in Sevens<br>Grouping in Eights<br>Grouping in Nines<br>Dividing Threes<br>Dividing Fours<br>Dividing Sixes<br>Dividing Sevens<br>Dividing Eights<br>Dividing Nines<br>Multiplication Turnarounds<br>Missing Numbers: $\times$ and $\div$ facts<br>Times Tables<br>Multiply 3 single-digit numbers<br>Multiply 3 single-digit numbers<br>Dividing by 10, 100, 1000 |
| AC9M4N05 - recall and demonstrate proficiency with multiplication facts up to $10 \times 10$ and related division facts; extend and apply facts to develop efficient mental strategies for computation with larger numbers without a calculator |                           |   |

## 2 Measurement and Space

| Outcome   | Topic                             | Activity Title   |
|---|-----------------------------------|--|
| AC9M4M01 - interpret unmarked and partial units when measuring and comparing attributes of length, mass, capacity, duration and temperature, using scaled and digital instruments and appropriate units | Measuring, converting & comparing | How Heavy?   |
| AC9M4M02 - recognise ways of measuring and approximating the perimeter and area of shapes and enclosed spaces, using appropriate formal and informal units  |                                   | How Long is That?                                      |
| AC9M4M03 - solve problems involving the duration of time including situations involving “am” and “pm” and conversions between units of time   |                                   | Measuring Length                                       |
|   |                                   | Measure to the Nearest Half Centimetre                 |
|   |                                   | How many Blocks?                                       |
|   |                                   | Comparing Volume                                       |
|   |                                   | Volume of Solids and Prisms - 1 cm <sup>3</sup> blocks |
|   |                                   | What is the Time?                                      |
|   |                                   | What's the Temperature (Celsius)?                      |
|   |                                   | Biggest Shape  |
|   |                                   | Equal Areas  |
|   |                                   | Area of Shapes   |
|   |                                   | Perimeter of Shapes                                    |
|   |                                   | Time Conversions: Whole Numbers 1                      |
|   |                                   | Time Conversions: Whole Numbers 2                      |
| Time Conversions: Simple Fractions  |                                   |  |
| Time Conversions: Simple Decimals   |                                   |  |
| AC9M4M04 - estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle                              | Space, shape & angle              | Equal Angles   |
|   |                                   | Comparing Angles                                       |
|   |                                   | Right Angle Relation                                   |
|   |                                   | What Type of Angle?                                    |
|   |                                   | Relate Shapes and Solids                               |
|   |                                   | Collect the Objects 2                                  |
|   |                                   | Coordinate Meeting Place                               |
|   |                                   | Map Coordinates  |
|   |                                   | Using a key  |
|   |                                   | What Direction was That?                               |
|   |                                   | More Directions!                                       |
|   |                                   | Symmetry   |
| Symmetry or Not?  |                                   |  |
| Rotational Symmetry   |                                   |  |

|   |  |  |
|---|--|--|
| AC9M4SP02 - create and interpret grid reference systems using grid references and directions to locate and describe positions and pathways                                  |  |  |
| AC9M4SP03 - estimate and compare angles using angle names including acute, obtuse, straight angle, reflex and revolution, and recognise their relationship to a right angle |  |  |

### 3 Statistics and Probability

| Outcome   | Topic                        | Activity Title                            |
|---|------------------------------|---|
| AC9M4ST01 - acquire data for categorical and discrete numerical variables to address a question of interest or purpose using digital tools; represent data using many-to-one pictographs, column graphs and other displays or visualisations; interpret and discuss the information that has been created | Graphs with scales &/or axis | Picture Graphs: with scale & half symbols |
|   |                              | Making Picture Graphs: With Scale         |
|   |                              | Column Graphs                             |
|   |                              | Reading from a Column Graph               |
| AC9M4ST02 - analyse the effectiveness of different displays or visualisations in illustrating and comparing data distributions, then discuss the shape of distributions and the variation in the data   | Teacher directed             |   |
| AC9M4ST03 - conduct statistical investigations, collecting data through survey responses and other methods; record and display data using digital tools; interpret the data and communicate the results   | Teacher directed             |   |
| AC9M4SP01 - represent and approximate composite shapes and objects in the environment, using combinations of familiar shapes and objects  | Chance                       | Chance Gauge                              |
|   |                              | What are the Chances?                     |
|   |                              | Counting Techniques 1                     |
| AC9M4P02 - conduct repeated chance experiments to observe relationships between outcomes; identify and describe the variation in results  | Teacher directed             |   |

# Year 5 – Skill Quests

## 1 Number and Algebra

| Outcome   | Quests                                   | Content  |
|---|--|--|
| AC9M5N01 - Interpret, compare and order numbers with more than 2 decimal places, including numbers greater than one, using place value understanding; represent these on a number line                    | Understand decimals to thousandths       | Introducing decimal thousandths                    |
|   |  | Partitioning decimals of any size                  |
|   |  | Comparing & ordering decimals                      |
|   |  | Interpreting zeros at end of decimals              |
|   |  | Decimal & fraction equivalences                    |
|   |  | Connecting decimals to the metric system           |
| AC9M5N02 - Express natural numbers as products of their factors, recognise multiples and determine if one number is divisible by another  | Multiples & factors                      | Finding multiples                                  |
|   |  | Finding factors                                    |
|   | Divisibility tests                       | Solving problems using factors & multiples         |
|   |  | Divisibility tests for 2, 5 & 10                   |
| AC9M5N03 - Compare and order fractions with the same and related denominators including mixed numerals, applying knowledge of factors and multiples; represent these fractions on a number line           | Compare & order fractions                | Divisibility tests for 3, 4, 6, 8 & 9              |
|   |  | Comparing & ordering fractions                     |
|   |  | Comparing & ordering fractions & mixed numbers     |
| AC9M5N04 - Recognise that 100% represents the complete whole and use percentages to describe, represent and compare relative size; connect familiar percentages to their decimal and fraction equivalents | Fractions, decimals & percentages        | Using common factors to simplify proper fractions  |
|   |  | Introducing percentages                            |
|   |  | Connecting percentages & decimals                  |
|   |  | Connecting percentages & fractions                 |
| AC9M5N05 - Solve problems involving addition and subtraction of fractions with the same or related denominators, using different strategies   | Add & subtract fractions                 | Relationship - percentages, decimals & fractions   |
|   |  | Add & subtract proper fractions - same denominator |
|   |  | Add & subtract mixed numerals - same denominator   |
|   |  | Add & subtract fractions - related denominators    |
| AC9M5N06 - Solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient   | Strategies to multiply by 1- or 2-digits | Add & subtract mixed num - related denominators    |
|   |  | Multiplication using multiples of 10               |
|   |  | Multiplying: rounding, compensating & partitioning |



|   |                                      |   |
|---|--------------------------------------|---|
| calculation strategies and using digital tools where appropriate; check the reasonableness of answers   |                                      | Multiplying: doubling, halving & thirding       |
|   |                                      | Multiplying using the split method              |
|   |                                      | Multiplying using an area model                 |
|   |                                      | Multiplying by factorising                      |
|   |                                      | Multiplying using expanded algorithm            |
|   |                                      | Multiplying using contracted algorithm          |
|   |                                      | Multiplying using extended form of algorithm    |
| AC9M5N07 - Solve problems involving division, choosing efficient strategies and using digital tools where appropriate; interpret any remainder according to the context and express results as a whole number, decimal or fraction  | Division strategies incl. remainders | Dividing by a 1-digit number using partitioning |
|   |                                      | Dividing by a 2-digit number using partitioning |
|   |                                      | Dividing by a 1-digit number using factorising  |
|   |                                      | Dividing by a 2-digit number using factorising  |
|   |                                      | Extended division - no remainders or zeros      |
|   |                                      | Extended division with remainders               |
|   |                                      | Extended division with & without remainders     |
|   |                                      | Contracted division - no remainders or zeros    |
|   |                                      | Contracted division- no remainders              |
|   |                                      | Contracted division - with & without remainders |
|   |                                      | Dividing by 2-digit numbers - formal algorithms |
| AC9M5N08 - Check and explain the reasonableness of solutions to problems including financial contexts using estimation strategies appropriate to the context  | Estimation & rounding                | Rounding to estimate addition & subtraction     |
|   |                                      | Rounding to estimate multiplication & division  |
|   |                                      | Estimating with money                           |
| AC9M5N09 - Use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems, choosing operations and efficient calculation strategies, using digital tools where appropriate; interpret and communicate solutions in terms of the situation | Add & subtract practical problems    | Addition & subtraction word problems            |
|   |                                      | Expressing word problems as equations add/sub   |
|   |                                      | Solving add & subtract money problems           |
|   | Multiply & divide practical problems | Multiplication & division word problems         |
|   |                                      | Expressing word problems as equations mult/div  |
|   |                                      | Solving mult-step mult/div word problems        |

|   |                                   |  |
|---|-----------------------------------|--|
|   |                                   | Solving mult & div money problems                  |
|   | All operations practical problems | Express equations as word problems all operations  |
| AC9M5N10 - Create and use algorithms involving a sequence of steps and decisions and digital tools to experiment with factors, multiples and divisibility; identify, interpret and describe emerging patterns | Create & use algorithms           | Manipulating numbers using a given rule            |
|   |                                   | Designing flowcharts to solve add/sub of fractions |
|   |                                   | Factors & multiples                                |
| AC9M5A01 - Recognise and explain the connection between multiplication and division as inverse operations and use this to develop families of number facts  | Connect multiplication & division | Inverse relationship - multiplication & division   |
| AC9M5A02 - Find unknown values in numerical equations involving multiplication and division using the properties of numbers and operations  | Find unknown values in mult & div | Finding unknown values - multiplication & division |

## 2 Measurement and Space

| Outcome   | Quests                                | Content  |
|---|---------------------------------------|--|
| AC9M5M01 - Choose appropriate metric units when measuring the length, mass and capacity of objects; use smaller units or a combination of units to obtain a more accurate measure                                     | Choose appropriate metric units       | Introducing kilometres                             |
|   |                                       | Comparing & ordering units of length               |
|   |                                       | Selecting appropriate units - length               |
|   |                                       | Comparing & ordering units of mass                 |
|   |                                       | Selecting appropriate units - mass                 |
|   |                                       | Selecting appropriate units - capacity             |
|   |                                       | Recognising suitable metric units - all            |
| AC9M5M02 - Solve practical problems involving the perimeter and area of regular and irregular shapes using appropriate metric units   | Perimeter & area - practical problems | Calculating perimeter practical problems           |
|   |                                       | Calculating area practical problems                |
| AC9M5M03 - Compare 12- and 24-hour time systems and solve practical problems involving the conversion between them  | Use 24-hour time                      | Using 24-hour notation                             |
|   |                                       | Using 24-hour time in timetables                   |
| AC9M5M04 - Estimate, construct and measure angles in degrees, using appropriate tools including a protractor, and relate these measures to angle names  | Estimate, construct & measure angles  | Identifying, estimating & measuring angles         |
|   |                                       | Classifying & constructing angles                  |
| AC9M5SP01 - Connect objects to their nets and build objects from their nets using spatial and geometric reasoning   | Connect objects to nets               | Connecting prisms & pyramids with their nets       |
|   |                                       | Connecting 3D objects with their nets              |
| AC9M5SP02 - Construct a grid coordinate system that uses coordinates to locate positions within a space; use coordinates and directional language to describe position and movement                                   | Use coordinates in a grid system      | Working with grid referenced maps                  |
|   |                                       | Using Cartesian coordinate system - first quadrant |
|   |                                       | Using landmarks & directional language             |
| AC9M5SP03 - Describe and perform translations, reflections and rotations of shapes, using dynamic geometric software where appropriate; recognise what changes and what remains the same, and identify any symmetries | Identify & describe transformations   | Identifying & describing transformations           |

### 3 Statistics and Probability

| Outcome   | Quests                             | Content  |
|---|------------------------------------|--|
| AC9M5ST01 - Acquire, validate and represent data for nominal and ordinal categorical and discrete numerical variables to address a question of interest or purpose using software including spreadsheets; discuss and report on data distributions in terms of highest frequency (mode) and shape, in the context of the data | Acquire, validate & represent data | Conducting surveys or statistical investigations                                   |
|   | Understand data distributions      | Understanding & calculating the mode<br>Introducing the shape of data distribution |
| AC9M5ST02 - Interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made  | Interpret line graphs              | Interpreting line graphs   |
| AC9M5ST03 - Plan and conduct statistical investigations by posing questions or identifying a problem and collecting relevant data; choose appropriate displays and interpret the data; communicate findings within the context of the investigation   | Teacher directed                   |  |
| AC9M5P01 - List the possible outcomes of chance experiments involving equally likely outcomes and compare to those which are not equally likely   | Outcomes of chance experiments     | Investigating equally likely outcomes  |
|   |                                    | Exploring fair & unfair chance experiments   |

# Year 5 – Activities

## 1 Number and Algebra

| Outcome   | Topic                              | Activity Title   |
|---|------------------------------------|--|
| AC9M5N01 - interpret, compare and order numbers with more than 2 decimal places, including numbers greater than one, using place value understanding; represent these on a number line          | REVIEW Whole Numbers & Place Value | Place Value to Millions                                  |
|   |                                    | Numbers from Words to Digits 1                           |
|   |                                    | Numbers from Words to Digits 2                           |
|   |                                    | Greater Than or Less Than?                               |
|   |                                    | Partition and Rename 3/Understanding Place Value 3 (CAN) |
|   |                                    | Expanded Notation  |
|   |                                    | Rounding Numbers   |
|   |                                    | Decimals from Words to Digits 1                          |
|   |                                    | Decimals on the Number Line                              |
|   |                                    | Decimal Place Value                                      |
|   |                                    | Nearest Whole Number                                     |
| AC9M5N02 - express natural numbers as products of their factors, recognise multiples and determine if one number is divisible by another  | Factors & Multiples                | Multiples  |
|   |                                    | Lowest Common Multiple                                   |
|   |                                    | Factors  |
|   |                                    | Highest Common Factor                                    |
|   |                                    | Find the Factor  |
|   |                                    | Divisibility Tests (2, 5, 10)                            |
|   |                                    | Divisibility Tests (3, 4, 9)                             |
|   |                                    | Tests of Divisibility 1                                  |
| AC9M5N03 - compare and order fractions with the same and related denominators including mixed numerals, applying knowledge of factors and multiples; represent these fractions on a number line | Compare & order fractions          | Shading Equivalent Fractions                             |
|   |                                    | Equivalent Fraction Wall 1                               |
|   |                                    | Equivalent Fractions on a Number Line 1                  |
|   |                                    | Equivalent Fractions                                     |
|   |                                    | Compare Fractions 1a                                     |
|   |                                    | Compare Fractions 1b                                     |
|   |                                    | Identifying Fractions Beyond 1                           |
|   |                                    | Improper to Mixed  |
|   |                                    | Mixed to Improper  |
|   |                                    | Converting Mixed and Improper                            |
|   |                                    | Identifying Fractions on a Number Line                   |
| Mixed and Improper Fractions on a Number Line   |                                    |  |
| AC9M5N04 - recognise that 100% represents the complete whole and use percentages to describe, represent and compare relative size; connect familiar percentages                                 | Fractions decimals & percentages   | Modelling Percentages                                    |
|   |                                    | Fractions to Decimals                                    |
|   |                                    | Percents and Decimals                                    |
|   |                                    | Common Fractions as Percentages (AU)                     |

|  |                                  |                                 |
|--|----------------------------------|---------------------------------|
| to their decimal and fraction equivalents  |                                  | Decimal Order                   |
|  |                                  | Comparing Decimals              |
|  |                                  | Grams and Kilograms             |
|  |                                  | Millilitres and Litres          |
|  |                                  | Centimetres and Metres          |
| AC9M5N01 - interpret, compare and order numbers with more than 2 decimal places, including numbers greater than one, using place value understanding; represent these on a number line   |                                  |                                 |
| AC9M5N05 - solve problems involving addition and subtraction of fractions with the same or related denominators, using different strategies  | Add & subtract related fractions | Add: Common Denominator         |
|  |                                  | Subtract: Common Denominator    |
|  |                                  | Common Denominator              |
|  |                                  | Add Like Mixed Numbers          |
|  |                                  | Subtract Like Mixed Numbers     |
| AC9M5N06 - solve problems involving multiplication of larger numbers by one- or two-digit numbers, choosing efficient calculation strategies and using digital tools where appropriate; check the reasonableness of answers                                  | More multiplication & division   | Multiply Multiples of 10        |
|  |                                  |                                 |
| AC9M5N07 - solve problems involving division, choosing efficient strategies and using digital tools where appropriate; interpret any remainder according to the context and express results as a whole number, decimal or fraction                           |                                  | Multiply More Multiples of 10   |
|  |                                  | Multiply 2 Digits Area Model    |
|  |                                  | Grid Methods 1                  |
|  |                                  | Double and Halve to Multiply    |
|  |                                  | Mental Methods Multiplication 1 |
|  |                                  | Dividing by 10, 100, 1000       |
|  |                                  | Division Facts 1                |
|  |                                  | Remainders by Arrays            |
|  |                                  | Mental Methods Division 1       |
| Mental Methods Division  |                                  |                                 |
| AC9M5N08 - check and explain the reasonableness of solutions to problems including financial contexts using estimation strategies appropriate to the context   | Rounding & estimating            | Rounding Numbers                |
|  |                                  | Rounding Numbers 1              |
|  |                                  | Estimate Sums                   |
|  |                                  | Estimate Differences            |
|  |                                  | Estimate Products               |
|  |                                  | Estimate Quotients              |
|  |                                  | Estimation: Multiply and Divide |
|  |                                  | Estimate Decimal Sums 2         |
|  |                                  | Estimate Decimal Operations     |
| AC9M5N09 - use mathematical modelling to solve practical problems involving additive and multiplicative situations including financial contexts; formulate the problems, choosing operations and efficient calculation strategies, using digital tools where | Solve problems                   | Columns that Add                |
|  |                                  | Add Two 2-Digit Numbers         |
|  |                                  | Add 3-Digit Numbers             |
|  |                                  | Columns that Subtract           |
|  |                                  | Subtract Numbers                |
|  |                                  | Multiply: 1-Digit Number        |
|  |                                  | Multiply: 2-Digit by 1-Digit    |
|  |                                  | Divide: 1-Digit Divisor 1       |

|  |                        |  |
|--|------------------------|--|
| appropriate; interpret and communicate solutions in terms of the situation   |                        | Bar model $\times \div$                    |
|  |                        | Problems: Times and Divide                 |
| AC9M5A01 - recognise and explain the connection between multiplication and division as inverse operations and use this to develop families of number facts | Fact families mult/div | Fact Families: Multiply and Divide         |
|  |                        | Multiplication Turnarounds                 |
|  |                        | Missing Numbers: $\times$ and $\div$ facts |
|  |                        | Times Tables                               |
|  |                        | Multiply 3 single-digit numbers            |
| AC9M5A02 - find unknown values in numerical equations involving multiplication and division using the properties of numbers and operations                 | Missing values         | Equivalent Facts: Multiply                 |
|  |                        | Missing Values                             |
|  |                        | Missing Numbers: Variables                 |
|  |                        | Solve Equations: Multiply, Divide 1        |
|  |                        | I am Thinking of a Number!                 |
|  |                        | Fit the Conditions 1                       |

## 2 Measurement and Space

| Outcome   | Topic   | Activity Title                        |                     |
|---|---|---------------------------------------|---------------------|
| AC9M5M01 - choose appropriate metric units when measuring the length, mass and capacity of objects; use smaller units or a combination of units to obtain a more accurate measure   | Measurement   | Kilometre Conversions                 |                     |
| AC9M5M02 - solve practical problems involving the perimeter and area of regular and irregular shapes using appropriate metric units   |   | Metres and Kilometres                 |                     |
|   |   | Millilitres and Litres                |                     |
|   |   | Litre Conversions                     |                     |
|   |   | Kilogram Conversions                  |                     |
|   |   | Grams and Kilograms                   |                     |
|   |   | Perimeter: Squares and Rectangles     |                     |
|   |   | Area of Shapes                        |                     |
|   |   | Biggest Shape/Bigger or smaller shape |                     |
|   |   | Equal Areas                           |                     |
|   |   | Area: Squares and Rectangles          |                     |
| Classifying Angles  |   |                                       |                     |
| Measuring Angles  |   |                                       |                     |
| Estimating Angles   |   |                                       |                     |
| AC9M5M04 - estimate, construct and measure angles in degrees, using appropriate tools including a protractor, and relate these measures to angle names                              | Time conversions & problems   | Time Conversions: Simple Fractions    |                     |
| AC9M5M03 - compare 12- and 24-hour time systems and solve practical problems involving the conversion between them  |   | Time Conversions: Simple Decimals     |                     |
|   |   | What Time Will it Be?                 |                     |
|   |   | Time Mentals                          |                     |
|   |   | Elapsed Time                          |                     |
|   |   | 24 Hour Time                          |                     |
|   |   | Using Timetables                      |                     |
|   | AC9M5SP01 - connect objects to their nets and build objects from their nets using spatial and geometric reasoning | Space & shape                         | What Pyramid am I?  |
| AC9M5SP02 - construct a grid coordinate system that uses coordinates to locate positions within a space; use coordinates and directional language to describe position and movement |   |                                       | What Prism am I?    |
|   |   |                                       | Prisms and Pyramids |
| AC9M5SP03 - describe and perform translations, reflections and rotations of shapes, using dynamic geometric software where  | Map Coordinates   |                                       |                     |
|   | Coordinate Graphs: 1st Quadrant   |                                       |                     |



|  |  |                     |
|--|--|---------------------|
| appropriate; recognise what changes and what remains the same, and identify any symmetries |  | More Directions!    |
|  |  | Flip, Slide, Turn   |
|  |  | Transformations     |
|  |  | Rotational Symmetry |

### 3 Statistics and Probability

| Outcome   | Topic                | Activity Title               |
|---|----------------------|------------------------------|
| AC9M5ST02 - interpret line graphs representing change over time; discuss the relationships that are represented and conclusions that can be made  | Statistics           | Line Graphs: Interpretation  |
| AC9M5ST03 - plan and conduct statistical investigations by posing questions or identifying a problem and collecting relevant data; choose appropriate displays and interpret the data; communicate findings within the context of the investigation |                      | Travel Graphs                |
|   |                      | Stem and Leaf Plots: Concept |
|   |                      | Dot Plots                    |
|   |                      | Divided Bar Graphs           |
|   |                      | Tally Charts                 |
|   |                      | Sector Graphs                |
|   |                      | Mode                         |
|   |                      | Mode from Stem and Leaf Plot |
|   |                      | Mode from Frequency Table    |
| Grouping data and modal class   |                      |                              |
| AC9M5P01 - list the possible outcomes of chance experiments involving equally likely outcomes and compare to those which are not equally likely   | Chance & probability | What are the Chances?        |
| AC9M5P02 - conduct repeated chance experiments including those with and without equally likely outcomes, observe and record the results; use frequency to compare outcomes and estimate their likelihoods   |                      | Chance Gauge                 |
|   |                      | Introductory probability     |
|   |                      | Fair Games                   |

# Year 6 – Skill Quests

## 1 Number and Algebra

| Outcome   | Quests                                   | Content   |
|---|--|---|
| AC9M6N01 - Recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane        | Understand integers                      | Recognising situations that use integers          |
|   |  | Locating & representing integers on a number line |
|   |  | Introducing the Cartesian plane                   |
| AC9M6N02 - Identify and describe the properties of prime, composite and square numbers and use these properties to solve problems and simplify calculations                       | Prime, composite & square numbers        | Introducing prime & composite numbers             |
|   |  | Introducing square numbers                        |
| AC9M6N03 - Apply knowledge of equivalence to compare, order and represent common fractions including halves, thirds and quarters on the same number line and justify their order  | Compare & order common fractions         | Recognise, compare & represent common fractions   |
|   |  | Comparing common fractions on a number line       |
| AC9M6N04 - Apply knowledge of place value to add and subtract decimals, using digital tools where appropriate; use estimation and rounding to check the reasonableness of answers | Add/sub decimals - mental strategies     | Adding decimals using mental strategies           |
|   | Add/sub decimals - digital technologies  | Subtracting decimals using mental strategies      |
|   |  | Adding decimals using digital technologies        |
|   | Add/sub decimals - written method        | Subtracting decimals using digital technologies   |
|   |  | Adding decimals using written method              |
|   | Add/sub decimals - estimating            | Subtracting decimals using written method         |
|   |  | Estimating sums & differences of decimals         |
| AC9M6N05 - Solve problems involving addition and subtraction of fractions using knowledge of equivalent fractions   | Add & subtract proper fractions          | Adding fractions with related denominators        |
|   |  | Subtracting fractions with related denominators   |
|   |  | Add & subtract fractions - related denominators   |
|   | Add & subtract mixed numerals            | Adding fractions & mixed numerals                 |
|   |  | Subtracting fractions & mixed numerals            |
|   |  |   |
| AC9M6N06 - Multiply and divide decimals by multiples of powers of 10 without a calculator, applying knowledge of place value and proficiency with multiplication facts,           | Multiply/divide decimals by powers of 10 | Multiplying decimals by powers of 10              |
|   |  | Dividing decimals by powers of 10                 |
|   |  | Using estimation                                  |

|   |                                     |  |
|---|-------------------------------------|--|
| using estimation and rounding to check the reasonableness of answers  |                                     |  |
| AC9M6N07 - Solve problems that require finding a familiar fraction, decimal or percentage of a quantity, including percentage discounts, choosing efficient calculation strategies and using digital tools where appropriate  | Find a fraction of a quantity       | Finding a fraction of a quantity             |
|   | Calculate percentages               | Calculating percentages                      |
| AC9M6N08 - Approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies  | Rational numbers & percentages      | Estimating solutions                         |
| AC9M6N09 - Use mathematical modelling to solve practical problems, involving rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and efficient calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made | Solve practical percentage problems | Solving practical percentage problems        |
| AC9M6A01 - Recognise and use rules that generate visually growing patterns and number patterns involving rational numbers   | Recognise & use rules for patterns  | Continuing & creating number sequences       |
| AC9M6A02 - Find unknown values in numerical equations involving brackets and combinations of arithmetic operations, using the properties of numbers and operations  | Understand order of operations      | Order of operations with no grouping symbols |
|   |                                     | Order of operations using grouping symbols   |
|   |                                     | Order of operations practical situations     |
| AC9M6A03 - Create and use algorithms involving a sequence of steps and decisions that use rules to generate sets of numbers; identify, interpret and explain emerging patterns  | Design flowcharts to solve problems | Designing flowcharts to solve problems       |
|   | Use rules & algorithms              | Manipulating numbers using a given rule      |
|   |                                     | Creating algorithms for sets                 |

## 2 Measurement and Space

| Outcome  | Quests                                  | Content  |
|--|---|--|
| AC9M6M01 - Convert between common metric units of length, mass and capacity; choose and use decimal representations of metric measurements relevant to the context of a problem  | Connect decimals to the metric system   | Decimal notation & the metric system               |
|  |   | Decimal representation in capacity                 |
|  |   | Decimal representation in mass                     |
|  | Convert metric units of measurement     | Converting metric units of length                  |
|  |   | Converting metric units of capacity                |
|  |   | Converting metric units of mass                    |
| AC9M6M02 - Establish the formula for the area of a rectangle and use it to solve practical problems  | Use formula for area of a rectangle     | Using a formula to calculate area of a rectangle   |
| AC9M6M03 - Interpret and use timetables and itineraries to plan activities and determine the duration of events and journeys   | Interpret & use timetables              | Interpreting & using timetables                    |
| AC9M6M04 - Identify the relationships between angles on a straight line, angles at a point and vertically opposite angles; use these to determine unknown angles, communicating reasoning  | Understand angle properties             | Understanding adjacent angles                      |
|  |   | Exploring vertically opposite angles               |
|  |   | Calculating angles that total $360^\circ$          |
|  |   | Investigating supplementary & complementary angles |
| AC9M6SP01 - Compare the parallel cross-sections of objects and recognise their relationships to right prisms   | Investigate cross-sections              | Investigating cross-sections                       |
| AC9M6SP02 - Locate points in the 4 quadrants of a Cartesian plane; describe changes to the coordinates when a point is moved to a different position in the plane  | Points on the Cartesian plane           | Locating points on the Cartesian plane             |
| AC9M6SP03 - Recognise and use combinations of transformations to create tessellations and other geometric patterns, using dynamic geometric software where appropriate   | Use combinations of transformations     | Recognising tessellations                          |
|  |   | Identifying a sequence of 2 transformations        |
| AC9M6ST01 - Interpret and compare data sets for ordinal and nominal categorical, discrete and continuous numerical variables using comparative displays or visualisations and digital tools; compare distributions in terms of mode, range and shape | Interpret, compare & describe data sets | Two-way tables                                     |
|  |   | Side-by-side column graphs                         |
|  |   | Comparing & selecting bivariate data displays      |
|  |   | Describing & interpreting data sets                |
|  | Compare mode, range & shape             | Understanding mode, range & shape of distributions |

|  |  |                                 |
|--|--|---------------------------------|
|  |  | Comparing modes in sets of data |
|--|--|---------------------------------|

### 3 Statistics and Probability

| Outcome   | Quests                              | Content                                       |
|---|-------------------------------------|---|
| AC9M6ST02 - Identify statistically informed arguments presented in traditional and digital media; discuss and critique methods, data representations and conclusions  | Interpret & evaluate secondary data | Interpreting & evaluating secondary data      |
| AC9M6ST03 - Plan and conduct statistical investigations by posing and refining questions or identifying a problem and collecting relevant data; analyse and interpret the data and communicate findings within the context of the investigation | Teacher directed                    |   |
| AC9M6P01 - Recognise that probabilities lie on numerical scales of 0 – 1 or 0% – 100% and use estimation to assign probabilities that events occur in a given context, using common fractions, percentages and decimals                         | Assign probabilities                | Probability as a fraction, decimal or percent |
|   |                                     | Probabilities from 0 to 1                     |
| AC9M6P02 - Conduct repeated chance experiments and run simulations with an increasing number of trials using digital tools; compare observations with expected results and discuss the effect on variation of increasing the number of trials   | Conduct chance experiments          | Conducting chance experiments                 |

# Year 6 – Activities

## 1 Number and Algebra

| Outcome   | Topic                                   | Activity Title                                |
|---|---|---|
| AC9M6N01 - recognise situations, including financial contexts, that use integers; locate and represent integers on a number line and as coordinates on the Cartesian plane        | Introducing Integers                    | Integers on a Number Line                     |
|   |   | Ordering Integers (Number Line)               |
|   |   | Comparing Integers (<, =, >)                  |
|   |   | What's the Temperature (Celsius)?             |
| AC9M6N02 - identify and describe the properties of prime, composite and square numbers and use these properties to solve problems and simplify calculations                       | Multiples, factors, primes & composites | Multiples                                     |
|   |   | Multiples of                                  |
|   |   | Highest Common Factor                         |
|   |   | Lowest Common Multiple                        |
| AC9M6N03 - apply knowledge of equivalence to compare, order and represent common fractions including halves, thirds and quarters on the same number line and justify their order  | Equivalent fractions                    | Equivalent fractions                          |
|   |   | Equivalent Fraction Wall 2                    |
|   |   | Shading Equivalent Fractions                  |
|   |   | Identifying Fractions on a Number Line        |
|   |   | Mixed and Improper Fractions on a Number Line |
|   |   | Equivalent Fractions                          |
|   |   | Comparing Fractions 1                         |
|   |   | Compare Fractions 1a                          |
|   |   | Compare Fractions 1b                          |
| AC9M6N04 - apply knowledge of place value to add and subtract decimals, using digital tools where appropriate; use estimation and rounding to check the reasonableness of answers | Add/subtract decimal and fractions      | Decimal Complements                           |
|   |   | Adding Decimals                               |
| AC9M6N05 - solve problems involving addition and subtraction of fractions using knowledge of equivalent fractions   |   | Subtract Decimals 1                           |
|   |   | Estimate Decimal Sums 1                       |
|   |   | Estimate Decimal Differences 1                |
|   |   | Add Subtract Fractions 1                      |
|   |   | Common Denominator                            |
|   |   | Add: Common Denominator                       |
|   |   | Subtract: Common Denominator                  |
|   |   | One Take Fraction                             |
|   |   | Add Like Mixed Numbers                        |
| Subtract Like Mixed Numbers   |   |   |
| AC9M6N08 - approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies          | Estimate Decimal Sums 2                 |   |



|   |   |                                |
|---|---|--------------------------------|
|   |   | Estimate Decimal Differences 2 |
| AC9M6N07 - solve problems that require finding a familiar fraction, decimal or percentage of a quantity, including percentage discounts, choosing efficient calculation strategies and using digital tools where appropriate  | Fractions, decimals & percentages         | Fraction Wall Labelling 2      |
| AC9M6N09 - use mathematical modelling to solve practical problems, involving rational numbers and percentages, including in financial contexts; formulate the problems, choosing operations and efficient calculation strategies, and using digital tools where appropriate; interpret and communicate solutions in terms of the situation, justifying the choices made |   | Fractions to Decimals          |
| AC9M6N06 - multiply and divide decimals by multiples of powers of 10 without a calculator, applying knowledge of place value and proficiency with multiplication facts, using estimation and rounding to check the reasonableness of answers  |   | Decimals to Fractions 1        |
| AC9M6N08 - approximate numerical solutions to problems involving rational numbers and percentages, including financial contexts, using appropriate estimation strategies  |   | Percentage to Fraction         |
|   |   | Decimals to percentages        |
|   | Common Fractions as Percentages (AU)      |                                |
|   | Fractions to Percentages (Non-Calculator) |                                |
|   | Percents and Decimals                     |                                |
|   | Match Decimals and Percentages            |                                |
|   | Calculating Percentages (Mental)          |                                |
|   | Money Problems: Four Operations           |                                |
|   | Time Conversions: Simple Fractions        |                                |
|   | Time Conversions: Simple Decimals         |                                |
|   | Fraction Word Problems                    |                                |
|   | Percentage Word Problems                  |                                |
|   | Model Fractions to Multiply               |                                |
| Multiply Decimals: 10, 100, 1000  |   |                                |
| Divide Decimals: 10, 100, 1000  |   |                                |
| Estimate Decimal Operations   |   |                                |

|  |                                    |                                     |
|--|------------------------------------|-------------------------------------|
|  |                                    | Estimate Products with Fractions    |
| AC9M6A01 - recognise and use rules that generate visually growing patterns and number patterns involving rational numbers  | Algebra patterns equations & rules | Increasing Patterns                 |
| AC9M6A02 - find unknown values in numerical equations involving brackets and combinations of arithmetic operations, using the properties of numbers and operations |                                    | Describing Patterns                 |
|  |                                    | Find the Pattern Rule               |
|  |                                    | Table of Values                     |
|  |                                    | Pattern Rules and Tables            |
|  |                                    | Number Sequences Up to 1 Million    |
|  |                                    | Order of Operations 1 (BIDMAS)      |
|  |                                    | Writing Algebraic Expressions       |
|  |                                    | Missing Numbers: Variables          |
|  |                                    | Simple Substitution                 |
|  |                                    | Solve Equations: Add, Subtract 1    |
|  |                                    | Solve Equations: Multiply, Divide 1 |

## 2 Measurement and Space

| Outcome   | Topic                   | Activity Title                           |
|---|-------------------------|--|
| AC9M6M01 - convert between common metric units of length, mass and capacity; choose and use decimal representations of metric measurements relevant to the context of a problem           | Converting metric units | Grams and Kilograms 1                    |
|   |                         | Grams and Kilograms                      |
|   |                         | Grams and Milligrams                     |
|   |                         | Grams and Milligrams                     |
|   |                         | Centimetres and Metres                   |
|   |                         | Metres and Kilometres                    |
|   |                         | Millilitres and Litres                   |
| Converting Volume   |                         |  |
| AC9M6M02 - establish the formula for the area of a rectangle and use it to solve practical problems   | Area and angle          | Area of Shapes                           |
| AC9M6M04 - identify the relationships between angles on a straight line, angles at a point and vertically opposite angles; use these to determine unknown angles, communicating reasoning |                         | Area: Squares and Rectangles             |
|   |                         | Measuring Angles                         |
|   |                         | Estimating Angles                        |
|   |                         | Angle Sum of a Triangle                  |
|   |                         | Quadrilaterals: Angle Sum with Equations |
|   |                         | Exterior Angles of a Triangle            |
| Angles of revolution: Unknown Values  |                         |  |
| Vertically Opposite Angles: Unknown Values  |                         |  |
| AC9M6SP02 - locate points in the 4 quadrants of a Cartesian plane; describe changes to the coordinates when a point is moved to a different position in the plane                         | Shape and space         | Ordered Pairs                            |
| AC9M6SP03 - recognise and use combinations of transformations to create tessellations and other geometric patterns, using dynamic geometric software where appropriate                    |                         | Number Plane                             |
|   |                         | Graphing from a Table of Values          |
|   |                         | Reading Values from a Line               |
|   |                         | Transformations: Coordinate Plane        |
| Rotations: Coordinate Plane   |                         |  |

### 3 Statistics and Probability

| Outcome  | Topic        | Activity Title                 |
|--|--------------|--------------------------------|
| AC9M6ST01 - interpret and compare data sets for ordinal and nominal categorical, discrete and continuous numerical variables using comparative displays or visualisations and digital tools; compare distributions in terms of mode, range and shape | Mode & range | Mode                           |
|  |              | Mode from Stem and Leaf Plot   |
|  |              | Mode from Frequency Table      |
|  |              | Data Extremes and Range        |
|  |              | Stem and Leaf Plots with Range |
|  |              | Double Stem and Leaf Plots     |
|  |              | Line Graphs: Interpretation    |
| AC9M6P01 - recognise that probabilities lie on numerical scales of 0 – 1 or 0% – 100% and use estimation to assign probabilities that events occur in a given context, using common fractions, percentages and decimals                              | Probability  | Simple Probability             |
|  |              | Probability Scale              |
|  |              | Complementary Events           |
|  |              | Dice and Coins                 |



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