

Mathletics

New Zealand Program of Studies

Understanding, Practice and Fluency (UPF)

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| | |
|---|-----------|
| Level 2 – Year 3 (Early Stage 5) | 4 |
| 1 Number and Algebra | 4 |
| 1.1 Number strategies..... | 4 |
| 1.2 Number knowledge | 5 |
| 1.3 Equations and expressions..... | 6 |
| 1.4 Patterns and relationships..... | 6 |
| 2 Geometry and Measurement | 7 |
| 2.1 Measurement | 7 |
| 2.2 Shape..... | 7 |
| 2.3 Position and orientation..... | 7 |
| 2.4 Transformation..... | 8 |
| 3 Statistics | 9 |
| 3.1 Statistical investigation..... | 9 |
| 3.2 Statistical literacy | 9 |
| 3.3 Probability | 9 |
| Level 2 – Year 4 (Stage 5) | 10 |
| 1 Number and Algebra | 10 |
| 1.1 Number strategies..... | 10 |
| 1.2 Number knowledge | 11 |
| 1.3 Equations and expressions..... | 11 |
| 1.4 Patterns and relationships..... | 11 |
| 2 Geometry and Measurement | 12 |
| 2.1 Measurement | 12 |
| 2.2 Shape..... | 12 |
| 2.3 Position and orientation..... | 13 |
| 2.4 Transformation..... | 13 |
| 3 Statistics | 14 |
| 3.1 Statistical investigation..... | 14 |
| 3.2 Statistical literacy | 14 |
| 3.3 Probability | 14 |
| Level 3 – Year 5 (Early Stage 6) | 15 |
| 1 Number and Algebra | 15 |
| 1.1 Number strategies..... | 15 |
| 1.2 Number knowledge | 16 |
| 1.3 Equations and expressions..... | 17 |

| | |
|---|-----------|
| 1.4 Patterns and relationships..... | 17 |
| 2 Geometry and Measurement | 18 |
| 2.1 Measurement | 18 |
| 2.2 Shape..... | 19 |
| 2.3 Position and orientation..... | 19 |
| 2.4 Transformation..... | 19 |
| 3 Statistics | 20 |
| 3.1 Statistical investigation..... | 20 |
| 3.2 Statistical literacy | 20 |
| 3.3 Probability | 20 |
| Level 3 – Year 6 (Stage 6) | 21 |
| 1 Number and Algebra | 21 |
| 1.1 Number strategies..... | 21 |
| 1.2 Number knowledge | 22 |
| 1.3 Equations and expressions..... | 23 |
| 1.4 Patterns and relationships..... | 24 |
| 2 Geometry and Measurement | 25 |
| 2.1 Measurement | 25 |
| 2.2 Shape..... | 25 |
| 2.3 Position and orientation..... | 26 |
| 2.4 Transformation..... | 26 |
| 3 Statistics | 27 |
| 3.1 Statistical investigation..... | 27 |
| 3.2 Statistical literacy | 27 |
| 3.3 Probability | 27 |

Level 2 – Year 3 (Early Stage 5)

1 Number and Algebra

1.1 Number strategies

| Outcome | Quests | Content |
|--|--|---|
| NA2-1 Use simple additive strategies with whole numbers and fractions. | Addition and subtraction strategies | Bridging to 10 with 1 and 2-digit numbers |
| | | Adding doubles or near doubles |
| | | Adding using bonds to 10 |
| | | Adding 1 and 2-digit numbers using place value |
| | | Add and subtract with fluency up to 18 |
| | | Adding using mental strategies up to 100 |
| | | Adding & subtracting with number line (max 100) |
| | | Adding & subtracting using place value & models |
| | | Add & subtract 2-digit numbers using place value |
| | | Solving addition problems |
| | | Using bar models to add and subtract |
| | | Adjusting addends to add |
| | | Add or subtract tens then compensate |
| | Multiply with arrays & repeated addition | Introducing arrays and repeated addition |
| | Commutative property of multiplication | Commutative property of multiplication |
| | Division by sharing and grouping | Dividing by sharing and grouping (up to 50) |
| | | Using repeated subtraction to divide |
| | Exploring multiplication by 2, 5 and 10 | Multiplication and division problems (2,5,10) |
| | | Multiply by 1 or 0 |
| | | Exploring multiplication and division by 2 |
| Working with halves and quarters | Exploring multiplication and division by 10 | |
| | Finding halves & quarters of objects, shapes, sets | |
| | | Count in halves and quarters up to 1 using models |

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|--|---|--|
| | | Order and compare halves and quarters using models |
| | | Finding halves using doubles knowledge |
| | | Finding quarters of quantities |
| | Finding fifths and thirds of quantities | Finding fifths of quantities |
| | | Finding thirds of quantities |
| | Using NZ notes and coins | Identifying and using NZ notes and coins |

1.2 Number knowledge

| Outcome | Quests | Content |
|--|--------------------------------------|--|
| NA2-2 Know forward and backward counting sequences with whole numbers to at least 1000 | Counting sequences within 1000 | Counting forwards and backwards within 1000 |
| | | Numbers before and after within 1000 |
| | | Reading and writing 3-digit numbers |
| | | Counting in tens with 2- and 3-digit numbers |
| | | Counting in hundreds, tens and ones up to 1000 |
| | | Find numbers 10 or 100 before and after up to 1000 |
| | Skip counting by 2, 5 and 10 | Skip count by 2,5, 10 from any multiple up to 100 |
| NA2-3 Know the basic addition and subtraction facts. | Addition and subtraction facts to 20 | Addition and subtraction fact families up to 20 |
| NA2-4 Know how many ones, tens, and hundreds are in whole numbers to at least 1000. | Place value of 3-digit numbers | Using place value with 3-digit numbers |
| | | Comparing and order numbers to 1000 |
| | | Rounding numbers to nearest 10 (up to 1000) |
| NA2-5 Know simple fractions in everyday use. | Work with simple fractions | Compare and order fractions with like denominators |
| | | Introducing thirds |
| | | Introducing fifths |
| | | Introducing fraction parts and fraction types |

1.3 Equations and expressions

| Outcome | Quests | Content |
|--|--------------------------------------|--|
| NA2-6 Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols. | Write number sentences with equality | Use equality to write and solve number sentences |

1.4 Patterns and relationships

| Outcome | Quests | Content |
|--|-----------------------------|--|
| NA2-7 Generalise that whole numbers can be partitioned in many ways. | Partition whole numbers | Partitioning numbers to explore equality |
| NA2-8 Find rules for the next member in a sequential pattern. | Explore sequential patterns | Exploring simple number patterns |

2 Geometry and Measurement

2.1 Measurement

| Outcome | Quests | Content |
|--|--|---|
| GM2-1 Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time. | Formal units of length (cm and m) | Introducing formal units (cm) |
| | Measuring area with informal units | Measure, compare, order area (informal units) |
| | Exploring area with square units | Measure area of rectangles (square units) |
| | Formal units of mass (kg) | Introducing formal units (kg) |
| | Tell time to the quarter hour | Telling time to the quarter hour |
| | Formal units of time (hr, min, sec) | Units of time (hours, minutes, seconds) |
| | Compare and order volume (blocks) | Comparing and ordering volume (blocks) |
| GM2-2 Partition and/or combine like measures and communicate them, using numbers and units. | Solve problems with units of measurement | Solving add/subtract measurement problems |

2.2 Shape

| Outcome | Quests | Content |
|---|-------------------------------------|---|
| GM2-3 Sort objects by their spatial features, with justification. | Sort, describe, represent 2D shapes | Sorting, describing, representing 2D shapes |
| | Faces, edges, vertices of 3D shapes | Introducing faces, edges, vertices |
| | Sort and compare 3D objects | Sorting 3D shapes |

2.3 Position and orientation

| Outcome | Quests | Content |
|--|----------------------------|--|
| GM2-5 Create and use simple maps to show position and direction. | Create and use simple maps | Creating and using simple maps |
| GM2-6 Describe different views and pathways from locations on a map. | Pathways on maps (N,E,S,W) | Pathways on simple maps (half and quarter turns) |
| | | Introducing cardinal compass directions |

2.4 Transformation

| Outcome | Quests | Content |
|--|-------------------------|-----------------------------------|
| GM2-7 Predict and communicate the results of translations, reflections, and rotations on plane shapes. | Identify line symmetry | Identifying line symmetry |
| | Flips, slides and turns | Introducing slides, flips & turns |

3 Statistics

3.1 Statistical investigation

| Outcome | Quests | Content |
|---|--|---------------------------------------|
| S2-1 Conduct investigations using the statistical enquiry cycle: *posing and answering questions *gathering, sorting, and displaying category and whole-number data *communicating findings based on the data. | Introducing statistical investigations | Introducing statistical investigation |
| | Sorting data | Two way tables and Venn diagrams |
| | Data displays | Pictograph |
| | | Bar graphs |
| | Tables or lists | |

3.2 Statistical literacy

| Outcome | Quests | Content |
|---|--------------------------------|-----------------------------------|
| S2-2 Compare statements with the features of simple data displays from statistical investigations or probability activities undertaken by others. | Interpret simple data displays | Interpreting simple data displays |

3.3 Probability

| Outcome | Quests | Content |
|--|---------------------------------|-----------------------------------|
| S2-3 Investigate simple situations that involve elements of chance, recognising equal and different likelihoods and acknowledging uncertainty. | Use the language of probability | Using the language of probability |

Level 2 – Year 4 (Stage 5)

1 Number and Algebra

1.1 Number strategies

| Outcome | Quests | Content |
|--|---|--|
| NA2-1 Use simple additive strategies with whole numbers and fractions. | Addition and subtraction word problems | Creating and solving word problems (within 100) |
| | Addition and subtraction strategies (1) | Adding 3 or more single-digit numbers |
| | Adding multiples of 100, 1000 and 10 000 | Add & subtract multiples of 100, 1000, 10 000 |
| | Addition and subtraction strategies (2) | Rounding to add & subtract using 2-digit numbers |
| | Multiplication facts for 2, 5 and 10 | Multiplication and division facts for 2 |
| | Explore multiplication/division by 3 & 4 | Exploring multiplication by 3 |
| | Multiplication and division by 2,5,3,4 | Multiplying and dividing by 2,5,3, 4 |
| | Explore multiplication/division by 6 & 7 | Exploring multiplication by 6 and 7 |
| | Multiplication fact families | Relating multiplication and division facts |
| | Use sharing/grouping to multiply/divide | Multiplication problems using sharing/grouping |
| | Properties of multiplication | Commutative property of multiplication |
| | Finding fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{3}$, $\frac{1}{6}$) | Finding halves, quarters, eighths of shapes |
| | Represent fractions (denominators 1-12) | Representing fractions of shapes or objects |
| | Finding simple fractions of sets | Unit fractions (denominators 2, 3, 4, 5, 6, 8) |
| | Add/subtract fractions same denominator | Adding and subtracting unit fractions |
| | Simple calculations with money | Using money and calculating change |

1.2 Number knowledge

| Outcome | Quests | Content |
|--|---------------------------------------|---|
| NA2-2 Know forward and backward counting sequences with whole numbers to at least 1000 | Counting sequences to at least 1000 | Numbers to at least 1000 (max 10 000) |
| | Skip counting by 3s and 4s | Skip counting forwards and backwards by 3s |
| NA2-3 Know the basic addition and subtraction facts. | Recall basic add/subtract facts | Adding and subtracting within 20 fluently |
| NA2-4 Know how many ones, tens, and hundreds are in whole numbers to at least 1000. | Know place value to at least 3-digits | Identify and use place value to at least 3-digits |
| NA2-5 Know simple fractions in everyday use. | Relate halves, quarters and eighths | Relating halves, quarters and eighths |
| | Fractions on a number line | Identifying/counting in thirds on a number line |
| | Mixed numbers and improper fractions | Introducing mixed numbers and improper fractions |
| | Introduction to tenths | Identifying, counting, ordering tenths |
| | Compare and order fractions | Compare/order fractions with like denominators |

1.3 Equations and expressions

| Outcome | Quests | Content |
|--|--|--|
| NA2-6 Communicate and interpret simple additive strategies, using words, diagrams (pictures), and symbols. | Inverse nature of addition/subtraction | Using the inverse nature of addition/subtraction |
| | Solve number sentences/word problems | Using equivalence to solve problems |

1.4 Patterns and relationships

| Outcome | Quests | Content |
|--|---|--|
| NA2-7 Generalise that whole numbers can be partitioned in many ways. | Properties of numbers | Property of zero and 1 in multiplication |
| NA2-8 Find rules for the next member in a sequential pattern. | Repeating patterns | Creating, extending, describing repeating patterns |
| | Additive and subtractive number patterns | Identify & create additive/subtractive patterns |
| | Record patterns - diagrams, lists, tables | Record visual patterns in diagrams, lists, tables |

2 Geometry and Measurement

2.1 Measurement

| Outcome | Quests | Content |
|--|-----------------------------------|--|
| GM2-1 Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time. | Measure in cm and m | Measuring in m and cm |
| | Order/compare lengths in m and cm | Ordering/Comparing lengths in m and cm |
| | Convert between m and cm | Converting between m and cm (whole numbers) |
| | Measure in cm, m and km | Introducing kilometres |
| | Measure area (square centimetres) | Measuring area using formal units (square cm) |
| | Measure temperature (Celsius) | Measuring temperature |
| | Measure mass (g and kg) | Measuring mass in g and kg |
| | Measure volume (litres) | Exploring mass and measuring in litres |
| | Measure volume using blocks | Comparing volume using blocks |
| | Understand metric measures | Know simple metric measures (length, mass, volume) |
| GM2-2 Partition and/or combine like measures and communicate them, using numbers and units. | Partition/combine measures | Adding and subtracting measures |

2.2 Shape

| Outcome | Quests | Content |
|---|---|--|
| GM2-3 Sort objects by their spatial features, with justification. | Compare spatial features-quadrilaterals | Compare/sort by angles, number/nature of sides |
| | Explore regular and irregular shapes | Exploring regular and irregular shapes |
| | Explore congruent & similar shapes | Exploring congruent shapes |
| | Introduce prisms | Introducing & exploring prisms |
| | Compare spatial features - 3D objects | Comparing spatial features - 3D objects |
| | Introduction to rectangular prisms nets | Introducing nets of rectangular prisms |
| GM2-4 Identify and describe the plane shapes found in objects. | Describe plane shapes in 3D objects | Comparing faces of 3D objects with 2D shapes |

2.3 Position and orientation

| Outcome | Quests | Content |
|--|------------------------------------|---|
| GM2-5 Create and use simple maps to show position and direction. | Interpret and use grid references | Interpreting and using grid referenced maps |
| GM2-6 Describe different views and pathways from locations on a map. | Pathways on maps (cardinal points) | Drawing and describing pathways on maps |

2.4 Transformation

| Outcome | Quests | Content |
|--|--|---------------------------------------|
| GM2-7 Predict and communicate the results of translations, reflections, and rotations on plane shapes. | Identify translation/reflection/rotation | Identifying transformations |
| | Introduction to tessellation | Recognising & predicting tessellation |

3 Statistics

3.1 Statistical investigation

| Outcome | Quests | Content |
|---|--|--|
| S2-1 Conduct investigations using the statistical enquiry cycle: *posing and answering questions *gathering, sorting, and displaying category and whole-number data *communicating findings based on the data. | Read/represent data in simple displays | Read/represent picture graphs with simple scales |

3.2 Statistical literacy

| Outcome | Quests | Content |
|---|-------------------------------|---|
| S2-2 Compare statements with the features of simple data displays from statistical investigations or probability activities undertaken by others. | Compare data with conclusions | Comparing data with statements made by others |

3.3 Probability

| Outcome | Quests | Content |
|--|---------------------------------|--|
| S2-3 Investigate simple situations that involve elements of chance, recognising equal and different likelihoods and acknowledging uncertainty. | Use the language of probability | Use basic probability language with chance events |
| | Simple chance situations | Chance experiments with equal and unequal outcomes |

Level 3 – Year 5 (Early Stage 6)

1 Number and Algebra

1.1 Number strategies

| Outcome | Quests | Content | |
|---|---|--|--|
| NA3-1 Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, and percentages | Add/subtract up to 3-digits | Adding & subtracting using a jump strategy | |
| | | Adding & subtracting using a split strategy | |
| | | Adding & subtracting using rounding | |
| | | Add & subtract using non-standard partitioning | |
| | | Choosing efficient mental strategies | |
| | Add/subtract multiples of 100 | Add & subtract multiples of 100 up to 5 digits | |
| | Add/subtract using estimation | Estimating addition & subtraction | |
| | Multiply/divide using mental strategies | Multiply/divide using mental strategies | Multiplying & dividing using place value knowledge |
| | | | Division with remainders |
| | | | Multiplying using place value strategies |
| | | | Dividing using place value strategies |
| | | | Multiplying using round & compensate |
| | | | Multiplying using doubling |
| | | | Dividing using halving & related facts |
| | | | Using partitioning to double and halve |
| | | | Multiplying using factorising |
| | | | Multiplying using an area model |
| | | | Using efficient strategies to divide |
| | | | Solving multiplication & division problems |
| | Find fractions of shapes & sets | Find fractions of shapes & sets | Finding unit fractions of quantities |
| Finding simple fractions of quantities | | | |
| Using visual patterns to find fractions | | | |

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| | Improper fractions & mixed numbers | Exploring fractions greater than 1 |
| | | Converting improper fractions & mixed numbers |
| | Operations with fractions | Adding/subtracting fractions - like denominators |
| | | Add/subtract mixed numbers - like denominators |
| | | Dividing unit fractions by whole numbers |
| | Add/subtract decimals to tenths | Adding & subtracting decimals using place value |
| | | Adding & subtracting decimals using rounding |
| | | Adding & subtracting decimals using bridging to 10 |

1.2 Number knowledge

| Outcome | Quests | Content |
|---|-------------------------------------|--|
| NA3-2 Know basic multiplication and division facts. | Multiplication & division facts | Multiplication & division facts for 6 |
| | | Multiplication & division facts for 7 |
| | | Multiplication & division facts for 8 |
| | | Multiplication & division facts for 9 |
| | | Multiply/divide using inverse multiplication facts |
| NA3-3 Know counting sequences for whole numbers. | Counting sequences up to 1 000 000 | Counting by 1s, 10s, 100s, 1000s, 10 000s |
| NA3-4 Know how many tenths, tens, hundreds, and thousands are in whole numbers. | Place value up to 5-digits | Read/write, compare/order numbers up to 5-digits |
| | | Knowing the number of 10s or 100s in a number |
| | | Partitioning 5-digit numbers |
| | Place value up to 6-digits | Read/write, compare/order numbers up to 6-digits |
| | | Partitioning 6-digit numbers |
| | | Rounding 5 and 6-digit numbers |
| | | Understanding the place value of decimal tenths |
| NA3-5 Know fractions and percentages in everyday use. | Know fractions including hundredths | Equivalent proper fractions (incl beyond 1) |
| | | Introducing hundredths |
| | | Counting in simple fractions (beyond 1) |
| | | Comparing fractions |

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| | | Comparing improper fractions and mixed numbers |
| | Know decimals including tenths | Understanding decimal tenths |
| | Equivalent simple frac/dec/percentages | Introducing percentages |
| | | Representing common fractions as percentages |

1.3 Equations and expressions

| Outcome | Quests | Content |
|--|--|--|
| NA3-6 Record and interpret additive and simple multiplicative strategies, using words, diagrams, and symbols, with an understanding of equality. | Write/use additive strategies | Recording & interpreting additive strategies |
| | Write/use multiplicative strategies | Recording & interpreting multiplicative strategies |
| | Find missing numbers in number sentences | Finding missing numbers using inverse properties |
| | Represent/solve word problems | Representing & solving word problems |
| | Order of operations | Introducing order of operations |

1.4 Patterns and relationships

| Outcome | Quests | Content |
|---|------------------------------------|---|
| NA3-7 Generalise the properties of addition and subtraction with whole numbers. | Properties of operations | Properties of operations with whole numbers |
| NA3-8 Connect members of sequential patterns with their ordinal position and use tables, graphs, and diagrams to find relationships between successive elements of number and spatial patterns. | Record/represent terms in patterns | Recording & representing number patterns |
| | | Record & represent patterns with shapes |
| | | Solving problems involving patterns |

2 Geometry and Measurement

2.1 Measurement

| Outcome | Quests | Content |
|---|--|---|
| GM3-1 Use linear scales and whole numbers of metric units for length, area, volume and capacity, weight (mass), angle, temperature, and time. | Length in mm, cm, m, km | Working with lengths in mm, cm, m |
| | | Measuring & recording in mm, cm, m, km |
| | | Converting between mm, cm, m, km |
| | | Comparing & ordering lengths in mm, cm, m, km |
| | Calculate perimeter | Calculating perimeter |
| | Mass in g, kg | Measuring & recording in g, kg |
| | | Comparing & ordering mass in g and kg |
| | | Solving mass problems |
| | Temperature in Celsius | Measuring & recording temperature |
| | Volume in mL and L | Estimating & measuring in mL and L |
| | | Converting between mL and L |
| | | Solving problems with mL and L |
| | Volume in cubic m and cubic cm | Estimating volume |
| | | Solving volume & capacity word problems |
| | Read time incl am/pm notation | Telling time to the minute and second |
| | Solve time problems & read timetables | Solving elapsed time problems |
| Using timetables | | |
| Conversion problems | Solving conversion measurement problems | |
| Understand & measure angles | Angle concepts | |
| Classify angles | Classifying angles | |
| Measure angles | Estimating & measuring angles | |
| GM3-2 Find areas of rectangles and volumes of cuboids by applying multiplication. | Calculate perimeter/area of rectangles | Perimeter & area of rectangles and squares |
| | Calculate area of non-rectilinear shapes | Calculating areas of non-rectilinear shapes |
| | Calculate volume using blocks | Calculating volumes using blocks |

2.2 Shape

| Outcome | Quests | Content |
|---|----------------------------|--|
| GM3-3 Classify plane shapes and prisms by their spatial features. | Classify/sort plane shapes | Classifying & sorting shapes by spatial features |
| | Classify/sort prisms | Classifying & sorting prisms by spatial features |
| GM3-4 Represent objects with drawings and models. | Nets of prisms | Exploring nets of rectangular/triangular prisms |

2.3 Position and orientation

| Outcome | Quests | Content |
|---|--|-----------------------------|
| GM3-5 Use a co-ordinate system or the language of direction and distance to specify locations and describe paths. | Use coordinates & directional language | Cardinal compass directions |
| | | Using grid references |
| | | Using simple scales on maps |

2.4 Transformation

| Outcome | Quests | Content |
|--|-------------------------------------|---------------------------------|
| GM3-6 Describe the transformations (reflection, rotation, translation, or enlargement) that have mapped one object onto another. | Identify & complete transformations | 1-step & 2-step transformations |
| | Tessellation | Identifying tessellation |

3 Statistics

3.1 Statistical investigation

| Outcome | Quests | Content |
|---|---|---|
| S3-1 Conduct investigations using the statistical enquiry cycle: gathering, sorting, and displaying multivariate category and whole number data and simple time-series data to answer questions; identifying patterns and trends in context, within and between data sets; communicating findings, using data displays. | Represent/read data in various displays | Using tables & pictographs to display data |
| | | Representing/reading data in line graphs |
| | | Represent/read bar graphs (many-to-one scale) |
| | | Representing/reading data in strip graphs |
| | | Representing/reading data in pie charts |
| | | Representing/reading data in dot plots |
| | Representing/reading data in stem-&-leaf graphs | |
| | Collect/sort data | Understanding how to collect & sort data |

3.2 Statistical literacy

| Outcome | Quests | Content |
|---|------------------------|----------------------------------|
| S3-2 Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others. | Evaluate data displays | Using & evaluating data displays |

3.3 Probability

| Outcome | Quests | Content |
|--|---------------------------------------|---|
| S3-3 Investigate simple situations that involve elements of chance by comparing experimental results with expectations from models of all the outcomes, acknowledging that samples vary. | Investigate simple chance situations | Describing chance |
| | Interpret/use tree diagrams | Interpreting & using tree diagrams |
| | Investigate simple chance experiments | Investigating chance experiments |
| | | Understanding fair/unfair in chance experiments |

Level 3 – Year 6 (Stage 6)

1 Number and Algebra

1.1 Number strategies

| Outcome | Quests | Content |
|---|---|--|
| NA3-1 Use a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals, and percentages | Add/subtract strategies up to 5-digits | Adding & subtracting using partitioning |
| | | Rounding to estimates sums/differences |
| | | Subtracting using equal adjustments |
| | | Adding & subtracting using algorithms |
| | | Choose efficient mental strategies to add/subtract |
| | Strategies for multiplying & dividing | Multiplying using doubling and related facts |
| | | Multiplying using factors |
| | | Dividing using factors |
| | | Dividing using arrays |
| | | Multiplying using rounding & compensating |
| | | Doubling & halving using partitioning |
| | | Multiplying - doubling/halving & trebling/thirding |
| | | Rounding to estimate products |
| | | Dividing using partitioning |
| | Dividing using known facts | |
| | Solve multiplication/division problems | Choosing efficient strategies to multiply |
| | | Choosing efficient strategies to divide |
| | | Solving multiplication word problems |
| | | Division with no remainders - 3-digit by 1-digit |
| | | Division with remainders - 2-digit by 1-digit |
| Operations with fractions | Adding fractions with denominators 10/100 | |
| | Multiplying unit fractions by whole numbers | |
| | Multiplying fractions by whole numbers | |
| | Dividing with unit fractions | |

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| | | Understanding fractions as division |
| | Find fractions of a quantity | Using fractions as operators |
| | | Finding fraction of quantities using equivalence |
| | | Solving word problems with non-unit fractions |
| | | Solve word problems incl fractions greater than 1 |
| | Equivalent fractions-related denominators | Find equivalent fractions - related denominators |
| | Use mental strategies to add tenths | Using mental strategies to add tenths |
| | Multiply decimals by whole numbers | Multiplying decimals by whole numbers |
| Introduce ratios | Understanding simple ratio problems | |

1.2 Number knowledge

| Outcome | Quests | Content |
|---|--|--|
| NA3-2 Know basic multiplication and division facts. | Multiplication/division up to 10 x 10 | Using multiplication/division facts for 6 up to 60 |
| | | Using multiplication/division facts for 7 up to 70 |
| | | Using multiplication/division facts for 8 up to 80 |
| | | Using multiplication/division facts for 9 up to 90 |
| | | Recalling facts to 10 x 10 with automaticity |
| NA3-3 Know counting sequences for whole numbers. | Count using place value up to 10 000 000 | Counting by 1, 10, 100 up to 10 000 000 |
| | | Counting in 1000 and 10 000 up to 10 000 000 |
| NA3-4 Know how many tenths, tens, hundreds, and thousands are in whole numbers. | Find numbers before/after | Finding numbers up to 10 000 000 before/after |
| | Multiply/divide multiples of 10 | Multiplying/dividing 2-digit multiples of 10 |
| | | Multiplying/dividing 2-digit multiples of 10/100 |
| | | Multiplying by 1000 |
| | Place value - numbers of any size | Reading/writing, comparing/ordering numbers |
| | | Identifying place value of numbers of any size |
| | | Rounding numbers of any size |
| Using place value to partition numbers | | |
| | | Understanding numbers of any size |

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| | | Place value of tenths |
| NA3-5 Know fractions and percentages in everyday use. | Order & compare proper fractions | Order/compare fractions - different denominators |
| | | Order/compare - different numerators/denominators |
| | Equivalent fractions | Multiplying to find equivalent fractions |
| | Understand tenths/hundredths | Reading/writing tenths and hundredths |
| | Understand decimals including hundredths | Understanding decimal hundredths |
| | | Comparing & ordering decimals |
| | | Converting decimal hundredths to fractions |
| | | Rounding decimal hundredths |
| | Understand decimal thousandths | Understanding decimal thousandths |
| | | Ordering decimal thousandths |
| | | Partitioning decimal thousandths |
| | | Rounding decimals to hundredths |
| | Convert frac/dec/percentages | Converting percentages to decimals |
| | | Converting frac/dec/percentages |

1.3 Equations and expressions

| Outcome | Quests | Content |
|--|---|---|
| NA3-6 Record and interpret additive and simple multiplicative strategies, using words, diagrams, and symbols, with an understanding of equality. | Record/interpret additive strategies | Using the bar model for addition/subtraction |
| | Use equality to solve add/sub problems | Solving equations involving fractions/decimals |
| | Use equality to solve mult/div problems | Multiply/divide to solve multi-step problems |
| | | Solving equations involving fractions/decimals |
| | Use equality to solve problems | Solving multi-step problems with the 4 operations |
| | Write & solve multi-step expressions | Writing & solving multi-step expressions |
| | Order of operations | Solving equations using order of operations |

1.4 Patterns and relationships

| Outcome | Quests | Content |
|---|--|---|
| NA3-7 Generalise the properties of addition and subtraction with whole numbers. | Use multiplicative laws | Using the multiplicative laws up to 10×10 |
| NA3-8 Connect members of sequential patterns with their ordinal position and use tables, graphs, and diagrams to find relationships between successive elements of number and spatial patterns. | Number patterns using add/subtract | Recording/interpreting number patterns - add/sub Add/subtract number patterns including frac/dec |
| | Number patterns using multiplying/dividing | Recording/interpreting number patterns - mult/div |
| | Use tables of values | Model/record patterns using tables of values |
| | Represent linear patterns | Representing linear patterns in a variety of ways |

2 Geometry and Measurement

2.1 Measurement

| Outcome | Quests | Content |
|---|--------------------------------------|--|
| GM3-1 Use linear scales and whole numbers of metric units for length, area, volume and capacity, weight (mass), angle, temperature, and time. | Length in mm, cm, m, km | Recording km and m in decimals |
| | | Converting between units of length, km, m, cm, mm |
| | | Solving 2-step length problems |
| | Mass in kg, g, mg | Measuring mass using appropriate tools |
| | | Solving problems involving mass |
| | | Converting between units of mass, kg, g, mg |
| | Volume and capacity in mL, L | Solving problems involving capacity/volume |
| | | Choose appropriate unit for length, mass, capacity |
| | Temperature in Celsius | Solving temperature problems |
| | Understand units of time | Converting between units of time |
| | | Converting 12 and 24-hour time |
| | | Calculating elapsed time |
| | | Interpreting timelines |
| | Understand angles | Using timetables in context |
| Measuring angles up to 360° | | |
| Classifying angles | | |
| GM3-2 Find areas of rectangles and volumes of cuboids by applying multiplication. | Drawing angles | |
| | Area of rectangles | Develop/use the formula for area of a rectangle |
| | Area/perimeter of rectilinear shapes | Calculate area and perimeter of rectilinear shapes |
| | Measure volume in cubic cm and m | Measuring volume using cubic centimetres |
| Measuring volume using cubic metres | | |

2.2 Shape

| Outcome | Quests | Content |
|---|---------------------------------------|----------------------------|
| GM3-3 Classify plane shapes and prisms by their spatial features. | Compare spatial features of 2D shapes | Classifying quadrilaterals |
| | | Classifying triangles |
| | | Classifying 2D shapes |
| | | Naming pyramids |

| | | |
|---|------------------------------------|---------------------------------------|
| | Compare features - prisms/pyramids | Comparing prisms and pyramids |
| GM3-4 Represent objects with drawings and models. | Connect 3D objects with 2D shapes | Connecting 3D objects with 2D shapes |
| | | Connecting prisms with their nets |
| | | Connecting 3D objects with plan views |

2.3 Position and orientation

| Outcome | Quests | Content |
|---|---|---------------------------------------|
| GM3-5 Use a co-ordinate system or the language of direction and distance to specify locations and describe paths. | Use scale/direction/coordinates on maps | Using simple scales on maps |
| | | Using cardinal compass directions |
| | | Using grid references and coordinates |

2.4 Transformation

| Outcome | Quests | Content |
|--|---------------------------------|--|
| GM3-6 Describe the transformations (reflection, rotation, translation, or enlargement) that have mapped one object onto another. | Understand rotation | Identify shapes & designs with rotational symmetry |
| | | Understanding the order of rotational symmetry |
| | Understand translation | Creating patterns using translation |
| | Combinations of transformations | Identifying combinations of transformations |
| | Understand enlargement | Enlarging 2D shapes using scale factors |

3 Statistics

3.1 Statistical investigation

| Outcome | Quests | Content |
|---|---|---|
| S3-1 Conduct investigations using the statistical enquiry cycle: gathering, sorting, and displaying multivariate category and whole number data and simple time-series data to answer questions; identifying patterns and trends in context, within and between data sets; communicating findings, using data displays. | Represent/read data in various displays | Represent/read data in strip graphs (percentages) |
| | | Representing/reading data in bar graphs |
| | | Representing/reading data in line graphs |
| | | Representing/reading data in dot plots |
| | | Represent/read data in pie charts (percentages) |
| | Use side-by-side bar graphs | Represent/read data in side-by-side bar graphs |
| | Use back-to-back stem-and-leaf graphs | Represent/read back-to-back stem-and-leaf graphs |
| | Interpret data from tables: 2-way tables | Interpreting data from tables |
| | Represent/read bivariate data and 2-way tables | |
| Data collection methods | Investigating data collection methods | |
| Conduct statistical investigations | Interpreting data from statistical investigations | |

3.2 Statistical literacy

| Outcome | Quests | Content |
|---|------------------------|--|
| S3-2 Evaluate the effectiveness of different displays in representing the findings of a statistical investigation or probability activity undertaken by others. | Evaluate data displays | Choosing appropriate data displays |
| | | Examining data displays for misleading information |

3.3 Probability

| Outcome | Quests | Content |
|--|---------------------------|--|
| S3-3 Investigate simple situations that involve elements of chance by comparing experimental results with expectations from models of all the outcomes, acknowledging that samples vary. | Simple chance experiments | Compare experimental and theoretical probabilities |
| | | Describing chance events using fractions |

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