Please enlarge the following pages to A3 size, as each document is designed to provide a single-page overview of the year, when used in-sync with the Top Ten Diagnostic Assessments and Units for Years 3-6.

Top Ten Mathematics

toptenmaths.com

Hyperlinks to the units are included.

Number and Algebra **Measurement and Space** **Statistics and Probability**

Rationale:

This scope and sequence is based on results achieved at our intensive PL schools, detailed at https://www.toptenresources.com/researchbasis, including 98% strong or exceeding in NAPLAN. It has also been based on our classroom research in-person in Singapore, where we researched scope and sequences with their school leaders, and found consistent 'blocks' of units are standard practice.

Significant results are achieved through solid blocks of teaching for the big ideas in number, based on points-of-need from the Top Ten diagnostic assessment data, with cross-content links wherever possible, but with a consistent main focus on number as the learning intention for solid sequences.

This is followed by spaced retrieval through our daily 5-minute fluency routine (*Five-Minute Fluency*), hands-on warm-up games detailed at the start of each unit, number talks focused on mental strategies, as well problem-solving prompts linked to each unit.

We recommend number talks, warm-up games and a 5-minute daily point-of-need fluency routine, instead of daily review PowerPoints. The reason we do not recommend daily review PowerPoints is that these are not differentiated by point-of-need (one slide for the whole class), do not offer high value-add in terms of student think time and work rate (dominated by screen and teacher talk time, and abstract representations only), and do not build high levels of student engagement or a love of numeracy.

This is a recommended sequence only – schools can use this as a base document to start a conversation with teams.

We recommend prioritising a yearly sequence that provides for substantial blocks of teaching for the big ideas in number, followed by spaced retrieval with warm-up games, number talks and a *5-minute fluency routine*, to ensure:

1. Teachers have time to act on the data from comprehensive diagnostic assessments, then deliver material sequentially, rather than piece-by-piece throughout the year, which avoids rushing through 'topics' before students have consolidated and mastered critical skills conceptually. **There must be time for substantial learning guided by the pre-test data. Spaced retrieval rationales do not hold until content has been mastered substantially through multiple exposures and repeated practice over the course of three solid weeks first. Students cannot effectively retrieve a concept, if it has not been understood in the first place.**

   For example, within a typical *Year 1 Addition Unit*, the focus should be on one more, counting on, partitioning 3 to 9, then 10 facts. With a 'one-week-per-topic approach,' one strategy would need to be taught on each day, as opposed to having a week-long focus on each strategy across a 3-5 week focus on Addition. The block method mirrors how teams deliver content in Singapore.

2. Teachers can formatively assess students' progress throughout a unit and deliver point-of-need teaching, which simply cannot occur if topics such as Place Value, Addition, Multiplication, Fractions, and others, are allocated only one week at a time. By the time the topic is 'revisited' in Term 2, often students cannot build on what was started (but not consolidated or mastered concretely) in the rushed single-week Term 1 'coverage' of the content. During longer units, teachers can identify gaps, observe and act on students' thinking and strategies, then have time to work on all this intensively with students. **Coverage does not equal mastery.**

3. By deciding on the full sequence from the start of the year, teams spend planning time focusing on 'how' to teach, rather than 'what' to teach. Teams can be confident that all parts of the curriculum are allocated a fair amount of time, relative to the amount and complexity of the content for each concept. Number is prioritised and, even prior to the curriculum changes, the Top Ten sequence had number as the dominant focus, as without number all the other strands suffer (a student cannot estimate in measurement without a good grasp of number, and nor can a student work out differences in data on a graph without a solid concept of difference between within Subtraction). **Often NAPLAN points-of-need noted in the other strands can, in fact, be traced back to critical gaps in the big ideas of number.**

   Note: Number units have been prioritised at the start of terms when student and teacher energy is higher.

   Note: **Problem-solving and cross strand connections (decimals linking to money and measurement, multiplication linking to area, fractions linking to probability, and so on) and real-life applied mathematics are already embedded within all unit plans.** Concepts can be relocated to ideally fit with inquiry focuses throughout the year (for example, orienteering in PE linking to a Location unit).

   Note: Ongoing warm-ups and 11-week terms allow time for revision of any critical gaps or partially consolidated content, particularly gaps evident from post-assessments.

Critical note on spaced retrieval:

Warm-up games and number talks for mental strategies are specifically recommended, leveraging spaced retrieval throughout the year.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Term 1	**PLACE VALUE**							**LENGTH** 2-3 weeks depending on term		
Spaced retrieval	5-minute fluency daily routine	2- and 3-digit Addition and Subtraction Number Talks				Analogue clock daily pauses to tell the time		Multiplication warm-up games		
Main lesson sequence	Revising 3- and 4-digit numbers Place Value Early Years Revision Unit	Constructing & recording to 10 000 and beyond Year 3 A Place Value	Constructing & recording to 10 000 and beyond Year 3 A Place Value	Rounding and Number Lines Year 3 B Place Value	Rounding and Number Lines Year 3 B Place Value	Renaming and Bridging Year 3 C Place Value	Renaming and Bridging Year 3 C Place Value	Estimating and measuring using formal metric units		

Focuses are recommended in the warm-ups row (below the main concept row for each term, circled in yellow above), however, these focuses should also be guided by the post-test data for each cohort.

Our five-minute fluency daily routine is pre-differentiated by point-of-need and recommended for the full seven years of primary school – all detailed within the *Five-Minute Fluency folder*.

Years 3-6 Recommended Sequence

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10
Term 1	**PLACE VALUE** 8 weeks								LENGTH, MASS, CAPACITY & TEMPERATURE	
Spaced retrieval	5-minute fluency daily routine	Addition & Subtraction Number Talks	Daily pause to tell time/calculate duration/convert to 24-hour time	x daily practice warm-ups						
Main lesson sequence	Bookwork expectations	Constructing & Recording Place Value Units	Rounding and Number Lines Place Value Units	Renaming and Bridging Place Value Units	Decimals Place Value Units	Decimals Place Value Units	Fractions Front-Loading Fractions Unit 3	Fractions Front-Loading Fraction Unit 7	Yr3: Estimate and measure in metric units Yr4-5: Choose appropriate units for the task Yr6: Convert metric units	
Term 2	**ADDITION** 3 weeks			**SUBTRACTION** 4 weeks				**TIME** 2 weeks		AREA & PERIMETER
Spaced retrieval	5-minute fluency daily routine	Daily length estimation challenge using objects		Warm-ups relating to Place Value post-test gaps				Multiplication Number Talks		
Main lesson sequence	Split strategy mentally Add Unit 3 Making 100 and 1000 mentally Add Unit 4	Jump strategy Addition Unit 5 Switch strategy Addition Unit 6	Estimate and Algorithm Addition Unit 7 Add Decimals Addition Unit 8	Jump Back Subtraction Unit 3 Jump the Difference Subtraction Unit 4	Jump the Difference Subtraction Unit 4 Calculating Change to 5c within Unit 4	Transformation Pump it up & Drop it low Strategies Unit 5 Estimate and All Strategies Unit 6	Vertical Algorithm Unit 6 Subtract Decimals Unit 7 Yr 5-6: + - Fractions	Yr3: Analogue time Yr4: Solve problems about durations that span over am and pm timeframes Yr5: 12- to 24-hour time Convert formal units of time Yr6: Use timetables and plan itineraries	Estimate and measure using informal and formal units, then construct and understand formulas LEADING INTO MULTIPLICATION	
Term 3	**MULTIPLICATION** 4 weeks				**DIVISION** 4 weeks				LOCATION 1 week	GRAPHING 1 week
Spaced retrieval	5-minute fluency	Number talks for Addition & Subtraction post-test gaps		Fractions warm-ups (Unit 3)		Length/mass/capacity/temperature estimation with decimals				
Main lesson sequence	Doubling and Tens Strategies Multiply Unit 2 Multiples of 3 Family and x7 Multiply Unit 4	Applying Multiplicative Thinking Unit 5	Power of 10, Estimation and the Area Model Multiplication Unit 6 Yr6: Power of 10 to multiply decimals Unit 9	Estimation, Lattice and Vertical Multiplication Unit 7	Halving Family and Tens Strategies Division Unit 3	Use Known or Near Multiplication Facts – Division Fact Families Division Unit 4	Solve division problems by applying strategies Division Unit 5 Divisibility Patterns Division Unit 6	Estimation and Reverse Area Model Division Unit 7 Short Division Unit 8 Yr6 only: Unit 9	Yr3: 2D maps and key landmarks Yr4: Grid references to describe position and pathways Yr5-6: Cartesian Plane	Collect data based on questions of interest or a purpose Graph and analyse data
Term 4	**FRACTIONS** 4 weeks				PROBABILITY & STATISTICS		ANGLES	PATTERNS	SHAPE & SYMMETRY	
Spaced retrieval	5-minute fluency	Warm-ups to target Multiplication and Division post-test gaps		daily x practice	All operations Number Talks		Weekly estimation object/image			
Main lesson sequence	Real-life Fractions Unit 2 Equivalence Fractions Unit 3	Improper Fractions to Mixed Fractions Unit 4	Comparing with reasoning Fractions Unit 5	Add and Subtract Fractions Fractions Unit 6 Yr 5/6 only: Unit 7	Order possible outcomes by likelihood Assign fractions and percentages Graph results of chance experiments LINK TO FRACTIONS		Yr3: Right Yr4: Name all types Yr5: Construct, estimate, measure Yr6: Relationships between angles, unknown angles	Yr3-4: Balance + - Yr5-6: Balance x ÷ and order of operations Patterns Units	Yr3: Make, classify and compare 2D and 3D shapes Yr4: Line and rotational symmetry Yr5: Nets & STEM Construction Yr6: Translate, rotate, reflect, cross-sections	

Recommended resources for ongoing, in-class, workable extension

Overview of extension within the pack

Further extension options

- All extending prompts within all units (the majority of lessons contain at least two extending prompts, while some include up to seven extending prompts that span to secondary level).

- *Fractions Unit 9* and *Fractions Unit 10* relating to multiplying and dividing fractions with visual models and understanding.

- *Integers (Place Value Unit 6B)* which includes extending prompts relating to Year 7 and above content.

- *Prime, composite, square, triangular numbers unit (Place Value 6C),* which includes extending prompts relating to Year 7 and above content.

- Open middle for challenging, grit-building and easy-to-pass-across problems to solve with no explanation required: https://www.openmiddle.com/

- Infinite Pickle problems: https://mathpickle.com/wp-content/uploads/2023/04/The-Infinite-Pickle-web-May-2023.pdf and https://mathpickle.com/organized-by-grade/

- TedED Riddles: https://www.youtube.com/playlist?list=PLJicmE8fK0EiFRt1Hm5a_7SJFaikIFW30

- NRICH problems to solve: https://nrich.maths.org/

- Singapore Maths worded problems books: