Big Picture (for parents)

The NSW Department of Education is very clear:

- **OC:** "Questions draw upon concepts from the NSW curriculum up to Year 4."
- **Selective:** "Questions draw upon concepts from the NSW curriculum up to Year 6... students do not need any extra knowledge."

So technically, no "new" topics are examined.

The gap is not extra syllabus content. The gap is:

1. Depth

Multi-step, non-routine problems, not just textbook exercises

2. Integration

Mixing fractions, ratio, units, data, etc. in one question

3. Speed & non-calculator

All under strict time limits, no calculator

4. Puzzle/logic style

> Many questions are closer to puzzles than routine sums

This checklist shows you where everyday school maths stops and what extra layers you need for OC / Selective / Scholarship.

TABLE 1 – NUMBER & ARITHMETIC

Area	What school (Y4–6) usually covers (NSW K–10 Syllabus)	Extra for OC / Selective / Scholarship (the GAP)	What to add at home
Place value & whole numbers	Reading/writing numbers, ordering, rounding, additive & multiplicative relations.	Non-routine word problems using large numbers, working backwards, "how many possibilities" type questions.	Multi-step puzzles: e.g. "I think of a number, add 35, divide by 4, get 27. What was my number?"
Four operations	Standard algorithms for +, −, ×, ÷, including multi-digit.	Problems combining all four operations in one question; hidden operations inside stories; non-obvious order of operations.	Timed mixed sets of 10–15 word problems that require deciding which operation to use, not just following a template.
BODMAS / order of operations	Introduced in Stage 3 (Y5–6) as content, but not always heavily practised.	Complex expressions embedded in stories (e.g. age puzzles, cost sharing) where BODMAS must	Regular "expression puzzles" and age / money word problems requiring explicit order-

Area	What school (Y4–6) usually covers (NSW K–10 Syllabus)	Extra for OC / Selective / Scholarship (the GAP)	What to add at home
		be applied under time pressure.	of-operations reasoning.
Mental arithmetic & non-calculator work	Some mental strategies; calculators may be allowed for parts of class work.	Entire OC / Selective / scholarship maths non-calculator with strict timing. Fluency must be much higher.	Daily mentals (New Wave / Excel / your own drills) + mental strategies for breaking numbers, estimating, and checking.

TABLE 2 – FRACTIONS, DECIMALS, PERCENTAGES & RATIO

Area	School maths (Y4–6)	Exam gap – what extra they really need	What to add
Basic fractions	Understanding unit fractions, equivalence, adding/subtracting like denominators.	Multi-step fraction word problems, fraction of a fraction, fraction of a difference, and fraction questions embedded in complex contexts.	Bar-model style fraction word problems; problems where the fraction information is hidden in the wording, not stated plainly.
Operations with fractions	School often reaches add/subtract with unlike denominators by Year 6; some exposure to multiply/divide.	Fast, accurate operations under time pressure, combined with percentages/ratio and embedded in puzzles.	Mixed fraction papers: each question is a different fraction operation inside a word problem (no labels like "Add these fractions").
Decimals	Place value, rounding, add/subtract/multiply by 10,100, etc.	Non-routine questions that mix decimals with fractions, percent and units	Integrated problems like: "A 1.25 m plank is cut into pieces of 0.25 m and

Area	School maths (Y4–6)	Exam gap – what extra they really need	What to add
		(e.g. money, measurement) in one scenario.	0.4 m..." etc. Kids must keep track without a calculator.
Percentages	Usually: 10%, 25%, 50%, maybe simple percentage of amounts and discounts.	Exam expects multi-layer percentage situations (e.g. discount then GST, profit/loss, percentage comparisons) but still using primary-syllabus ideas.	Non-calculator percentage drills (e.g. 17.5% of 80) and word problems that require several steps and choices (which discount is better?).
Ratio & proportion	Introduced in upper primary; some recipe / sharing problems.	Much heavier ratio usage in Selective & scholarship maths: multi-step sharing, ratio scaling, ratio + percentage, missing-term puzzles.	Dedicated ratio blocks: "If A:B = 3:5 and total is 160...", mixture questions, map scale, and "part:part:whole" style puzzles.

TABLE 3 – ALGEBRA, PATTERNS & "EARLY HIGH SCHOOL" THINKING

Area	School maths (Y4–6)	Extra exam-style expectation	What to add
Number patterns	Simple additive/multiplicative sequences, some growing patterns.	Non-obvious rules (alternating operations, square numbers), patterns buried in tables / grids / contexts.	Pattern puzzles (two or three rules at once), sequence questions that involve squares, primes, or alternating +/× operations.
"Unknowns" & simple equations	Some missing number work (□ + 7 = 21), intro to variables in Stage 3.	Full integration of equation thinking into word problems: "A number is doubled then 5 added gives 27..." under time pressure.	Regular "translate sentence → equation" drills, basic algebra manipulation (2x+5=27) without calling it "high school".
Functional thinking	Basic input–output tables ("function machines").	Multi-step function chains, composite rules, and function tables embedded in	Input–output puzzles where students must

Area	School maths (Y4–6)	Extra exam-style expectation	What to add
		verbal reasoning or Thinking Skills questions.	infer the rule from examples, sometimes with missing entries.
Combinatorics / counting	Almost never explicit in primary syllabus beyond simple "how many ways".	Selective/scholarship often include "arrangements", simple counting of possibilities, paths, seating, etc. within Stage 3 number work.	Light combinatorics puzzles: "How many 3-digit numbers...?" "How many outfits with 3 shirts and 4 pants?" progressive difficulty.

TABLE 4 – MEASUREMENT, GEOMETRY & DATA

Area	School maths (Y4–6)	Extra exam-style expectation	What to add
Units & conversions	Teaches conversions (mm–cm–m–km; mL–L; g–kg) & basic time, but not always deeply practised.	Multi-step word problems mixing different units (e.g. km & m, hours & minutes, money & percent) under timer with no calculator.	Non-routine unit problems: timetable questions, travel problems, total distances combined with other constraints.
Perimeter, area, volume	Rectangles, some triangles, prisms; usually straightforward shapes.	Composite shapes, missing side lengths, "same perimeter, different area" puzzles; sometimes disguised inside context.	Challenge sheets with composite shapes, "find the missing side" using partial information, volume-word problems.
Angles & geometry reasoning	Angle sums in triangles / quadrilaterals,	Multi-step angle chains relying on multiple facts	Angle puzzles (several lines, some equal angles, need to use

Area	School maths (Y4–6)	Extra exam-style expectation	What to add
	simple symmetry.	at once; often diagrammatic puzzles rather than "find x" textbook style.	multiple relationships), symmetry/rotation challenges.
Data & probability	Reading basic tables/graphs, simple chance language.	Interpreting unfamiliar data displays, comparing two graphs, linking data to probability, using data in longer reasoning questions.	Data interpretation problems (two graphs on same scenario), basic experimental probability puzzles (e.g. spinner, dice).

TABLE 5 – EXAM SKILLS vs CLASSROOM SKILLS

Area	What school usually trains	What exams require (gap)	What to add
Non-routine problem solving	Syllabus encourages non-routine tasks, but many classrooms still focus on routine textbook questions due to time/assessment pressures.	Majority of OC/Selective questions are non-routine, multi-step puzzles that require choosing a strategy, not just applying a known template.	Weekly sets of mixed, exam-style word problems (5–10) where the first step is "What is this question actually asking?"
Time pressure	Most school tasks are untimed; tests often allow more working time per question.	OC: 35 MR questions in 40 minutes. Selective: 35 MR questions in 40 minutes – just over 1 min per question.	Timed drills: e.g. "10 questions in 12–15 minutes" with review after. Train skipping & returning, not perfection.
Multiple-choice strategy	Not systematically taught in primary; focus is on "show your working".	All OC & Selective maths questions are multiple choice; students must eliminate options, estimate and test quickly.	Teach: eliminating impossible options, back-substituting choices, rough estimating to narrow down answers.

Area	What school usually trains	What exams require (gap)	What to add
			Practise on real exam-style questions.
Non-calculator fluency	Some units are calculator-free, but calculators may appear in upper primary, especially for investigations.	No calculators allowed in any exam section. Everything – including ugly fractions/percents – is manual.	Systematic non-calculator work: mentals, long operations, fraction/percent mental strategies, estimate-then-exact approach.
Thinking Skills / logic	NSW maths syllabus includes "Working mathematically" (reasoning, problem-solving) but formal logic & abstract puzzles are not heavily emphasised.	Separate Thinking Skills paper in OC/Selective: logic, pattern recognition, evaluating evidence, reasoning chains.	Dedicated logic puzzle sets: truth/falsity problems, simple syllogisms, pattern matrices, procedure/flow puzzles (even 10–15 minutes a week helps).

How to use this gap list with parents

You can literally say:

"School will cover the content, but these are the gaps in depth and style that OC / Selective / Scholarship exams exploit.

Our job is to plug these gaps with:

- non-routine, multi-step word problems,
- ratio/fraction/percent integration,
- non-calculator fluency, and
- logic / thinking skills under time pressure."

Then:

1. Print these tables.

2. Ask parents to highlight ■ where their child struggles.

3. Build a 6–12 week plan that directly attacks those red boxes (one or two rows at a time).

That's how this lead magnet delivers the promise:

Parents know exactly what school is missing – and what extra selective maths topics & skills they need to cover.