

# TRIAL MATERIAL WORK IN PROGRESS

## Differentiated plans for Years 7 & 8 for **Algebra**

Ian Lowe, MAV Professional Officer, 2006

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THIS WILL QUALIFY YOU  
FOR AN IMPROVED VERSION  
WHEN AVAILABLE

Materials are recommendations only; suitable substitutions may be made.

MAV materials may be bought from [www.mav.vic.edu.au/shop](http://www.mav.vic.edu.au/shop)

Download the Curriculum Corporation catalogue from

[http://www.curriculum.edu.au/catalogue/downloads/pc2007\\_pages39-54.pdf](http://www.curriculum.edu.au/catalogue/downloads/pc2007_pages39-54.pdf)

and look at pages 48 and 49.

For Learning Federation materials (Learning Objects),  
check out 'Digital Learning Resources' on your laptop, or download them from the new education  
website [www.education.vic.gov.au/studentlearning/teachingresources/elearning/digilearn.htm](http://www.education.vic.gov.au/studentlearning/teachingresources/elearning/digilearn.htm)

# Differentiated plans for Years 7 & 8

## Algebra

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Algebra concepts and skills are the language of higher mathematics. They start through developing ideas of number pattern, from Standard 3. The basic idea is the use of symbols to represent generalisations of patterns. So extra effort is required to create a rich learning environment that can help children to understand and to achieve at their own level. This topic can be given 4 weeks in Years 7 and 8.

This set of units – one per semester for Years 7 & 8 – could achieve this goal. It matches the specifications for VELS, but recognises that there will be a wide spread of achievement in each class. So children are differentiated into working groups by need, for some of the time only. There may be more than one group at any Standard, or some Standards may need to be combined. Plan a stimulating set of activities for homework review, such as Interactive Learning spreadsheets.

It also balances the *toolbox* requirements – concepts and skills – with the need to learn to apply those tools in *problem solving* situations. Hence there are whole class lessons (often from Maths300 or RIME) punctuating the toolbox development, at regular intervals. These are on the same topic, but do not attempt to mesh with the work done by each 'standard' group. They ensure that *Working Mathematically* is always part of the learning process, integrated into each dimension.

The mix of activities will provide a stimulating and rich learning environment, with students learning from and helping one another. Connections between topics will be made and reinforced, and the variety of learning styles will accommodate learners with different needs.

### How does it work?

In Years 7 and 8 the spread will be from Standard 3 up to 6, with the majority working towards Standard 4 or 5.

At regular intervals whole class lessons are taught to 'mixed ability' groups.

Between these are cycles of a fixed pattern of lessons. In Years 7 and 8, the cycle has four parts: teaching, worksheet or games, problem solving (choice from a set of tasks) and computer use (a variety).

On any day all are taking place in the same classroom, so only a fraction of the resources are needed. But the cycle also works for the students: they follow the pattern – teaching, worksheet, (problem solving) and computer. As a consequence, teaching is to a different group each day in a regular pattern. Teaching will be for a concentrated 20 minutes or so, and then the teacher will supervise the rest of the class. Instructions on the board will inform the other groups of what they are to do. Encourage students to help each other.

### What resources are needed?

Access to 4 or 5 computers daily is expected. Computer pods or laptop trolleys might be the best solution. Membership of Maths300 is a requirement; many schools have membership – here is how to use it.

The pages in the resources are listed for each day's lesson, but are summarised here. Sources are: MAV (Mathematical Association of Victoria), CC (Curriculum Corporation), LF (Learning Federation).

- *Teaching*: Maths Continuum (DE&T), People count (MAV)
- *Worksheets*: Active Learning 1 (N&A), Active Learning 2 (N&A) (MAV),
- *Computer*: Interactive Learning (MAV), Learning Objects (LF)
- *Problem solving*: Maths300 (CC), Problem Solving Task Centre (CC), RIME (MAV), RIME 5&6 (MAV)

### How could it be adapted to different situations?

If your class does not have the range predicted, or you cannot manage three or four groups, you should adapt by ignoring columns. You may substitute other learning tasks at any time. If you run out of time, leave stuff out. In this rich environment you will be surprised how much is learned outside the 'planned' activities.

### How do I assess the learning?

At the end of the tables are sets of questions based on *understanding* at each VELS standard that will allow you to place children into groups and monitor progress at selected times. However your observations, digital photographs and copies of children's work will be more useful than any external 'test'.

**Year 7 Semester 1**

	<b>Yr sem1 Std 3 group(s)</b>	<b>Std 4 group(s)</b>	<b>Std 5 group(s)</b>	<b>Std 6 groups(s)</b>
1	<b>Maths300 #23 Crossing the river</b>			
2	<p align="center"><b>Teach</b></p> <p align="center"><b>Number patterns - describe and extend</b></p> <p align="center"><b>People count #83</b></p> <p align="center"><b>Continuum 4.0 Rules for sequences</b></p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>51 Staircase, 82 Snail Trail, 108 How Many Squares? 118 Ice-cream Flavours, 137 Training For Maths, 141 Flags From A Ship, 145 Land Of ET, 149 A Stacking Problem, 183 Pizza Toppings, 188 Arithmagons 1, 221 Triangles &amp; Colours</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>Graph stories, Walking, Filling bottles, One-day cricket, Table tennis, Tennis,</p> <p align="center"><b>Learning Objects</b></p> <p>Mobile phones, Lifting loads, Bridge builder</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b></p> <p>A15 Stretching a rubber band</p> <p align="center"><b>Active Learning 2 (N&amp;A)</b></p> <p>A1 Linear situations</p>
3	<p align="center"><b>Worksheet / games</b></p> <p align="center"><b>Active Learning 2 (N&amp;A)</b></p> <p>Quickmaths Algebra A-D</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Recursive rules in words</b></p> <p align="center"><b>People count #82</b></p> <p align="center"><b>Continuum 4.0 Rules for sequences</b></p> <p align="center"><b>Active Learning 2 (N&amp;A)</b></p> <p>Quickmaths Algebra A-J</p> <p align="center"><b>Active Learning 1 (N&amp;A)</b></p> <p>A4 Match puzzles,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>8 Addition Totals, 11 Lining Up, 38 The Mushroom Hunt, 45 Eric The Sheep, 65 Shape Algebra, 111 Square Numbers, 140 Time For Tiling, 147 Garden Beds, 152 Painted Rods, 154 Four-Arm Shapes, 159 Mirror Patterns 2, 166 Sphinx, 173 Crossing The River 1, 178 Match Triangles, 179 Unseen Triangles, 181 Pointy Fences, 220 Smooth Edge Tiles</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>Graph stories, Walking, Filling bottles, One-day cricket, Table tennis, Tennis,</p> <p align="center"><b>Learning Objects</b></p> <p>Mobile phones, Triathlon, Lifting loads, Filling glasses, Bridge builder</p>
4	<b>RIME A2 Calendar patterns</b>			
5	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>One-day cricket, Table tennis, Tennis,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b></p> <p>A5 Adding neighbour numbers,</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Linear functions in words, tables and graphs</b></p> <p align="center"><b>People count #87</b></p> <p align="center"><b>Continuum 4.5 Structure of algebraic expressions</b></p> <p align="center"><b>Active Learning 2 (N&amp;A)</b></p> <p>Quickmaths Algebra A-H</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>0 Learning to Write a Report, 24 Squares Around Squares, 27 Can Stack, 42 Triangles Around Triangles, 48 How Many Triangles? 55 Fold Up Houses, 57 Two Squares, 61 Double Staircase, 64 Difference Between Two Squares, 101 Pyramid Puzzle,</p>
6	<p align="center"><b>Problem Solving Task Centre</b></p> <p>2 Cars In A Garage, 5 Make A Snake, 10 Find My Pattern, 27 Can Stack, 28 Plate Triangles, 44 Latin Squares, 48 How Many Triangles? 86 Thirty-one, 102 Crazy Animals,</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>Match shapes,</p> <p align="center"><b>Learning Objects</b></p> <p>Bridge-builder,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b></p> <p>A1 Arranging trapezium tables, A6 Formulas and patterns in tables</p> <p align="center"><b>Active Learning 2 (N&amp;A)</b></p> <p>A1 Linear situations</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Non-linear functions in symbols, tables and graphs</b></p> <p align="center"><b>People count #88. 89, 90</b></p> <p align="center"><b>Continuum 4.5 Structure of algebraic expressions</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b></p> <p>A28 Mathematical curves,</p>
7	<b>RIME A3 Rollers</b>			
8	<b>Teach</b>	<b>Problem Solving</b>	<b>Computer</b>	<b>Worksheet/hands-on</b>

	Yr sem1 Std 3 group(s)	Std 4 group(s)	Std 5 group(s)	Std 6 groups(s)
	<b>Number sentences – form and complete</b> People count #86	<b>Task Centre</b> See Std 4 lesson 2	<b>Interactive Learning</b> Finding a linear rule, Match shapes, Recursion graphs, <b>Learning Objects</b> Mobile phones, Lifting loads, Bridge builder	<b>Active Learning 1 (N&amp;A)</b> A16 Cutting the pie <b>Active Learning 2 (N&amp;A)</b> A7 Quadratic patterns
9	<b>Worksheet / games</b> <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra U-X, EE, FF	<b>Teach</b> <b>Form and solve equations (symbols)</b> People count #86 <b>Continuum 4.25</b> Meaning of letters in algebra <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra U-X, EE, FF	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Square numbers, Triangle numbers, Match shapes, Formula guessing, Graph guessing, <b>Learning Objects</b> Triathlon
10	<b>Maths300 #40 Four-arm shapes</b>			
11	<b>Computer</b> <b>Interactive Learning</b> Think-number puzzles, Three-circles puzzle, <b>Learning Objects</b> Musical number patterns, Hopper, Circus Tower, Bridge builder	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A25 Pyramid puzzles, A26 More puzzles,	<b>Teach</b> <b>Linear functions – symbols &amp; equations (backtracking)</b> People count #86 <b>RIME A7</b> Backtracking	<b>Problem Solving Task Centre</b> See Std 6 lesson 5
12	<b>Problem Solving Task Centre</b> See Std 3 lesson 6	<b>Computer</b> <b>Interactive Learning</b> Guess and check, <b>Learning Objects</b> Mobile phone plans,	<b>Worksheet/hands-on</b> <b>Active Learning</b> A25 Pyramid puzzles <b>Active Learning 2 (N&amp;A)</b> A5	<b>Teach</b> <b>Modelling change</b> People count #85, 87, 88 <b>Maths at work</b> 24 Modelling change,
13	<b>Maths300 #19 Backtracking</b>			
14	<b>Teach</b> <b>More number patterns &amp; equations</b> People count #86 <b>Active Learning 1 (N&amp;A)</b> A1 Arranging trapezium tables,	<b>Problem Solving Task Centre</b> See Std 4 lesson 2	<b>Computer</b> <b>Interactive Learning</b> Formula guessing, Graph guessing, Backtracking, <b>Learning Objects</b> Mobile phones, Lifting loads, Bridge builder, Triathlon,	<b>Maths at work</b> 24 Modelling change
15	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A2 Tiling patterns,	<b>Teach</b> <b>Informal graphs</b> People count #85 <b>Active Learning 1 (N&amp;A)</b> A9 Football graphs,	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Projectiles, Paper folding, <b>Learning Objects</b> Mobile phone plans,
16	<b>Maths300 #20 Unseen triangles</b>			

**Year 7 Semester 2**

	<b>Yr7 sem2 Std 3 group</b>	<b>Std 4 group(s)</b>	<b>Std 5 group(s)</b>	<b>Std 6 groups(s)</b>
1	<b>Maths300 #39 Painted rods</b>			
2	<p align="center"><b>Teach</b></p> <p align="center"><b>Informal graphs</b></p> <p align="center">People count #86</p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A9 Football graphs,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>51 Staircase, 82 Snail Trail, 108 How Many Squares? 118 Ice-cream Flavours, 137 Training For Maths, 141 Flags From A Ship, 145 Land Of ET, 149 A Stacking Problem, 183 Pizza Toppings, 188 Arithmagons 1, 221 Triangles &amp; Colours</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b> Graph stories, Walking, Filling bottles</p> <p align="center"><b>Learning Objects</b> Mobile phones, Lifting loads, Bridge builder, Triathlon</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A61 Solving equations from graphs</p> <p align="center"><b>Active Learning 2 (N&amp;A)</b> A2 More linear situations, A3 Even more linear situations</p>
3	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A10 Growth graphs,</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Informal graphs</b></p> <p align="center">People count #85</p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A9 Football graphs,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>8 Addition Totals, 11 Lining Up, 38 The Mushroom Hunt, 45 Eric The Sheep, 65 Shape Algebra, 111 Square Numbers, 140 Time For Tiling, 147 Garden Beds, 152 Painted Rods, 154 Four-Arm Shapes, 159 Mirror Patterns 2, 173 Crossing The River 1, 178 Match Triangles, 179 Unseen Triangles, 181 Pointy Fences, 220 Smooth Edge Tiles</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b> Match shapes, Recursion graphs, Formula guessing, Graph guessing, Finding a linear rule, Tickets, Backtracking, Equations by program, Equivalent equations, Forward and backtracking</p> <p align="center"><b>Learning Objects</b> Mobile phones, Triathlon, Lifting loads, Filling glasses, Biscuit factory</p>
4	<b>Maths300 #64 Snail trail</b>			
5	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b> Graph stories, Walking, Filling bottles,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A10 Growth graphs,</p>	<p align="center"><b>Teach linear functions in symbols, tables and graphs</b></p> <p align="center">People count #87</p> <p align="center"><b>Continuum 4.5</b> Structure of algebraic expressions</p> <p align="center"><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra Y-BB</p> <p align="center"><b>Active Learning 1 N&amp;A)</b> A2 Tiling patterns,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>24 Squares Around Squares, 27 Can Stack, 42 Triangles Around Triangles, 48 How Many Triangles? 55 Fold Up Houses, 57 Two Squares, 61 Double Staircase, 64 Diff Bet 2 Squares, 101 Pyramid Puzzle,</p>
6	<p align="center"><b>Problem Solving Task Centre</b></p> <p>2 Cars In A Garage, 5 Make A Snake, 10 Find My Pattern, 27 Can Stack, 28 Plate Triangles, 44 Latin Squares, 48 How Many Triangles? 86 Thirty-one, 102 Crazy Animals,</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b> Graph stories, Walking, Filling bottles</p> <p align="center"><b>Learning Objects</b> Filling glasses</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p align="center"><b>Active Learning 1 (N&amp;A)</b> A3 Remainder patterns</p> <p align="center"><b>Active Learning 2 (N&amp;A)</b> A2 More linear situations, A3 Even more linear situations</p>	<p align="center"><b>Teach modelling linear situations and linear factorising</b></p> <p align="center">People count #87</p> <p align="center"><b>Maths at Work</b> 26 Steady change (linear)</p>
7	<b>Maths300 #34 What's my rule? or RIME A1 Algebra rules</b>			
8	<p align="center"><b>Teach</b></p> <p align="center"><b>Solve equations (trial &amp; error)</b></p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p align="center">See Std 4 lesson 2</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b> Formula guessing,</p>	<p align="center"><b>Worksheets</b></p> <p align="center"><b>Maths at Work</b> 26 Steady change (linear),</p>

	Yr7 sem2 Std 3 group	Std 4 group(s)	Std 5 group(s)	Std 6 groups(s)
	People count #86		Graph guessing,	<b>Active Learning 2 (N&amp;A)</b> A2 More linear situations, A3 Even more linear situations
9	<b>Worksheet / games</b> <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra U-X	<b>Teach</b> <b>Formulas in words</b> People count #82 <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra K, L, DD <b>Active Learning 1 (N&amp;A)</b> A27 Walking and running,	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Equivalent formulas, Expanding, Strips and squares, Equivalent formulas, Expanding, Factorising, Common factors, Equivalent expressions,
10	<b>Maths300 #16 Garden beds or RIME A4 Paving patterns</b>			
11	<b>Computer</b> <b>Interactive Learning</b> Guess and check,	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A35 Odds, evens and powers of 2,	<b>Teach</b> <b>Solving equations by backtracking</b> People count #86 <b>Continuum 4.5</b> Structure of algebraic expressions <b>Active Learning</b> A25 Pyramid puzzles,	<b>Problem Solving Task Centre</b> See Std 6 lesson 5
12	<b>Problem Solving Task Centre</b> See Std 3 lesson 6	<b>Computer</b> <b>Interactive Learning</b> Finding a linear rule, Formula guessing, Graph guessing,	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A26 More puzzles,	<b>Teach</b> <b>Exponential functions</b> People count #89 <b>Continuum 5.5</b> Exponential functions <b>Maths at Work</b> 29 Exponential change
13	<b>Maths300 #63 Arithmagons</b>			
14	<b>Teach</b> <b>Linear patterns</b> People count #87 <b>Active Learning 1 (N&amp;A)</b> A1 Arranging trap. tables,	<b>Problem Solving Task Centre</b> See Std 4 lesson 2	<b>Computer</b> <b>Interactive Learning</b> Backtracking, Equations by program,	<b>Worksheets</b> <b>Maths at Work</b> 29 Exponential change <b>Active Learning 2 (N&amp;A)</b> A13 Exponential situations
15	<b>Worksheet/hands-on</b> <b>Active Learning</b> A3 Remainder patterns,	<b>Teach</b> <b>Solving equations by trial and error</b> People count #86 <b>Active Learning 1 (N&amp;A)</b> A25 Pyramid puzzles,	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Exponent rules, Paper folding, Exponential growth, Interest, Credit card, Annuity, Depreciation, Exponential decay, Cooling,
16	<b>RIME A8 How many matches?</b>			

**Year 8 Semester 1**

	<b>Yr8 sem1 Std 3 group</b>	<b>Std 4 group(s)</b>	<b>Std 5 group(s)</b>	<b>Std 6 groups(s)</b>
1	<b>Maths300 #43 Eric the sheep</b>			
2	<p align="center"><b>Teach</b></p> <p align="center"><b>Number patterns - describe and extend</b></p> <p align="center"><b>People count #83</b></p> <p><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra A-J</p> <p><b>Active Learning 1 (N&amp;A)</b> A4 Match puzzles,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>51 Staircase, 82 Snail Trail, 108 How Many Squares? 118 Ice-cream Flavours, 137 Training For Maths, 141 Flags From A Ship, 145 Land Of ET, 149 A Stacking Problem, 183 Pizza Toppings, 188 Arithmagons 1, 221 Triangles &amp; Colours</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>Step size – lines, Step size – curves, Square numbers, Triangle numbers,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A35 Odds, evens and powers of 2, A36 Nim, or the power of two, A37 Match the graph to the functions,</p>
3	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A15 Stretching a rubber band,</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Recursive rules in words</b></p> <p align="center"><b>People count #82, 83</b></p> <p><b>Continuum 4.0</b> Rules for sequences</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>8 Addition Totals, 11 Lining Up, 38 The Mushroom Hunt, 45 Eric The Sheep, 65 Shape Algebra, 111 Square Numbers, 140 Time For Tiling, 147 Garden Beds, 152 Painted Rods, 154 Four-Arm Shapes, 159 Mirror Patterns 2, 166 Sphinx, 173 Crossing The River 1, 178 Match Triangles, 179 Unseen Triangles, 181 Pointy Fences, 220 Smooth Edge Tiles</p>	<p align="center"><b>Computer</b></p> <p align="center"><b>Interactive Learning</b></p> <p>Cooling, Mortgage, Constant area – rectangles, Swing, Sound waves</p>
4	<b>RIME A9 Pick's rule</b>			
5	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Tickets, Step size – lines</p> <p><b>Learning Objects</b> Hopper, Circus Tower</p>	<p align="center"><b>Worksheet / games</b></p> <p><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra A-J</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Linear functions in symbols, table and graph (coordinates)</b></p> <p align="center"><b>People count #86</b></p> <p><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra Y-BB</p> <p><b>Active Learning 1 (N&amp;A)</b> A8 Picture patterns,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>108 How Many Squares? 132 Red To Blue, 160 Painted Cubes, 180 Making Monuments, 186 Tetrahedron Triangles, 206 Intersections, 208 Cube Numbers, 221 Triangles &amp; Colours, 233 Money, Money, Money 142 Tower Of Hanoi,</p>
6	<p align="center"><b>Problem Solving Task Centre</b></p> <p>2 Cars In A Garage, 5 Make A Snake, 10 Find My Pattern, 27 Can Stack, 28 Plate Triangles, 44 Latin Squares, 48 How Many Triangles? 86 Thirty-one, 102 Crazy Animals,</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Step size – lines, Square numbers, Match shapes, Recursion graphs</p> <p><b>Learning Objects</b> Hopper, Circus Tower</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A21 Borders of triangles</p> <p><b>Active Learning 2 (N&amp;A)</b> A1 Linear situations, A2 More linear situations, A3 Even more linear situations</p>	<p align="center"><b>Teach</b></p> <p align="center"><b>Non-linear functions in symbols, tables and graphs</b></p> <p align="center"><b>People count #88, 89, 90</b></p> <p><b>Maths at Work</b> 28 Varying change (quadratic),</p>
7	<b>RIME A13 Chains of polygons</b>			
8	<p align="center"><b>Teach</b></p> <p align="center"><b>Number sentences – form and complete</b></p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>See Std 4 lesson 2</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Think-number puzzles, Three-circles puzzle,</p>	<p align="center"><b>Maths at work</b></p> <p>28 Varying change (quadratic)</p>

	Yr8 sem1 Std 3 group	Std 4 group(s)	Std 5 group(s)	Std 6 groups(s)
	<b>People count #86</b> <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra U-X <b>Active Learning 1 (N&amp;A)</b> A23 Three circles puzzle		Match shapes, Recursion graphs,	<b>Active Learning 2 (N&amp;A)</b> A7 Quadratic patterns, A8 Using triangle numbers, A9 Quadratic situations
9	<b>Worksheet/hands-on</b> <b>Active Learning</b> A25 Pyramid puzzles,	<b>Teach</b> <b>Equations (symbols)</b> <b>People count #86</b> <b>Continuum 4.25</b> Meaning of letters in algebra <b>Active Learning 1 (N&amp;A)</b> A23 Three circles puzzle,	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Quadratic graphs, Ball toss, Projectiles, Quadratic graphs,
10	<b>Maths300 #54 Cracked tiles</b>			
11	<b>Computer</b> <b>Interactive Learning</b> Think-number puzzles, Three-circles puzzle <b>Learning Objects</b> Hopper, Squirt	<b>Worksheet/hands-on</b> <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra EE, FF <b>Active Learning 1 (N&amp;A)</b> A24 Solving with graphs,	<b>Teach</b> <b>Linear functions – symbols, graphs &amp; equations</b> <b>People count #87</b> <b>Active Learning 1 (N&amp;A)</b> A27 Walking and running,	<b>Problem Solving Task Centre</b> See Std 6 lesson 5
12	<b>Problem Solving Task Centre</b> See Std 3 lesson 6	<b>Computer</b> <b>Interactive Learning</b> Guess and check, Backtracking, Equations by program, Forward and backtracking	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A22 Match rectangles <b>Active Learning 2 (N&amp;A)</b> A5 Matchstick patterns	<b>Teach</b> <b>Equations &amp; graphs</b> <b>People count #85, 86, 88</b> <b>Active Learning 1 (N&amp;A)</b> A61 Solving equations from graphs,
13	<b>Maths300 #55 Billiard ball bounces</b>			
14	<b>Teach</b> <b>Patterns &amp; equations</b> <b>People count #86</b> <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra A-J <b>Active Learning 1 (N&amp;A)</b> A6 Formulas and patterns in tables,	<b>Problem Solving Task Centre</b> See Std 4 lesson 2	<b>Computer</b> <b>Interactive Learning</b> Guess and check, Backtracking, Equations by program, Forward and backtracking <b>Learning Objects</b> Hopper, Squirt	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A62 Intersecting curves, <b>Active Learning 2 (N&amp;A)</b> A12 Quadratic intersections
15	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A26 More puzzles,	<b>Teach</b> <b>Informal graphs</b> <b>People count #85</b> <b>Active Learning 1 (N&amp;A)</b> A15 Stretching rubber band,	<b>Problem Solving Task Centre</b> See Std 5 lesson 3	<b>Computer</b> <b>Interactive Learning</b> Equations by program, Two equal expressions, Equivalent equations, Forward and backtracking, Tickets, Diophantine equations <b>Learning Objects</b> Mobile phones, Triathlon, Lifting loads, Filling glasses, Biscuit factory
16	<b>Maths300 #42 Jumping kangaroos or RIME A19 Jumping</b>			

**Year 8 Semester 2**

	<b>Year 8 sem 2 Std 3</b>	<b>Std 4 group(s)</b>	<b>Std 5 group(s)</b>	<b>Std 6 groups(s)</b>
1	<b>Maths300 #22 Algebra walks</b>			
2	<p align="center"><b>Teach</b></p> <p><b>Number patterns - describe and extend</b></p> <p><b>People count #82, 83</b></p> <p><b>Continuum</b> 4.0 Rules for sequences</p> <p><b>Active Learning 1 (N&amp;A)</b> A7 Walking the line,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>51 Staircase, 82 Snail Trail, 108 How Many Squares? 118 Ice-cream Flavours, 137 Training For Maths, 141 Flags From A Ship, 145 Land Of ET,</p> <p>ALSO see Std 4 lesson 8</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Finding a linear rule, Quadratic graphs, Tickets,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A30 Strips and squares,</p>
3	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A19 Algebra walks,</p>	<p align="center"><b>Teach Graphing</b></p> <p><b>People count #85</b></p> <p><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra Y-BB</p> <p><b>Active Learning 1 (N&amp;A)</b> A19 Algebra walks,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>8 Addition Totals, 11 Lining Up, 38 The Mushroom Hunt, 45 Eric The Sheep, 65 Shape Algebra, 111 Square Numbers, 140 Time For Tiling, 147 Garden Beds,</p> <p>ALSO see Std 5 lesson 9</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Equivalent formulas, Expanding, Strips and squares, Equivalent formulas, Expanding, Factorising, Common factors, Equivalent expressions,</p>
4	<b>RIME A10 Enlargements</b>			
5	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Finding a linear rule, Formula guessing, Graph guessing</p> <p><b>Learning Objects</b> Musical number patterns, Hopper, Circus Tower, Bridge builder</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A29 A big stretch,</p>	<p align="center"><b>Teach Quadratic functions</b></p> <p><b>People count #88</b></p> <p><b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra Y, Z,</p> <p><b>Active Learning 1 (N&amp;A)</b> A16 Cutting the pie,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>48 How Many Triangles? 55 Fold Up Houses, 57 Two Squares, 61 Double Staircase, 64 Difference Between Two Squares, 101 Pyramid Puzzle, 108 How Many Squares? 132 Red To Blue,</p> <p>ALSO see Std 6 lesson 11</p>
6	<p align="center"><b>Problem Solving Task Centre</b></p> <p>2 Cars In A Garage, 5 Make A Snake, 10 Find My Pattern, 27 Can Stack,</p> <p>ALSO see Std 3 lesson 12</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Quadratic graphs, Tickets, Graph guessing,</p> <p><b>Learning Objects</b> Filling glasses, Mobile Phones, Triathlon</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A17 More patterns</p> <p><b>Active Learning 2 (N&amp;A)</b> A7 Quadratic patterns</p>	<p align="center"><b>Teach Expanding quadratic expressions</b></p> <p><b>People count #88</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A45 Expanding brackets,</p>
7	<b>RIME A11 How many squares on a chessboard?</b>			
8	<p align="center"><b>Teach</b></p> <p><b>Number sentences – form and complete</b></p> <p><b>People count #86</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A26 More puzzles,</p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>149 A Stacking Problem, 183 Pizza Toppings, 188 Arithmagons 1, 221 Triangles &amp; Colours</p> <p>ALSO see Std 4 lesson 2</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Step size – curves, Square numbers, Triangle numbers, Quadratic graphs, Ball toss, Projectiles,</p>	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A50 Expanding brackets,</p> <p><b>Active Learning 2 (N&amp;A)</b> A11 Patterns involving squares</p>
9	<p align="center"><b>Worksheet/hands-on</b></p> <p><b>Active Learning 1 (N&amp;A)</b> A5 Adding neighbour numbers,</p>	<p align="center"><b>Teach Form and solve equations in symbols</b></p>	<p align="center"><b>Problem Solving Task Centre</b></p> <p>152 Painted Rods, 154 Four-Arm Shapes, 159</p>	<p align="center"><b>Computer</b></p> <p><b>Interactive Learning</b> Quadratic factors, Think-number puzzles,</p>

	<b>Year 8 sem 2 Std 3</b>	<b>Std 4 group(s)</b>	<b>Std 5 group(s)</b>	<b>Std 6 groups(s)</b>
		<b>by trial and error</b> <b>People count #86</b> <b>Continuum 4.5</b> Structure of algebraic expressions <b>Active Learning 2 (N&amp;A)</b> Quickmaths Algebra U-X <b>Active Learning 1 (N&amp;A)</b> A25 Pyramid puzzles,	Mirror Patterns 2, 166 Sphinx, 173 Crossing The River 1, 178 Match Triangles, 179 Unseen Triangles, 181 Pointy Fences, 220 Smooth Edge Tiles ALSO see Std 5 lesson 3	Difference of squares,
10	<b>RIME A20 Handshakes</b>			
11	<b>Computer</b> <b>Interactive Learning</b> Match shapes, Guess and check, Backtracking <b>Learning Objects</b> Musical number patterns, Hopper, Circus Tower, Bridge builder	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A26 More puzzles,	<b>Teach solving linear equations using inverses</b> 'Doing the same to both sides' <b>People count #86</b> <b>Continuum 5.25</b> Conceptual growth for solving equations	<b>Problem Solving Task Centre</b> 160 Painted Cubes, 180 Making Monuments, 186 Tetrahedron Triangles, 206 Intersections, 208 Cube Numbers, 221 Triangles & Colours, 233 Money, Money, Money 142 Tower Of Hanoi, ALSO see Std 6 lesson 5
12	<b>Problem Solving Task Centre</b> 28 Plate Triangles, 44 Latin Squares, 48 How Many Triangles? 86 Thirty-one, 102 Crazy Animals, ALSO see Std 3 lesson 6	<b>Computer</b> <b>Interactive Learning</b> Guess and check <b>Learning Objects</b> Squirt, Hopper	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A61 Solving equations from graphs,	<b>Teach</b> <b>Factorising quadratics</b> <b>People count #88</b> <b>Active Learning 1 (N&amp;A)</b> A52 Factorising,
13	<b>RIME A12 Next square number</b>			
14	<b>Teach</b> <b>More number patterns &amp; equations</b> <b>People count #87</b> <b>Active Learning 1 (N&amp;A)</b> A34 Volume and surface area of prisms	<b>Problem Solving Task Centre</b> See Std 4 lessons 2 & 8	<b>Computer</b> <b>Interactive Learning</b> Equivalent equations,	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A53 Factorising practice, A54 Patterns in factorizing,
15	<b>Worksheet/hands-on</b> <b>Active Learning 1 (N&amp;A)</b> A8 Picture patterns,	<b>Teach</b> <b>Linear functions</b> <b>People count #87</b> <b>Active Learning 1 (N&amp;A)</b> A34 Volume and surface area of prisms	<b>Problem Solving Task Centre</b> See Std 5 lessons 3 & 9	<b>Computer</b> <b>Interactive Learning</b> Quadratic factors, Think-number puzzles, Difference of squares,
16	<b>Maths300 #115 Staircases</b>			