

TRIAL MATERIAL WORK IN PROGRESS

Differentiated plans for Years 7 & 8

Space

Ian Lowe, MAV Professional Officer, 2007

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PLEASE PROVIDE FEEDBACK TO IAN AT**

ilowe@mav.vic.edu.au

**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

Download the Curriculum Corporation catalogue from

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

Differentiated plans for Years 7 & 8

Space

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What do we have here?

Space is a neglected part of the mathematics curriculum, but it has special appeal to students who might be weak in number. 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 needs to be achieved in just three weeks per semester in Years 7&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 4 and 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 5 and 6, the cycle has two parts: teaching and worksheet or games. 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*: Guidelines in Measurement (MAV), Maths Continuum (DE&T), People count (MAV)
- *Worksheets*: Active Learning 1: Space, Active Learning 2: Space & Logic, Geometry Everywhere (all MAV)
- *Computer*: Interactive Learning (MAV), Learning Objects (LF)
- *Problem solving*: Problem Solving Task Centre (CC), RIME (MAV), Maths300 (CC),

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 Space

Day	Yr 7 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
1	RIME S22 introduction to degrees			
2	<p>Teach properties of angles, triangles and quadrilaterals</p> <p>Guidelines in Measurement p278-281</p> <p>People count #53 Triangles, congruence & similarity, #54 Quadrilaterals, #51 Polygons</p> <p>Continuum Angles</p> <p>Worksheet Choose from day 3 list</p>	<p>Problem Solving Task Centre</p> <p>36 Making Triangles, 40 Diamonds & Rectangles, 66 Pentominoes, 171 Number Discs, 228 Koala Carts 16 Octaflex, 31 Cube Nets, 77 Tricube A, 78 Which View? 103 Four Cube Houses, 161 Soma Cube 2, 209 Pattern Cube, 95 Reflections, 134 Eight Queens, 167 Sliding Tiles</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Regular polygons, Triangle, Congruent triangles, Quadrilateral diagonals, Star polygons,</p> <p>Learning Objects Shape maker</p> <p>Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Triangle classification Shape sorter</p>	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S102-108</p> <p>Geometry Everywhere p30 worksheets 47-50</p>
3	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S10-S15</p> <p>Geometry Everywhere p2, worksheet 3</p>	<p>Teach sorting triangles and quadrilaterals (by side lengths, parallel sides, equal angles)</p> <p>Guidelines in Measurement p278-281</p> <p>People count See Std 3 day 2</p> <p>Continuum Classifying shapes</p> <p>Worksheet Choose from day 4 list</p>	<p style="text-align: center;">Problem Solving Task Centre</p> <p>38 Making Triangles, 60 Back To Back Building, 68 Six Square Puzzle, 73 In The Bag, 83 Racetrack, 95 Reflections, 100 Mirror Patterns 1, 115 Dividing Shapes, 43 Hearts And Loops, 151 Knight Swap, 157 Paving Views, 169 Wallpaper Patterns, 192 Keith's Kubes</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Hunting quadrilaterals, Regular polygons, Triangle, Congruent triangles, Quadrilateral diagonals, Star polygons, Size change</p> <p>Learning Objects Face painter</p> <p>Free internet software http://standards.nctm.org/document/examples/index.htm 6.4</p>
4	<p style="text-align: center;">ICT</p> <p>Interactive Learning Estimating angles, Compass walks, Hunting quadrilaterals</p> <p>Free internet software</p>	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S10-15</p> <p>Active Learning 2: Space & Logic Quickmaths Space A-D</p> <p>Geometry Everywhere p2, worksheet 3</p>	<p>Teach constructions of 2D shapes, and congruence</p> <p>People count See Std 3 day 2</p> <p>Continuum Changing conceptions of shapes, Congruence from rotations and reflections</p> <p>Worksheet Choose from day 5 list</p>	<p style="text-align: center;">Problem Solving Task Centre</p> <p>16 Octaflex, 44 Latin Squares, 66 Pentominoes, 81 Pentagon Triangles, 107 Mc Mahon's Triangles 2, 112 Coloured Squares, 134 Eight Queens, 145 Land Of ET, 146 The Haberdashers' Problem, 148 Mc Mahon's Triangles 1, 150 Chess Queens, 167 Sliding Tiles, 209 Pattern Cube, 211 Soft Drink Crates, 228 Koala Carts 70 Symmetric Shapes, 168 Mirror Patterns 3</p>
5	<p style="text-align: center;">Problem Solving Task Centre</p> <p>107 McMahon's Triangles 2, 148 McMahon's</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Estimating angles, Compass walks,</p>	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S6, 10-18</p>	<p style="text-align: center;">Teach construction of 2D shapes; congruence & similarity</p>

Day	Yr 7 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	Triangles 1, 166 Sphinx, 196 Cross & Square, 60 Back To Back Building, 67 Making Solids, 73 In The Bag, 105 Soma Cube 1, 121 Farmyard Views, 143 Hearts And Loops, 23 Two Colour Game, 70 Symmetric Shapes, 79 Tangram Teasers, 100 Mirror Patterns 1	Hunting quadrilaterals Learning Objects Shape maker Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Triangle classification Shape sorter	Active Learning 2: Space & Logic Quickmaths Space E-I, S11, S12, S13 Geometry Everywhere p30, worksheets 47-50	People count See Std 3 day 2 Continuum See Std 5 day 4 Worksheet Choose from day 2 list
6	RIME S23 Protractors			
7	Teach properties of common solids (spheres, prisms, pyramids) inc. edges, faces, vertices People count #57 Solid shapes Continuum From appearance to properties Worksheet Choose from day 8 list	Problem Solving Task Centre See Std 4 day 2	ICT Interactive Learning Open box nets, Cube nets Learning Objects Building site, Photo hunt Free internet software http://illuminations.nctm.org/WebLinks.aspx Geometric Solids http://www.cs.mcgill.ca/~sgrt/unfold/unfolding.html from net to solid and back http://www.learner.org/teacherslab/math/geometry/space/ http://www.mathsnet.net/geometry/solid/index.html	Worksheet Active Learning 1: Space S82-87 Active Learning 2: Space & Logic S11, S12, S13 Geometry Everywhere worksheets 30-34
8	Worksheet Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes Geometry Everywhere worksheet 5	Teach sorting solids (by numbers and lengths of edges, numbers and shapes of faces, numbers and angles at vertices) People count #57 Solid shapes Continuum Visualisation in 2D and 3D Worksheet Choose from day 9 list	Problem Solving Task Centre See Std 5 day 3	ICT Interactive Learning Open box nets, Cube nets, Plans & elevations, Isometric boxes, Vertices/faces/ edges, Prism, Cylinder, Pyramid, Truncated pyramid, Cone, Truncated cone, Learning Objects Building site, View finder, Photo hunt Free internet software See Std 5 day 7
9	ICT Interactive Learning Open box nets, Cube nets Learning Objects Building site Free internet software http://illuminations.nctm.org/WebLinks.aspx Geometric Solids	Worksheet Active Learning 1: Space S21, S22 Active Learning 2: Space & Logic S1, S2, S9 Geometry Everywhere worksheets 4, 5, 6	Teach constructing nets & skeletons to model solids, and congruence People count #58 Nets and skeletons of solids Choose from day 10 list	Problem Solving Task Centre See Std 6 day 4

Day	Yr 7 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	http://www.cs.mcgill.ca/~sqrt/unfold/unfolding.html from net to solid and back http://www.learner.org/teacherslab/math/geometry/space/ http://www.mathsnet.net/geometry/solid/index.html			
10	Problem Solving Task Centre See Std 3 day 5	ICT Interactive Learning Estimating angles, Compass walks, Hunting quadrilaterals, Open box nets, Cube nets Learning Objects Shape maker, Building site, Photo hunt Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Geometric solids http://www.learner.org/teacherslab/math/geometry/space/	Worksheet Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes Active Learning 1: Space S23-32 Active Learning 2: Space & Logic Quickmaths Space J-N, S9, S26, S28, S29 Geometry Everywhere p , worksheets 30-34	Teach boundaries, surfaces, nets and interiors of solids (including cylinders, spheres, cones, prisms, polyhedra) People count #60 Prisms and cylinders, #61 Pyramids and cones Worksheet Choose from day 7 list
11	Maths300 #8 Where do we sit?			

Year 7 Semester 2 Space

Day	Yr 7 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
1	Maths300 #116 Cube nets			
2	Teach making tessellations with regular polygons Use Geoshapes People count #52 Tessellations Worksheet Choose from day 3 list	Problem Solving Task Centre 36 Making Triangles, 40 Diamonds & Rectangles, 66 Pentominoes, 171 Number Discs, 228 Koala Carts, 16 Octaflex, 31 Cube Nets, 77 Tricube A, 78 Which View? 103 Four Cube Houses, 161 Soma Cube 2, 209 Pattern Cube, 95 Reflections, 134 Eight Queens, 167 Sliding Tiles	ICT Interactive Learning Triangle tessellation, Quadrilateral tessellation, Spirograph, Spirolateral, Reflection symmetry, Turn symmetry Learning Objects Shapemaker Free internet software http://illuminations.nctm.org/WebLinks.aspx	Worksheet Active Learning 1: Space S89-93 Geometry Everywhere worksheets 41-44
3	Worksheet Hands-on Space cards for use with Geofix/Geoshapes Active Learning 1: Space	Teach transformations (reflection and rotation) and related symmetry People count #49 Mirror symmetry & reflection, #50 Turn	Problem Solving Task Centre 38 Making Triangles, 60 Back To Back Building, 68 Six Square Puzzle, 73 In The Bag, 83 Racetrack,	ICT Interactive Learning Reflection symmetry, Turn symmetry, Reflecting, Rotating, Spirograph, Spirolateral, Strip patterns, Two

Day	Yr 7 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	S8, 19, 20 Geometry Everywhere p31, worksheet 51	symmetry & rotation Worksheet Choose from day 4 list	95 Reflections, 100 Mirror Patterns 1, 115 Dividing Shapes, 43 Hearts And Loops, 151 Knight Swap, 157 Paving Views, 169 Wallpaper Patterns, 192 Keith's Kubes	reflections Learning Objects Shapemaker Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Mirror tool, Shape cutter www.worldofesch.com/gallery/ www.mcescher.com/ go to the Picture gallery, then choose Symmetry http://www.stetson.edu/~efriedma/mirror/
4	ICT Interactive Learning Spirograph, Spirolateral, Reflection symmetry, Turn symmetry Free internet software http://illuminations.nctm.org/WebLinks.aspx http://britton.disted.com/osun.bc.ca/jbsymteslk.htm A rich collection of links	Worksheet Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes Active Learning 1: Space S55, S56 Active Learning 2: Space & Logic Quickmaths Space Q-X, S7, S8, S10 Geometry Everywhere worksheets 10, 12-17	Teach angle properties of parallel lines & transversals from simple tessellations People count #52 Tessellations Worksheet Choose from day 5 list	Problem Solving Task Centre 16 Octaflex, 44 Latin Squares, 66 Pentominoes, 81 Pentagon Triangles, 107 Mc Mahon's Triangles 2, 112 Coloured Squares, 134 Eight Queens, 145 Land Of ET, 146 The Haberdashers' Problem, 148 Mc Mahon's Triangles 1, 150 Chess Queens, 167 Sliding Tiles, 209 Pattern Cube, 211 Soft Drink Crates, 228 Koala Carts, 70 Symmetric Shapes, 168 Mirror Patterns 3
5	Problem Solving Task Centre 107 McMahan's Triangles 2, 148 McMahan's Triangles 1, 166 Sphinx, 196 Cross & Square, 60 Back To Back Building, 67 Making Solids, 73 In The Bag, 105 Soma Cube 1, 121 Farmacyard Views, 143 Hearts And Loops, 23 Two Colour Game, 70 Symmetric Shapes, 79 Tangram Teasers, 100 Mirror Patterns 1	ICT Interactive Learning Spirograph, Spirolateral, Reflection symmetry, Turn symmetry, Size change Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Mirror tool, Shape cutter www.worldofesch.com/gallery/ www.mcescher.com/ go to the Picture gallery, then choose Symmetry	Worksheet Geometry Everywhere p16, worksheet 28 Active Learning 2: Space & Logic Quickmaths Space Q-X, S10, S15, S16	Teach isometric transformations (including invariant points and lines) People count See Std 4 day 3 Continuum Congruence from rotations and reflections Worksheet Choose from day 2 list
6	RIME S26 Pentominoes and nets			
7	Teach use of maps and diagrams to identify places Use local maps and school plan Guidelines in	Problem Solving Task Centre See Std 4 day 2	ICT Interactive Learning Drawing on a grid, Hunting quadrilaterals, Squares, Compass walks, Shape games, Drawing with gradients,	Worksheet Active Learning 1: Space S37, 77 Geometry Everywhere worksheet 21 Active Learning 2:

Day	Yr 7 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	Measurement p290-295 Continuum Scales on maps Worksheet Choose from day 8 list		Free internet software http://illuminations.nctm.org/WebLinks.aspx www.shodor.org/interactive/activities/MazeGame/ Interactive coordinate game	Space & Logic S17, S19, S20, S21, S22
8	Worksheet Geometry Everywhere worksheet 18	Teach use of scale (distance) and directions on maps Guidelines in Measurement p290-295 People count #44 Scale: effect on lengths Continuum Scales on maps Worksheet Choose from day 9 list	Problem Solving Task Centre See Std 5 day 3	ICT Interactive Learning Drawing on a grid, Hunting quadrilaterals, Squares, Compass walks, Shape games, Drawing with gradients, Learning Objects Direct a robot, Journey planner http://illuminations.nctm.org/WebLinks.aspx
9	ICT Interactive Learning Spirograph, Spirolateral, Reflection symmetry, Turn symmetry, Size change Learning Objects Direct a robot, Journey planner Free internet software http://illuminations.nctm.org/WebLinks.aspx	Worksheet Active Learning 1: Space S34, S35 Active Learning 2: Space & Logic Quickmaths Space O,P,Y Geometry Everywhere worksheet 19	Teach coordinates for positions in the plane; and location, scale and direction on maps People count #63 Position Continuum Scales on maps Worksheet Choose from day 10 list	Problem Solving Task Centre See Std 6 day 4
10	Problem Solving Task Centre See Std 3 day 5	ICT See Std 3 day 9	Worksheet Active Learning 1: Space S39, S40, S41 Geometry Everywhere worksheet 20	Teach the effects of changing scale in 2D and 3D People count #45 Scale: areas and volumes Worksheet Active Learning 2: Space & Logic Quickmaths Space Z-BB
11	RIME S24 Protractor golf			

Year 8 Semester 1 Space

Day	Yr 8 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
1	RIME S25 How many angles?			
2	<p>Teach properties of polygons, inc. regular ones</p> <p>Use Geoshapes</p> <p>People count #51 Polygons</p> <p>Continuum From appearance to properties</p> <p>Worksheet Choose from day 3 list</p>	<p>Problem Solving Task Centre</p> <p>36 Making Triangles, 40 Diamonds & Rectangles, 66 Pentominoes, 171 Number Discs, 228 Koala Carts, 16 Octaflex, 31 Cube Nets, 77 Tricube A, 78 Which View? 103 Four Cube Houses, 161 Soma Cube 2, 209 Pattern Cube, 95 Reflections, 134 Eight Queens, 167 Sliding Tiles</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Regular polygons, Triangle, Congruent triangles, Quadrilateral diagonals, Star polygons</p> <p>Free internet software http://standards.nctm.org/document/eexamples/index.htm 4.2, 5.3 http://illuminations.nctm.org/ActivitySearch.aspx Shape sorter</p>	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S101, S107, S121, S122</p> <p>Active Learning 2: Space & Logic Quickmaths Space CC-FF, S23, S24, S25</p> <p>Geometry Everywhere worksheet 59 Shooting for goal</p>
3	<p style="text-align: center;">Worksheet</p> <p>Use Geoshapes</p> <p>Hands-on Space cards for use with Geofix/Geoshapes</p>	<p>Teach making solids using nets and drawing the solids</p> <p>People count #57 Solid shapes, #58 Nets and skeletons of solids</p> <p>Continuum Visualisation in 2D and 3D</p> <p>Worksheet Choose from day 4 list</p>	<p style="text-align: center;">Problem Solving Task Centre</p> <p>38 Making Triangles, 60 Back To Back Building, 68 Six Square Puzzle, 73 In The Bag, 83 Racetrack, 95 Reflections, 100 Mirror Patterns 1, 115 Dividing Shapes, 43 Hearts And Loops, 151 Knight Swap, 157 Paving Views, 169 Wallpaper Patterns, 192 Keith's Kubes</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Find the centre, Circle theorems, Midpoint locus, Projectiles, Wave, Cycloid, Spirals,</p> <p>Free internet software http://illuminations.nctm.org/WebLinks.aspx</p>
4	<p style="text-align: center;">ICT</p> <p>Interactive Learning Hunting quadrilaterals</p> <p>Free internet software http://standards.nctm.org/document/eexamples/index.htm 4.2, 5.3 http://illuminations.nctm.org/ActivitySearch.aspx Triangle classification Shape sorter http://britton.disted.camosun.bc.ca/jbsymteslk.htm A rich collection of links</p>	<p style="text-align: center;">Worksheet</p> <p>Active Learning 1: Space S24, use Geoshapes</p> <p>Active Learning 2: Space & Logic Quickmaths Space J-N, S26, S28, S29</p> <p>Hands-on Space cards for use with Geofix/Geoshapes</p> <p>Geometry Everywhere worksheets 5, 6, 11, 30</p>	<p>Teach using angle properties for polygons (including triangles, quadrilaterals)</p> <p>People count #53 Triangles, congruence & similarity, #54 Quadrilaterals, #51 Polygons</p> <p>Continuum Changing conceptions of shapes</p> <p>Worksheet Choose from day 5 list</p>	<p style="text-align: center;">Problem Solving Task Centre</p> <p>16 Octaflex, 44 Latin Squares, 66 Pentominoes, 81 Pentagon Triangles, 107 Mc Mahon's Triangles 2, 112 Coloured Squares, 134 Eight Queens, 145 Land Of ET, 146 The Haberdashers' Problem, 148 Mc Mahon's Triangles 1, 150 Chess Queens, 167 Sliding Tiles, 209 Pattern Cube, 211 Soft Drink Crates, 228 Koala Carts, 70 Symmetric Shapes, 168 Mirror Patterns 3</p>
5	<p style="text-align: center;">Problem Solving Task Centre</p> <p>107 McMahon's Triangles 2, 148 McMahon's Triangles 1, 166 Sphinx, 196 Cross & Square, 60 Back To Back Building, 67 Making Solids,</p>	<p style="text-align: center;">ICT</p> <p>Interactive Learning Open box nets, Cube nets</p> <p>Learning Objects Shape maker, Building site, Photo hunt http://illuminations.nctm.org</p>	<p style="text-align: center;">Worksheet</p> <p>Geometry Everywhere p16, worksheet 28</p>	<p style="text-align: center;">Teach circle angle 'theorems'</p> <p>People count #55 Circles and ellipses</p> <p>Worksheet Choose from day 2 list</p>

Day	Yr 8 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	73 In The Bag, 105 Soma Cube 1, 121 Farmyard Views, 143 Hearts And Loops, 23 Two Colour Game, 70 Symmetric Shapes, 79 Tangram Teasers, 100 Mirror Patterns 1	org/ActivitySearch.aspx Geometric solids Isometric drawing tool http://www.mathsnet.net/geometry/solid/index.html		
6	Maths300 #48 String shapes			
7	Teach making solids from nets, and drawing the solids Use Geoshapes People count #57 Solid shapes, #58 Nets and skeletons of solids Continuum Visualisation in 2D and 3D Worksheet Choose from day 8 list	Problem Solving Task Centre See Std 4 day 2	ICT Interactive Learning Perspective, Plans and elevations Free internet software http://illuminations.nctm.org/WebLinks.aspx http://www.learner.org/teacherslab/math/geometry/space/	Worksheet Active Learning 1: Measurement M74 (not S) Geometry Everywhere worksheet 83
8	Worksheet Hands-on Space cards for use with Geofix/Geoshapes Geometry Everywhere worksheet 8	Teach the effects of enlarging or reducing a shape or solid Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes People count #44 Scale: effect on lengths, #45 Scale: areas and volumes Worksheet Choose from day 9 list	Problem Solving Task Centre See Std 5 day 3	ICT Interactive Learning Latitude and longitude, Daylight, Sun position, Perspective, Plans and elevations, Solar house Free internet software http://illuminations.nctm.org/WebLinks.aspx
9	ICT Interactive Learning Open box nets, Cube nets, Size change Learning Objects Shape maker, Building site, Photo hunt Free internet software http://illuminations.nctm.org/ActivitySearch.aspx Isometric drawing tool http://www.learner.org/teacherslab/math/geometry/space/	Worksheet Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes Active Learning 2: Space & Logic Quickmaths Space Z-BB Geometry Everywhere p15	Teach single point perspective drawing of solids People count #57 Solid shapes Worksheet Choose from day 10 list	Problem Solving Task Centre See Std 6 day 4
10	Problem Solving Task Centre See Std 3 day 5	ICT Interactive Learning Open box nets,	Worksheet Active Learning 1: Space	Teach latitude, longitude and great circle distances

Day	Yr 8 sem 1 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
		Cube nets, Size change Learning Objects Shape maker, Building site, Photo hunt Free internet software http://illuminations.nctm.org/WebLinks.aspx	S88 Geometry Everywhere p46, 47, worksheets 66, 67	People count #48 Angles Worksheet Choose from day 7 list
11	MCTP Volume 2 p449 Mirror bounce			

Year 8 Semester 2 Space

Day	Yr 8 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
1	Maths300 #82 Knight's tour, or #119 Eight Queens, or #129 Chess queens			
2	Teach making and solving tangram puzzles People count #51 Polygons Worksheet Active Learning 1: Space S16 RIME Meas, Space C&D S19, 20 or 21	Problem Solving Task Centre 36 Making Triangles, 40 Diamonds & Rectangles, 66 Pentominoes, 171 Number Discs, 228 Koala Carts, 16 Octaflex, 31 Cube Nets, 77 Tricube A, 78 Which View? 103 Four Cube Houses, 161 Soma Cube 2, 209 Pattern Cube, 95 Reflections, 134 Eight Queens, 167 Sliding Tiles	ICT Interactive Learning Size change, Reflecting, Rotating, Spirograph, Spirolateral, Reflection symmetry, Turn symmetry, Strip patterns, Learning Objects Journey planner, Building site, Viewfinder, Photo hunt, Contours www.worldofesch.com/gallery/ www.mcescher.com/ go to the Picture gallery, then choose Symmetry	Worksheet Active Learning 1: Space <i>Isometric: S43-46</i> <i>Perspective: S88</i> Active Learning 2: Space & Logic S14 Geometry Everywhere <i>Isometric: p3, 23-25, worksheets 9, 37-40</i> <i>Perspective: p46, 47, worksheets 66-68</i>
3	Worksheet Active Learning 1: Space S4, S6 Geometry Everywhere p2, worksheet 3 RIME Meas, Space C&D 19, 20 or 21	Teach creating complex tessellations using regular polygons Use Geoshapes Hands-on Space cards for use with Geofix/Geoshapes People count #52 Tessellations Worksheet Choose from day 4 list	Problem Solving Task Centre 38 Making Triangles, 60 Back To Back Building, 68 Six Square Puzzle, 73 In The Bag, 83 Racetrack, 95 Reflections, 100 Mirror Patterns 1, 115 Dividing Shapes, 43 Hearts And Loops, 151 Knight Swap, 157 Paving Views, 169 Wallpaper Patterns, 192 Keith's Kubes	ICT Interactive Learning Perspective, Plans and elevations, Isometric boxes, Vertices/faces/ edges, Prism, Cylinder, Pyramid, Truncated pyramid, Cone, Truncated cone Learning Objects Building site, View finder, Photo hunt http://illuminations.nctm.org/ActivitySearch.aspx Isometric drawing tool
4	ICT Learning Objects Shapemaker Free internet software http://standards.nctm.org/document/examples/	Worksheet Hands-on Space cards for use with Geofix/Geoshapes Active Learning 1: Space S8, 19, 20	Teach similarity and enlargement People count #44 Scale: effect on lengths Worksheet	Problem Solving Task Centre 16 Octaflex, 44 Latin Squares, 66 Pentominoes, 81 Pentagon Triangles, 107 Mc Mahon's Triangles 2, 112 Coloured Squares,

Day	Yr 8 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	index.htm 4.4 http://illuminations.nctm.org/WebLinks.aspx http://www.kidscom.com/games/tangram/tangram.html	Active Learning 2: Space & Logic Quickmaths Space W-X Geometry Everywhere p17-20, worksheets 22-27	Choose from day 5 list	134 Eight Queens, 145 Land Of ET, 146 The Haberdashers' Problem, 148 Mc Mahon's Triangles 1, 150 Chess Queens, 167 Sliding Tiles, 209 Pattern Cube, 211 Soft Drink Crates, 228 Koala Carts, 70 Symmetric Shapes, 168 Mirror Patterns 3
5	Problem Solving Task Centre 107 McMahon's Triangles 2, 148 McMahon's Triangles 1, 166 Sphinx, 196 Cross & Square, 60 Back To Back Building, 67 Making Solids, 73 In The Bag, 105 Soma Cube 1, 121 Farmyard Views, 143 Hearts And Loops, 23 Two Colour Game, 70 Symmetric Shapes, 79 Tangram Teasers, 100 Mirror Patterns 1	ICT Interactive Learning Shapemaker Learning Objects Shapemaker Free software http://nlvm.usu.edu/en/nav/library.html http://library.thinkquest.org/16661/ try the Totally Tessellated Gallery. http://www.arcytech.org/java/patterns/patterns_j.shtml Create tessellations http://britton.disted.com/osun.bc.ca/jbsymteslk.htm A rich collection of links	Worksheet Active Learning 1: Space S34, 36-38 Geometry Everywhere worksheets 18-21, 36, 56	Teach using perspective and isometric images of solids People count #57 Solid shapes Worksheet Choose from day 2 list
6	VCAA Sample Units of work: Solar house			
7	Teach using a street directory, inc simple compass directions Use local street directory Worksheet Choose from day 8 list	Problem Solving Task Centre See Std 4 day 2	ICT Interactive Learning Doodles, Learning Objects Journey planner, Building site, Viewfinder, Photo hunt, Contours Free internet software http://illuminations.nctm.org/WebLinks.aspx	Worksheet Active Learning 2: Number & Algebra A4 Family relationships The Decision Maths Pack
8	Worksheet Geometry Everywhere worksheet 19	Teach networks (e.g. family trees, road maps) People count #62 Networks Choose from day 9 list	Problem Solving Task Centre See Std 5 day 3	ICT Interactive Learning Doodles, Clash, Free internet software http://illuminations.nctm.org/WebLinks.aspx
9	ICT Interactive Learning Doodles, Free internet software http://illuminations.nctm.org/WebLinks.aspx	Worksheet Active Learning 1: Space A4 Family relationships Active Learning 2: Number & Algebra	Teach using network diagrams for relationships and problem solving People count	Problem Solving Task Centre See Std 6 day 4

Day	Yr 8 sem 2 'Towards Std 3'	'Towards Std 4'	'Towards Std 5'	'Towards Std 6'
	org/WebLinks.aspx	A4 Family relationships The Decision Maths Pack	#62 Networks Worksheet Choose from day 10 list	
10	Problem Solving Task Centre See Std 3 day 5	ICT Interactive Learning Doodles, Free internet software http://illuminations.nctm.org/WebLinks.aspx	Worksheet Active Learning 2: Number & Algebra A4 Family relationships The Decision Maths Pack	Teach use of network diagrams to solve problems People count #62 Networks Worksheet Choose from day 7 list
11	MCTP Volume 2 p340 Mental map			