

Mathematics

Unit Title	Unit Duration	Year	Level
Circles	3 weeks	8	All
<p>Outcomes <i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> Define parts of a circle Investigate the link between circumference and diameter Find the area of a circle using a grid to count squares Derive the formula $A = \pi r^2$ by slicing into sectors and arranging into a rectangle Solve problems using circles Solve area problems using sectors, concentric circles and annuli Draw and interpret pie graphs using statistical data 	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> String, compass, coins. Roll a coin along a line one complete revolution. Read the difference between first and final points. Find items with circular ends (jars, tins). Use string to measure circumference and divide by diameter This value is- use circles (diff. sizes). Measure circumference, diameter C/D. Circles in the world, e.g. aboriginal flag, MCTP pg 342 Belt around the earth circle patterns project about π 	<p>Resources</p> <ul style="list-style-type: none"> Maths Quest 8 Signpost Maths 8 Maths 8+. MCTP pg342,Vol.2 	
<p>Assessment Tasks Test Investigative Assignment Radius versus circumference</p>	<p>Literacy Demands</p> <ul style="list-style-type: none"> New terminology Justification of answers as a communication skill <p>Glossary: radius, diameter, circumference, sectors, concentric circle</p> <ul style="list-style-type: none"> See KLA literacy table. 	<p>Numeracy Demands</p> <ul style="list-style-type: none"> Specific calculations Substitution Deduction 	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i> LUAC</p>	<p>ICT Competencies</p> <ul style="list-style-type: none"> Spreadsheets for repetitive calculations are a possibility “Exploring Geometry with The Geometer’s Sketchpad” – Chapter 6. 		

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Unit Title	Unit Duration	Year	Level
Ratio	3 weeks	8	1,2,3
<p>Outcomes <i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> • Compare numbers - heights, weights, distances. • Simplify a ratio. • Identify ratio in Geometry (angles - side lengths etc.) • Determine equivalent ratios. • Solve ratio stories - e.g. apples to oranges 3:2 6 apples - How many oranges? • Divide a quantity in a given ratio, increase and decrease in a certain ratio • Recognise percents as special ratios that have 100 as a 2nd term. • Apply ratios in everyday life. 	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> • Shadow sticks for indirect measurement of length. • Horse racing • Find out about the golden rectangle - its dimensions • Read about the Parthenon. • Compare the diameter of the earth to the diameter of the other planets. (Research in the library.) 	<p>Resources</p> <ul style="list-style-type: none"> • Concept Maths 8. • New Century Maths 8 • Signpost Maths 8 • Maths Quest 8 	
<p>Assessment Tasks Research assignment: Perimeter v. area Test</p>	<p>Literacy Demands</p> <ul style="list-style-type: none"> • New terminology • Read and interpret information • Understand everyday use of ratio terms <p>Glossary: right prism, composite, surface a</p>	<p>Numeracy Demands</p> <ul style="list-style-type: none"> • Estimation • Specific calculations • Understanding basic fractions <p>Surface area</p>	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i> LUAC</p>	<p>ICT Competencies Spreadsheets Word processing</p>		

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Unit Title	Unit Duration	Year	Level
Area	3 weeks	8	1,2,3
<p>Outcomes <i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> Choose units of length and area Calculate the area of a square, rectangle, parallelogram, trapezium, rhombus. Revise the area of a circle. Calculate the area of composite shapes Use alternative methods for finding the area of parallelogram/rhombus other than formula Calculate the surface area of rectangular and triangular prisms Solve practical word problems on carpeting, tiling and so on. Find the volume of right prisms Solve word problems involving area. 	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> Estimating Area M.C.T.P vol 2 Irregular areas .M.C.T.P. vol 2 Measure a hectare outside Students cut out a variety of shapes and make measurements to calculate the area 	<p>Resources</p> <ul style="list-style-type: none"> 8 plus Sign Post Maths 8 Most other Year 8 texts Rime Geoboards Tetronimoes 	
<p>Assessment Tasks Test Investigative Assignment</p>	<p>Literacy Demands</p> <ul style="list-style-type: none"> Specific terminology Use of square cm and square m Drawing diagrams from word problems <p>See KLA literacy table.</p>	<p>Numeracy Demands Specific calculations Precision in calculator use Order of operations Choice of units Rounding</p>	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i> LUAC</p>	<p>ICT Competencies</p> <ul style="list-style-type: none"> Spreadsheets “Exploring Geometry with The Geometer’s Sketchpad” – Chapter 7. 		

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Unit Title	Unit Duration	Year	Level
Equations	3 weeks	8	1,2,3
<p>Outcomes <i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> • Solve equations by guess and check/ inspection • Solve by backtracking to establish opposite operations and the order for “untangling” equations • Use formal methods building up to multi step equations • Solve problems with pronumerals on both sides • Perform operations involving grouping symbols • Solve word problems 	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> • Think of a Number • M.C.T.P. vol 1 p 277 	<p>Resources</p> <ul style="list-style-type: none"> • Yr 8 Signs Post Maths • Access to algebra, unit 4 	
<p>Assessment Tasks Test</p>	<p>Literacy Demands</p> <ul style="list-style-type: none"> • Change words into symbols <p>Glossary: linear equations, gradient See KLA literacy table.</p>	<p>Numeracy Demands</p> <ul style="list-style-type: none"> • Order of operations • Directed number 	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i></p>	<p>ICT Competencies</p>		

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Unit Title	Unit Duration	Year	Level
Coordinate Geometry	3 weeks	8	1,2,3
<p>Outcomes</p> <p>Review Number Plane grid</p> <p><i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> • Calculate distance between 2 points using Pythagoras' theorem and geometrical applications. • Draw and interpret graphs of linear equations by plotting points. • Determine lines parallel to x-axis. • Determine lines parallel to y-axis. • Decide if a point lies on a line. • Graph equations of the form $y = mx + b$ • Investigate real straight line graphs <p>EXTENSION : introduce the idea of gradient</p>	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> • Draw a map of Australia on a grid , write co-ordinates of major cities • Ideally, this section should be followed up by a session in the computer lab with a graphing package or spinner boxes 	<p>Resources</p> <ul style="list-style-type: none"> • Maths 8 + • Signpost Math Yr 8 • Maths Quest 8 • Practical problems for class assignments in the file • Geoboards 	
<p>Assessment Tasks</p> <p>Test Investigative assignment</p>	<p>Literacy Demands</p> <p>Read and interpret information Change words into symbols See KLA literacy table.</p>	<p>Numeracy Demands</p> <p>Order of operations Directed number</p>	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i></p>	<p>ICT Competencies</p> <ul style="list-style-type: none"> • Spreadsheets and spinner boxes • “Exploring Geometry with The Geometer’s Sketchpad” – Chapter 1 (second half). • Graphic calculators 		

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Unit Title	Unit Duration	Year	Level
Probability	3 weeks	8	1,2,3
<p>Outcomes <i>At the completion of this unit, students will be able to:</i></p> <ul style="list-style-type: none"> Determine certain, uncertain and impossible events Use fractions, decimals and percentages in the use of probability Define Experimental Probability-the idea that combined information from everyone more closely approximates what is expected.-one stage events only Determine probability using $P(E) = n(E)/n(S)$ Define sample space 	<p>Teaching Strategies/Activities</p> <ul style="list-style-type: none"> MCTP - Ch. 12 Coin in the Square Everyday Wins Walk the Plank Lots of experiments <ul style="list-style-type: none"> - dice - cards - counters - coins Simple games <ul style="list-style-type: none"> - dice cricket MCTP Ch.12 	<p>Resources</p> <ul style="list-style-type: none"> Schnable et al "8 Plus" Signpost 8 Maths Quest 8 	
<p>Assessment Tasks Investigative Assignment Test</p>	<p>Literacy Demands Specific terminology Peculiar grammar of mathematics Read and interpret information Change words into symbols See KLA literacy table.</p>	<p>Numeracy Demands Specific calculations Estimation Fractions, decimals,%</p>	
<p>Across Curriculum Perspectives <i>(delete any that are not applicable)</i> LUAC</p>	<p>ICT Competencies</p>		