ACHIEVERS ARC

2027 SEC 3 E MATH LESSON PLAN

SEMESTER 1 (NOV – JAN)

LESSON	LESSON NAME	LEARNING OBJECTIVES
1	More About Quadratic Equations and Quadratic Functions	1) Solve quadratic equations by completing the square, quadratic formula and graphical methods. 2) Solve fractional equations that can be reduced to quadratic equations. 3) Be able to solve real world problems involving quadratic equations.
2		
3		
4	More About Linear Inequalities	1) Be able to understand notations and properties of inequalities. 2) Be able to solve simultaneous inequalities. 3) Be able to solve questions involving applications of simultaneous inequalities.
5		
6	Indices	1) Understand the concept of indices. 2) Be able to solve equations involving indices and standard form. 3) Be able to solve application problems involving indices and compound interest.
7		
8		
9	Revision Chapters 1 to 3	

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2027 SEC 3 E MATH LESSON PLAN

SEMESTER 2 (JAN – APR)

<table>
<tr><th>LESSON</th><th>LESSON NAME</th><th>LEARNING OBJECTIVES</th></tr>
<tr><td>1</td><td colspan="2">Revision Chapters 1 to 3</td></tr>
<tr><td>2</td><td rowspan="3">Coordinate Geometry</td><td rowspan="3">1) Be able to find the gradient and equation of a straight line.

2) Be able to find the length of a line segment.

3) Be able to solve geometric problems involving the use of coordinates.</td></tr>
<tr><td>3</td></tr>
<tr><td>4</td></tr>
<tr><td>5</td><td rowspan="3">Functions and Graphs</td><td rowspan="3">1) Be able to recognise the graphs of power and exponential functions.

2) Be able to sketch and find gradients of simple curves.

3) Be able to solve practical problems involving graphs.</td></tr>
<tr><td>6</td></tr>
<tr><td>7</td></tr>
<tr><td>8</td><td colspan="2" rowspan="3">Revision Chapters 4 to 5</td></tr>
<tr><td>9</td></tr>
<tr><td>10</td></tr>
<tr><td>11</td><td colspan="2">Mid Year Examination Mock Test</td></tr>
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2027 SEC 3 E MATH LESSON PLAN

SEMESTER 3 (APR – AUG)

LESSON	LESSON NAME	LEARNING OBJECTIVES
1	Conditions of Congruence and Similarity	1) Understand the concept of congruence and similarity, along with their relevant tests. 2) Be able to deduce the ratios of areas and volumes of similar figures. 3) Be able to draw perpendicular and angle bisectors on scale drawings.
2		
3		
4	Further Trigonometry	1) Be able to find the sine and cosine of obtuse angles. 2) Be able to find the area of triangles using trigonometric functions. 3) Understand the sine and cosine rule.
5		
6		
7		
8	Revision Chapters 6 to 7	
9		
10	Applications of Trigonometry	1) Be able to solve bearing problems. 2) Be able to solve problems involving angles of elevation and depression. 3) Be able to solve simple 3D problems using trigonometry.
11		
12		

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2027 SEC 3 E MATH LESSON PLAN

SEMESTER 4 (AUG – OCT)

LESSON	LESSON NAME	LEARNING OBJECTIVES
1	Arc Lengths, Sector Areas and Radian Measure	1) Be able to find arc lengths, sector and segment areas. 2) Understand the concept of radian measure, and be able to convert degrees to radians and vice versa. 3) Be able to find the arc lengths and sector areas in radian measure.
2		
3		
4	Properties of Circles	1) Understand the various properties of circles. 2) Be able to identify angles in the same segment or opposite segments and angles at centre. 3) Be able to apply the properties of chords of a circle.
5		
6		
7	Revision Chapters 8 to 10	
8		
9		
10	End of Year Examination Mock Test 1	
11	End of Year Examination Mock Test 2	

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2027 中三年级 (初级数学) 课程表

第 1 学期（11 月 至 1 月）

课	标题	教学目标
1	二次方程与二次函数	**1)** 能够用配方法、求根公式和图像法来解二次方程。 **2)** 能够解可化为二次方程的分式方程。 **3)** 能够解决与二次方程相关的实际应用问题。
2		
3		
4	一次不等式的扩展	**1)** 理解不等式的符号和性质。 **2)** 能够解联立不等式。 **3)** 能够解决涉及联立不等式应用的问题。
5		
6	指数	**1)** 理解指数的概念。 **2)** 能够解含有指数和标准形式的方程。 **3)** 能够解决涉及指数与复利的应用问题。
7		
8		
9	专题练习 1 - 3	

2027 中三年级 (初级数学) 课程表

第 2 学期（1 月 至 4 月）

课	标题	教学目标
1	专题练习 1 - 3	
2	坐标几何	1) 能够求直线的斜率和直线方程。 2) 能够求线段的长度。 3) 能够利用坐标解决几何问题。
3		
4		
5	函数与图像	1) 能够识别幂函数和指数函数的图像。 2) 能够绘制简单曲线并求其斜率。 3) 能够解决与图像相关的实际应用问题。
6		
7		
8	专题练习 4 - 5	
9		
10		
11	年中考试模拟试卷	

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2027 中三年级 (初级数学) 课程表

第 3 学期（4 月 至 8 月）

课	标题	教学目标
1	全等与相似 的判定条件	1) 理解全等与相似的概念，以及相关的判定方法。 2) 能够推导相似图形的面积比和体积比。 3) 能够在比例图上作垂直平分线和角平分线。
2		
3		
4	进阶三角学	1) 能够求钝角的正弦值与余弦值。 2) 能够使用三角函数求三角形面积。 3) 理解正弦定理和余弦定理。
5		
6		
7		
8	专题练习 6 - 7	
9		
10	三角学的应用	1) 能够解决航向（方位角）相关的问题。 2) 能够解决俯角与仰角相关的问题。 3) 能够利用三角学解决简单的三维立体问题。
11		
12		

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2027 中三年级 (初级数学) 课程表

第 4 学期（8 月 至 10 月）

课	标题	教学目标
1	弧长、扇形面积与弧度制	1) 能够求弧长、扇形面积和弓形面积。 2) 理解弧度制的概念，并能在角度与弧度之间进行互换。 3) 能够在弧度制下求弧长与扇形面积。
2		
3		
4	圆的性质	1) 理解圆的各种性质。 2) 能够识别同弧所对的角、对弦角以及圆心角。 3) 能够应用圆中弦的相关性质。
5		
6		
7	专题练习 8 - 10	
8		
9		
10	年终考试模拟试卷 1	
11	年终考试模拟试卷 2	