

LONG TERM PLAN 2023/2024

YEAR GROUP: Year 10 IGCSE

SUBJECT: Mathematics

<b>Week Start</b>	<b><u>Content Description</u></b>	<b><u>Assessment</u></b>	<b><u>Events</u></b>
<b>September</b>			
3rd	<p><b>Topic 2: Ch 18 Graphs of functions</b>  <b>18.1 – 18.3</b></p> <ul style="list-style-type: none"> <li>Plot and interpret and construct tables of quadratic functions.</li> <li>Draw and use graphs to solve quadratic equations (graphical solution of quadratic equations)</li> </ul> <p><b>18.4 – 18.7</b></p> <ul style="list-style-type: none"> <li>Plot graphs of a function in completing the square form and the graph of quadratic equations</li> <li>Plot graphs of reciprocal function</li> <li>Identify and sketch types of graphs</li> <li>Plot and sketch exponential functions</li> </ul> <p><b>18.8 – 18.11</b></p> <ul style="list-style-type: none"> <li>Calculate gradient curves</li> <li>Solve equations by graphical methods</li> <li>Recognise and sketch functions (linear, quadratic, cubic and reciprocal functions)</li> </ul>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	
10 <sup>th</sup>	<p><b>Ch 18:</b> Graphs of functions review and homework</p> <p><b>Topic 2: Ch 19</b> Differentiation and the gradient function  <b>19.1 – 19.3</b></p> <ul style="list-style-type: none"> <li>Calculate the gradient of a straight line and a curve</li> <li>Calculate the gradient function</li> </ul> <p><b>19.4 – 19.5</b></p> <ul style="list-style-type: none"> <li>Differentiate and find derivative of a function</li> </ul> <p><b>19.6 - 19.8</b></p> <ul style="list-style-type: none"> <li>Calculate the second derivative</li> <li>Calculate the gradient of a curve at a point</li> <li>Calculate the value of x when the gradient is given</li> </ul> <p><b>19.9 - 19.10</b></p> <ul style="list-style-type: none"> <li>Calculate the equation of the tangent</li> <li>Determine the stationary points</li> </ul>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	<p>10-14<sup>th</sup> CEM Assessments (7,9 &amp; 11)</p> <p>14<sup>th</sup> Target Grades Deadline (8,10, 12)</p> <p>14<sup>th</sup> Year 7 Picnic</p>

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17 <sup>th</sup>	<p><b>Ch 19</b> review and homework</p> <p><b>Ch 18 and 19 End of unit test</b></p> <p><b>Topic 2: Ch 17</b> Graphs in practical situations</p> <p><b>17.1</b></p> <ul style="list-style-type: none"> <li>• Interpret and use conversion graphs</li> </ul> <p><b>17.2 - 17.4</b></p> <ul style="list-style-type: none"> <li>• Calculate speed distance and time</li> <li>• Calculate travel graphs</li> </ul>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p> <p>Summative assessment (End of unit test)</p>	<p>17-20<sup>th</sup> CEM Assessments (7,9 &amp; 11)</p>
24 <sup>th</sup>	<p><b>17.5 - 17.6</b></p> <ul style="list-style-type: none"> <li>• Calculate speed-time graphs, <b>acceleration and deceleration</b></li> </ul> <p><b>17.7 – 17.9</b></p> <ul style="list-style-type: none"> <li>• Calculate area under a speed-time graphs</li> <li>• Calculate non-linear graphs</li> </ul> <p><b>Topic 2:</b> Ch 17 Graphs in practical situations review and homework</p> <p><b>Topic 2: Ch 14 Linear Programming</b></p> <p><b>14.1 – 14.3</b></p> <ul style="list-style-type: none"> <li>• Represent inequalities graphically and use this representation to solve simple linear programming problems.</li> </ul> <p><b>Topic 2: Ch 14</b> Linear Programming review and homework</p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	<p>28<sup>th</sup> Prophet's Birthday - Observed</p>
<b>October</b>			
1st	<p><b>Topic 4: Ch 22</b> Geometrical vocabulary and construction</p> <p><b>22.1 – 22.2</b></p> <ul style="list-style-type: none"> <li>• Identify types of angles, lines, triangles, congruent and similar triangles</li> <li>• Identify circles and quadrilaterals</li> </ul> <p><b>22.3</b> Identify polygons and nets</p> <p><b>22.4</b> Construct triangles</p> <p><b>22.5</b> Read and make scale drawings</p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	<p>4<sup>th</sup> Swimming Gala</p> <p>5<sup>th</sup> Armed Forces Day</p>
8 <sup>th</sup>	<p><b>Ch 22</b> Geometrical vocabulary and construction review and homework</p> <p><b>Ch 14, 17 &amp; 22 End of unit test</b></p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	<p>8<sup>th</sup> Target Grade Deadline (7,9,11)</p>

	<p><b>Ch 23:</b> Similarity and congruence</p> <p><b>23.1 – 23.2</b> Calculate lengths of similar figures by scale factor</p> <p><b>23.3 – 23.4</b> Use the relationships between areas of similar triangles, with corresponding results for similar figures and extension to volumes and surface areas of similar solids</p> <p><b>23.5 – 23.6</b> Identify congruent shapes and types of congruent triangles</p>	Summative assessment (end of unit test)	10 <sup>th</sup> Careers Day
15 <sup>th</sup>	<p><b>Ch 23:</b> review and homework</p> <p><b>Topic 4: Ch 24 Symmetry &amp; Ch 25 Angle properties</b></p> <p><b>24.1 – 24.3</b></p> <ul style="list-style-type: none"> <li>Recognise rotational and line symmetry (including order of rotational symmetry) in two dimensions.</li> <li>Recognise symmetry properties of the prism (including cylinder) and the pyramid (including cone).</li> <li>Use the symmetry properties of circles</li> </ul> <p><b>Ch 24</b> review and homework correction</p> <p><b>Ch25:</b> Angle Properties and circle theorems</p> <p><b>25.1 – 25.3</b> Calculate unknown angles using the following geometrical properties:</p> <ul style="list-style-type: none"> <li>angles at a point</li> <li>angles at a point on a straight line and intersecting straight lines</li> <li>angles formed within parallel lines</li> <li>angle properties of triangles and quadrilaterals</li> </ul>	Formative assessment (quiz, starter, classwork, activities) Peer Discussion Whole class questioning	
22 <sup>nd</sup>	Half Term Break		
29 <sup>th</sup>	<p><b>25.4</b> Calculate the sum of interior and exterior angles of a polygon</p> <p><b>25.7</b> Calculate angle properties of irregular polygons</p> <p><b>Circle theorems</b></p> <p><b>25.5 - 25.6 – 25.8</b></p> <ul style="list-style-type: none"> <li>Calculate angle in a semicircle</li> <li>Calculate angle between tangent and radius of a circle</li> <li>Calculate angle at the centre of a circle is twice the angle at the</li> <li>Circumference</li> </ul>	Formative assessment (quiz, starter, classwork, activities)  Peer Discussion	31 <sup>st</sup> Orange and Black Day

	<p><b>25.9 - 25.10</b></p> <ul style="list-style-type: none"> <li>• Calculate angles in the same segment</li> <li>• Calculate angles in opposite segments are supplementary; cyclic quadrilaterals.</li> <li>• Calculate alternate segment theorem</li> </ul>		
<b>November</b>			
5 <sup>th</sup>	<p><b>Ch25:</b> review and homework</p> <p><b>Ch 23, 24 &amp; 25 End of unit test</b></p> <p><b>Topic 5: Ch 26 – Ch 27 Mensuration</b>  <b>26.1 – 26.5</b> Use current units of mass, length, area, volume and capacity in practical situations and express quantities in terms of larger or smaller units. (Measures)  <b>27.1 – 27.5</b> Calculate perimeter and area of 2D-shapes  <b>27.10 – 27.13</b> Calculate the arc length and the area of a sector</p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Summative assessment (end of unit test)</p>	
12 <sup>th</sup>	<p><b>27.6 – 27.9</b></p> <ul style="list-style-type: none"> <li>• Calculate the volume and surface area of cuboid and cylinder</li> <li>• Calculate the volume and surface area of a prism</li> </ul> <p><b>27.14 – 27.23</b></p> <ul style="list-style-type: none"> <li>• Calculate the volume and surface area of a sphere</li> <li>• Calculate the volume and surface area of a pyramid</li> <li>• Calculate the volume and surface area of a cone</li> </ul> <p><b>Ch26 and Ch 27</b> review and homework correction</p> <p><b>Topic 6: Trigonometry</b></p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Summative assessment (end of unit test)</p>	

	<p><b>Ch 28: Bearings</b></p> <p><b>Ex 28.1</b> Interpret and use three-figures bearing</p> <p><b>Ch 26, 27 and 28 End of unit test</b></p>		
19 <sup>th</sup>	<p><b>Ch 29: Trigonometry</b></p> <p><b>Ex 29.4 &amp; 29.5</b> Use Pythagoras theorem to find the missing side</p> <p><b>Ex 29.1 – 29.3</b> Apply SOH CAH TOA to find the missing angles and sides</p> <p><b>Ex 29.6</b> Calculate angle of elevation and depression</p> <p><b>29.7 – 29.8 sine, cosine and tan curves</b></p> <ul style="list-style-type: none"> <li>Recognise, sketch and interpret graphs of simple trigonometric functions.</li> <li>Graph and know the properties of trigonometric functions.</li> </ul> <p><b>29.9</b> Solve simple trigonometric equations between <math>0^\circ</math> and <math>360</math></p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	<p>AP1 Written Comments Deadline</p>
26 <sup>th</sup>	<p><b>Ch 28 &amp; 29</b> Trigonometry review and homework</p> <p><b>Ch 30: Further trigonometry</b></p> <p><b>30.1 – 30.3</b> Demonstrate the sine rule and cosine rule</p> <p><b>30.4</b> Calculate the area of triangle and the shortest distance from a point to a line</p> <p><b>30.5 - 30.6</b> Solve trigonometry in three dimensions Calculate the angle between a line and a plane</p> <p><b>Ch 30</b> review and homework correction</p> <p><b>Ch 29 &amp; 30 End of unit test</b></p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p> <p>Summative assessment (end of unit test)</p>	

December			
3 <sup>rd</sup>	AP1 Review	Ongoing formative assessment	4 <sup>th</sup> First Day AP1 Exams
10 <sup>th</sup>	AP1 Review Students reflection	Ongoing formative	15 <sup>th</sup> Last Day AP1 Exams
17 <sup>th</sup>	<p><b>Topic 7: Ch 31</b> Vectors &amp; Ch 32 transformations  <b>31.1 – 31.3</b></p> <ul style="list-style-type: none"> <li>Express translation using vectors</li> <li>Add and subtract vectors</li> <li>Multiply a vector by scalar</li> </ul> <p><b>31.4 – 31.5</b></p> <ul style="list-style-type: none"> <li>Calculate the magnitude of a vector</li> <li>Use position vectors</li> </ul> <p><b>31.6 – 31.7</b> Use vector geometry</p> <p><b>Ch 31</b> review and homework correction</p> <p><b>Topic 7: Ch 32: Transformations</b>  <b>32.1 – 32.2 &amp; 32.5 – 32.6</b></p> <ul style="list-style-type: none"> <li>Use reflection to find the equation of the mirror line</li> <li>Translate and give the translation vectors</li> </ul>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Peer Discussion</p> <p>Whole class questioning</p>	22 <sup>nd</sup> Winter Break
25 <sup>th</sup>	Winter Break		
January			
1 <sup>st</sup>	Winter Break		
7 <sup>th</sup>	<p><b>32.3 - 31.4</b> Describe rotation (the center of rotation, the angle of rotation and the direction of rotation)</p> <p><b>32.7-32.9</b> Describe enlargement and negative enlargement</p> <p><b>32.5 – 32.6</b> Translate and give the translation vectors</p> <p><b>32.10</b> Demonstrate combination of transformations</p> <p><b>Ch 32</b> review and homework correction</p> <p><b>Ch 31&amp; 32 End of unit test</b></p>	<p>Formative assessment (quiz, starter, classwork, activities)</p> <p>Summative assessment (end of unit test)</p>	8 <sup>th</sup> First Day
14 <sup>th</sup>	<p><b>Topic 8: Probability</b>  <b>Ch 33 Probability &amp; Ch 34 Further probability</b>  <b>33.1 – 33.3</b></p>	Formative assessment (quiz, starter, classwork, activities)	

	<p>Calculate the probability of a single event as either a fraction, decimal or percentage.</p> <p>Understand and use the probability scale from 0 to 1</p> <p>Understand that the probability of an event occurring = 1 – the probability of the event not occurring</p> <p><b>33.4</b> Calculate the probability of simple combined events, using Venn diagrams.</p> <p><b>33.5</b> Understand relative frequency as an estimate of probability. Expected frequency of occurrences.</p> <p><b>Topic 8 - Ch 34: Further Probability</b>  <b>34.1 – 34.3</b>  Calculate the probability of simple combined events, using possibility diagrams and tree diagrams</p> <p><b>34.4</b> Calculate conditional probability</p> <p>Probability Review</p>		
21 <sup>st</sup>	<b>Mock exams</b>	Summative assessment	25 <sup>th</sup> National Holiday
28 <sup>th</sup>	<b>Mock Exams</b>	Summative assessment	
<b>February</b>			
4 <sup>th</sup>	<p><b>Topic 9: Statistics (Ch 35 – 37)</b></p> <p><b>Ch 35: Mean, median, mode and range</b>  <b>35.1 – 35.3</b>  Calculate the mean, median, mode and range for individual and discrete data and distinguish between the purposes for which they are used.</p> <p>Calculate an estimate of the mean for grouped and continuous data. Identify the modal class from a grouped frequency distribution.</p> <p><b>Ch 36: Collecting, displaying and interpreting data</b>  <b>36.1 – 36.3</b> Construct and interpret bar charts, pie charts, pictograms, stem-and-leaf diagrams, simple frequency distributions, histograms with equal and unequal intervals and scatter diagrams.</p> <p><b>36.4 – 36.6</b></p> <ul style="list-style-type: none"> <li>Understand what is meant by positive, negative and zero correlation with reference to a scatter diagram.</li> <li>Draw, interpret and use lines of best fit by eye.</li> </ul>	<p>Formative assessment (quiz, starter, ongoing assessments)</p> <p>Peer Discussion</p>	

	<b>Ch 35 &amp; 36</b> review and homework correction		
11 <sup>th</sup>	<b>Ch37: Cumulative frequency and box-and-whisker plots</b>  <b>37.1 – 37.2</b> Construct and use cumulative frequency diagrams. Estimate and interpret the median, percentiles, quartiles and interquartile range. Construct and interpret box-and-whisker plots.  <b>Ch 37</b> review and homework correction  <b>End of unit 35, 36 and 37 test</b>	Formative assessment (quiz, starter, ongoing assessments)  Peer Discussion  Whole class questioning  Summative assessment (End of unit test)	
18 <sup>th</sup>	Curriculum Review	Formative assessment (quiz, starter, ongoing assessments) Peer Discussion Summative assessment (Exam style questions)	21-22 <sup>nd</sup> Half Term
25 <sup>th</sup>	Curriculum Review	Formative assessment (quiz, starter, ongoing assessments) Peer Discussion Summative assessment (Exam style questions)	
<b>March (10<sup>th</sup> Ramadan Starts)</b>			
3 <sup>rd</sup>	Curriculum Review Exam Preparation Solving Exam style Questions	On going formative assessments Peer Discussion Summative assessment (Exam style questions)	
10 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions)	
17 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions)	
24 <sup>th</sup>	Exam Preparation  Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	
<b>April</b>			



31 <sup>st</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	
7 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	10-11 <sup>th</sup> Eid Holiday
14 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	
21 <sup>st</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	25 <sup>th</sup> Spring Break
28 <sup>th</sup>	Spring Break		
May			
5 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	7 <sup>th</sup> Start of Term 2
12 <sup>th</sup>	Exam Preparation Solving Exam style Questions	On going formative assessments Summative assessment (Exam style questions) Students' Reflection	
19 <sup>th</sup>			
26 <sup>th</sup>			
June			
2 <sup>nd</sup>			6 <sup>th</sup> End of year assembly
9 <sup>th</sup>			12 <sup>th</sup> Last day for Students 13 <sup>th</sup> Last day for Teachers
End of Year			

**Additional Notes:**

Chapter 17 will be in the 3<sup>rd</sup> week of September after chapters 18 and 19.

Chapter 14 will be included in the same week with chapter 17

Chapter 25, 27, 29 & 32: There's a slight change for the order of the objectives/topics but still can be covered during the cycle (within the same week or the 10 days cycle).

For January weeks beginning of 21<sup>st</sup> and 28<sup>th</sup> they are left blank for mock exams (until the dates of the mocks are decided)