# Maths Long Term Plan Year 11 Higher

## Temperance Term

| W/C | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
|---|---|---|---|---|---|---|---|---|
| Area of Study | Ratio and Proportion | | | Algebra 3 | | | | **HALF TERM** |
| Core learning | **Ratio** To use ratio notation to write ratios for diagrams and word statements and to simplify ratios. To divide a quantity into two or more parts given a specified ratio and to write the division of quantities into parts as a ratio. To use a unitary method to solve ratio and proportion problems and relate ratios to fractions and linear functions in order to solve problems. | **Proportion** To use direct proportion to solve problems. To use the unitary method to solve proportion problems. To solve direct proportion questions graphically. To solve direct proportion questions using algebraic manipulation. To solve direct proportion problems involving the square or square root of a variable. To solve inverse proportion questions, based on y = 1/x. | **Growth and decay** To calculate with simple growth, such as simple interest rates. To calculate with compound growth, such as compound interest rates. To solve word problems using compound interest. To use the formula for compound growth. To calculate with simple and compound decay, such as depreciation. To solve word problems using compound decay. To use the formula for compound decay. | **Graphs of linear functions** To use a table of values to plot graphs of linear functions. To identify the main features of straight-line graphs and use them to sketch graphs. To sketch graphs from linear equations in the form of y=mx + c. To find the equation of a straight-line using gradient and points on the line. To find the equation of a tangent hat touches a circle centred on the origin. To solve problems involving straight-line graphs. | | **Interpreting graphs** To construct and interpret graphs in real-world contexts. To interpret the gradient of a straight-line graph as a rate of change. | **Graphs of other functions/equations** To work fluently with equations of straight-line graphs. To identify and plot graphs of quadratic functions. To find roots of quadratic equations from the x-intercept of the parabola. To know the features of graphs of quadratic equations. To sketch parabolas. To work fluently with cubic polynomials and their graphs. To sketch cubic graphs. To work fluently to calculate reciprocals of numbers and plot functions involving reciprocals. To identify hyperbolas and match them to their equations. To plot and sketch graphs from given functions. | |
| | Opportunities for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | | |
| Assessment | | | Progress Check | | | Progress Check | | |

| W/C | 8 | 9 | 10 | 11 | 12 | 13 | |
|---|---|---|---|---|---|---|---|
| Area of study | Algebra 3 | | Circles | | Mocks | | |
| Core learning | **Transformations of curves** To know the features of a quadratic function: axis of symmetry, roots and vertex, and identify these features from the sketch of a quadratic. To sketch vertical and/or horizontal translations of quadratic functions. To know the effect of translations on the axis of symmetry and vertex of a quadratic. To use graph sketching to identify the effect of multiplying f(x) by -1. To use algebraic manipulation skills to identify the features above and sketch any quadratic. To identify reflections and translations in the graphical representations of trigonometric functions. To sketch a transformed trigonometric curve for a given domain. To sketch translations and reflections of cubic, reciprocal, and exponential functions. To apply transformations learnt in order to solve problems. | | **Circles** To review the names of parts of a circle. To label angles correctly and refer to angles in a diagram involving a circle. To use and prove the following circle theorems: Angles subtended at the centre and at the circumference Angles in a semicircle Angles in the same segment Angle between a radius and a chord Angle between a radius and a tangent Two tangent theorem Alternate segment theorem Angles in a cyclic quadrilateral | | **Revision** | | **CHRISTMAS** |
| | Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | |
| Assessment | | | Progress Check | | | Formal, summative | |

# Maths Long Term Plan Year 11 Higher

**Justice Term**

| W/C | 14 | 15 | 16 | 17 | 18 | 19 | |
|---|---|---|---|---|---|---|---|
| Area of study | | | | | | | HALF TERM |
| Core learning | | | | | | | |
| | Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | |
| Assessment | | | | | | | |

| W/C | 21 | 22 | 23 | 24 | 25 | 26 | |
|---|---|---|---|---|---|---|---|
| Area of study | | | | | | | EASTER |
| Core learning | | | | | | | |
| | Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | |
| Assessment | | | | | | | |

# Maths Long Term Plan Year 11 Higher

## Courage Term

| W/C | 27 | 28 | 29 | 30 | 31 | 31 | |
|---|---|---|---|---|---|---|---|
| Area of study | | | | | | | HALF TERM |
| Core learning | | | | | | | |
| | Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | |
| Assessment | | | | | | | |
| W/C | 32 | 33 | 34 | 35 | 36 | 37 | |
| Area of study | | | | | | | SUMMER |
| Core learning | | | | | | | |
| | Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic. | | | | | | |
| Assessment | | | | | | | |