

## Mathematics Syllabus 2010

### **Calculations.**

Writing normal numbers in Standard Form  
Writing numbers in Standard Form as normal numbers.  
Solving problems using a scientific calculator and the relative functions.  
Powers, roots and exponential function.  
Conversion of money and Imperial to Metric units.

### **Further calculations.**

Using a scientific calculator.  
Long multiplication.  
Estimation.  
Multiplying by powers of 10.  
Prime Factors, Highest Common Factor and Lowest Common Multiple.  
Fractions.  
Percentages. Including Compound, Simple, Percentage Increase and Decrease.

### **Angles.**

Angles in a Triangle, Straight Line, Parallel Lines and Regular Shapes.

### **Areas and Volumes.**

Areas of regular shapes including Triangles, Rectangles Trapeziums and Circles.  
Volumes of Cuboids, Cylinders and Prisms.

### **Ratios.**

Ratios in the form of 3:7.  
Ratios of similar shapes.  
Ratios of ingredients when cooking.

### **Pythagoras and Trigonometry.**

Find the length of a side of a triangle using Pythagoras.  
Calculate the length of a side of a triangle or an unknown angle using one of the three Trigonometry ratios. Sine, Cosine or Tangent.

### **Algebra.**

Factorising equations. Expanding and simplifying equations.  
Solving equations.  
Writing algebraic expressions.  
Solving Simultaneous Equations by the elimination method.  
Find solutions to quadratic equations by factors.

### **Number Patterns.**

Complete the number pattern.  
Explain in words how to complete the pattern.  
Write the expression for the “nth” term for a given pattern.

**Graphs.**

Complete Scatter Graphs and draw a line of best fit.  
Take data from Scatter Graphs, including the Correlation.  
Complete Speed, Distance Time graphs and take data from these graphs.  
Complete the table of results for Straight Line Graphs.  
Draw Straight Line Graphs and use the graph to give values of X and Y.  
Complete the table of results for Quadratic Graphs.  
Draw Quadratic Graphs and find the solutions from the graph.

**Statistics.**

Calculate the Mean, Mode and Median.  
Complete Tally, Frequency and Cumulative Frequency tables.  
Draw Cumulative Frequency Graphs.  
From the graphs clearly identify the Median, Upper, Lower and Inter Quartile values.

**Probability.**

Writing probabilities from given information.  
This will be either as a fraction or decimal.  
Writing down all possible outcomes of events.  
Work out the probability of an event happening.  
Work out the probability of combined events.  
Complete Tree Diagrams.

**Miscellaneous.**

Stem and Leaf Diagrams.  
Moving Averages.  
2 Way Tables.  
Identify Lines, Areas and Volumes from given formula.

**Recommended Reading and Equipment.**

GCSE Mathematics. Edexcel Linear Revision Guide  
Coordination Group Publications Higher Level  
Any other text book which covers the above topics at higher level.  
Casio *fx-83ES* Scientific Calculator (or similar)  
30cm Ruler  
Coloured pens or pencils.