



Mathematics Department – Fifth Form Scheme of Work 2016/17

## **Textbook**

**Edexcel Higher Linear Book**

**WKS = Worksheet**

## **Unit 1: Statistics**

3C Recap of mean, mode, median and range (Leave out Q3 and Q6)

3D Mean, mode, median and range from a frequency table

3E Mean, mode, median and range from a grouped frequency table

18B Frequency Polygons

18E Histograms including calculating mean and median

18A Data Collection, Sample size, bias, random and stratified sampling

Define terms quantitative, qualitative, continuous and random

**WKS** Frequency Trees

## **REVIEW OF THIRD FORM COURSE**

## **Unit 2: Lengths, Surface Areas and Volumes**

9D Arc Length and Sector Area

9G Volume of a Pyramid and Frustum

9H Volume and Surface Area of a Cone

9I Volume and Surface Area of a Sphere

## **Unit 3: Solving Quadratic Equations**

Recap of factorising quadratics

17B, 17C Solving Quadratic Equations by Factorisation

17D Solving Quadratic Equations by using the Formula

(Formula needs to be learnt)

17E Discriminant

17F Solving Quadratic Equations by completing the square

17H Finding min/max point of a quadratic by completing the square

**Test I on units 1- 3**

## **Unit 4: Graphs**

10F Real-life uses of graphs

10G Solving Simultaneous Equations Graphically

10H Parallel and Perpendicular lines

23H Reciprocal, Cubic, Exponential and Other Graphs

23G Equation of a circle  $x^2 + y^2 = r^2$  and finding the equation of a tangent to a circle

17I Solving simultaneous equations graphically with one linear and one non-linear equation

17J Solving equations by the method of Intersection (link back to solving quadratics where solution of quadratic is where it crosses x axis)

## **REVIEW OF FOURTH FORM COURSE**

### **Unit 5: Transformation of Curves and Quadratic Sequences**

23I, 23J Transforming Curves

23K Transforming Curves involving completing the square

4F, 4G Quadratic Sequences

### **Unit 6: Decimals and Surds**

16A Converting Fractions to recurring decimals Q1-6

16A Reciprocal Q 7-13

16A Recurring decimals to fractions Q14&15

16F Simplifying Surds

16G Calculations with Surds and rationalising the denominator

### **Test J on units 4-6**

### **Unit 7: Revision and Past Paper Practice**

### **Mock Examinations**

### **Unit 8: Statistics**

3B Line Graphs

3C Q6&12 Stem and Leaf Diagrams include finding mode and median

18C Cumulative Frequency, Median, Quartiles, IQR

18D Boxplots extend to IQR from stem and leaf

**WKS** Time Series and moving averages

### **Unit 9: Simultaneous Equations and Algebraic fractions**

- 15E Solving simultaneous equations by substitution with both linear
- 17K Solving simultaneous equations by substitution including one linear and one quadratic
- 24A Simplifying and solving equations with Algebraic Fractions
- 24B Change of subject with variable on both sides
- 8I Expanding 3 brackets

### **Unit 10: Trigonometry**

- 22A 2D Problems
- 22B 3D Problems
- 22C-22H Trigonometric Graphs and use of these to find both solutions between 0 and 360.
- 22I The Sine Rule including the Ambiguous Case
- 22J The Cosine Rule
  - Rules need to be learnt
- 22K Mixed Questions
- 11K Trig Ratios in Surd Form – Table in Q5 only
- 22L Area of a Triangle using Trig

### **Unit 11: Variation**

- 21A Direct Proportion
- 21B More difficult direct proportion
- 21C Inverse Proportion

### **Unit 12: Vectors and Proof**

- 25A Vectors
- 25B Vector Geometry

### **Unit 13: Limits of Accuracy**

- 16H Limits of Accuracy(Upper and Lower Bounds) Use inequality notation to specify simple error intervals due to truncation or rounding
- 16I Problem Solving with Limits of Accuracy

### **Unit 14: Permutations and Combinations**

- 16J Permutations, combinations, factorials and  ${}^n C_r$  notation

### **Full Mock Examination**