

## Year 8 Mathematics - FINAL EXAM – ACADEMIC YEAR 2016-17

### Learning objectives and the topics covered:

#### 1. Number and Calculation

- calculations with decimals, prime number, integers, square, cubes and roots
- calculations with fractions and decimals using laws of arithmetic
- calculations with converting fractions to percentages to decimals and finding percentage increase and decrease
- Dividing quantities in a given ratio and solving simple worded problems involving direct proportion will be covered in ratio and proportion

#### Topics covered

1. Chapter 1- Number and calculation 1
2. Chapter 5 – Number and calculation 2
3. Chapter 7 – Fractions
4. Chapter 10 – Fractions and decimals
5. Chapter 13 – Fractions, decimals and percentages
6. Chapter 16 – Ratio and proportion

#### 7. Algebra and Geometry

- constructing, simplifying and expanding expressions and functions
- solving linear equations, substitution and derive and use simple formulae
- using linear expression to describe the nth term of simple arithmetic sequence
- express simple functions algebraically and drawing straight line graphs
- construction, congruency, symmetry and drawing nets
- angles on parallel lines, angles in common shapes, solving problems using angle properties and finding midpoint of a line segment in shapes
- transformation and making simple scale drawing

#### Topics covered

1. Chapter 2- Expressions and functions
2. Chapter 3 – Shapes and mathematical drawings
3. Chapter 8 – Expressions, equations and formulae
4. Chapter 9 – Geometry
5. Chapter 11 – Time and rates of change
6. Chapter 14 – Sequences, functions and graphs
7. Chapter 15 - Transformations

#### 8. Handling data and Measures

- units of length, mass and capacity, area, volume and capacity, estimation and metric and imperial units.
- finding areas and working out surface areas using nets of 3D shapes

- by understanding discrete and continuous data and finding averages and ranges of the collected data
- to draw and interpret pie charts, frequency diagrams, line graphs and compare two distributions using averages and range
- learn about listing outcomes and finding probabilities based on equally likely outcomes in practical contexts

#### Topics covered

1. Chapter 4- Length, mass and capacity
2. Chapter 6 – Planning, collecting and processing data
3. Chapter 12 – Presenting data and interpreting results
4. Chapter 17 – Area, perimeter and volume
5. Chapter 18 – Probability

#### **Resources**

- Text, Complete Mathematics for Cambridge Secondary 2
- Myimaths which is an online interactive teaching tool
- Further resources and links will be posted on edmodo.

#### **Final Exam**

##### Paper Structure

The assessment materials are balanced between all the content areas in the Cambridge curriculum framework: number, algebra, geometry, measure, handling data and problem solving. The first five are underpinned by problem solving, providing a structure for the application of mathematical skills. Mental strategies are tested throughout the assessments as many assessments are non-calculator.

Paper 1- (55 minutes) – calculator is not allowed

Paper 2- (55 minutes)

#### **Final Report**

- Term 1 & 2 (60%)
- Final Exam (40%)

## Year 9 Mathematics - FINAL EXAM – ACADEMIC YEAR 2016-17

### Learning objectives and the topics covered:

#### **1. Number and Calculation**

- calculating with fractions and decimals and using index laws
- calculations with natural numbers, integers, whole numbers,
- simplifying and comparing ratio and solving ratio problems and solving problems involving proportionality
- solving problems involving percentage change household finance e.g. sales, taxes etc.

#### Topics covered

- Chapter 1- Fractions and indices
- Chapter 4 – Numbers
- Chapter 7 – Rounding, multiplying and dividing
- Chapter 10 – Mental strategies
- Chapter 13 – Ratio and proportion
- Chapter 16 – Fractions, decimals and percentages

#### **2. Algebra and Geometry**

- constructing, simplifying, factorizing and expanding expressions
- solving linear and quadratic equations, simultaneous equations and inequalities, substitution and derive and use formulae
- understand and use linear functions and solving simultaneous equations graphically
- finding inverse of a function and understand real life graphs
- transformation and combination of transformations

#### Topics covered

- Chapter 2 – Expressions and formulae
- Chapter 3 – Shapes and mathematical drawings
- Chapter 8 – Equations and inequalities
- Chapter 9 – Geometry
- Chapter 14 – Sequences, functions and graphs
- Chapter 15 – Transformations
- Chapter 19 - Quadratics

#### **3. Handling data and Measures**

- calculating volumes and surface area of prisms and cylinders
- finding areas and volumes and working out surface areas using nets of 3D shapes
- planning and organizing data
- calculating statistics and to draw and interpret line graphs, pie charts, frequency diagrams, stem and leaf diagrams, scatter graphs, histograms
- learn about mutually exclusive outcomes and finding probabilities based on equally likely outcomes in practical contexts
- understand and use relative frequency

### Topics covered

- Chapter 5 – Measures
- Chapter 6 – Planning, collecting and processing data
- Chapter 11 – compound measures
- Chapter 12 – Presenting data and interpreting data
- Chapter 14 – Sequences, functions and graphs
- Chapter 15 – Transformations
- Chapter 17 – Area, perimeter and volume
- Chapter 18 – Probability

### **Resources**

- Text, Complete Mathematics for Cambridge Secondary 3
- Myimaths which is an online interactive teaching tool
- Further resources and links will be posted on edmodo.

### **Final Exam**

#### Paper Structure

The assessment materials are balanced between all the content areas in the Cambridge curriculum framework: number, algebra, geometry, measure, handling data and problem solving. The first five are underpinned by problem solving, providing a structure for the application of mathematical skills. Mental strategies are tested throughout the assessments as many assessments are non-calculator.

Paper 1- (55 minutes) – calculator is not allowed

Paper 2- (55 minutes)

### **Final Report**

- Term 1 & 2 (60%)
- Final Exam (40%)

## Year 10 Mathematics - FINAL EXAM – ACADEMIC YEAR 2016-17

### Learning objectives and the topics covered:

1. Chapter 1 - Number
  - calculations with real numbers, using standard form, appropriate bounds, ratios and proportion, percentages and simple and compound interest
2. Chapter 2 – Algebra 1
  - constructing and transforming formulae and equations, solving linear equations, simultaneous equations
  - solving quadratic equations by factorizing, completing the square or using the formula
3. Chapter 3 – Mensuration
  - calculations involving the perimeter and area of quadrilaterals and triangles, circles and volume and surface area of cuboid, prism and cylinder
4. Chapter 4 - Geometry
  - using and interpreting similarity and congruence, construction and loci, symmetry, Pythagoras's theorem and circle theorems
5. Chapter 5 – Algebra 2
  - changing subjects of formulae, use and interpret indices including fractions indices, variation, inequalities and linear programming
6. Chapter 6 –Trigonometry
  - Interpret and use three-figure bearings, apply the sine, cosine and tangent ratios, solve trigonometrical problems in two and three dimensions
7. Chapter 7 – Graphs
  - calculating gradients of the linear graphs, plotting curves, finding graphical solution of equations
  - drawing and interpreting real life graphs such as distance time graphs, speed time graphs
8. Chapter 8- Sets
  - Use language, notation and Venn diagrams to describe sets and represent relationships between sets.

### **Resources**

- Text, Complete Mathematics for Cambridge Secondary 3
- Myimaths which is an online interactive teaching tool
- Further resources and links will be posted on edmodo.

### **Final Exam**

#### Paper Structure

The two assessment objectives in Cambridge IGCSE Mathematics are:

1. Mathematical techniques
2. Applying mathematical techniques to solve problems

The assessment materials are balanced between all the content areas covered so far: number, algebra, shape and space.

Paper 1- Short-answer questions based on the Extended curriculum.

Paper 2- Structured questions based on the Extended curriculum

### **Final Report**

- Term 1 & 2 (60%)
- Final Exam (40%)