THE G C SCHOOL OF CAREERS

SCHOOL YEAR 2022-2023

FORM 3 to 4

➢ **BOOK:** *Edexcel International GCSC (9-1), Mathematics A*
        Student Book 1
        David Turner, Ian Potts

➢ **BOOK:** *Edexcel International GCSC (9-1), Mathematics A*
        Student Book 2
        David Turner, Ian Potts

MATERIAL TO BE COVERED

1. UNIT 5: NUMBERS 5 (BOOK 1)

- Estimating
- Estimating using standard form
- Rounding
- Upper – Lower bounds

2. UNIT 5: ALGEBRA 5 (BOOK 1)

- Multiplying brackets (FOIL)
- Factorising quadratic expressions with two terms
- Factorising quadratic expressions with three terms
- Solving quadratic equations by factorization
- Problems leading to quadratic equations

3. UNIT 1: SETS 1 (BOOK 1)

- Set Notation
- Venn Diagrams (Intersection of sets, Union of sets etc)

4. UNIT 6: SETS 2 (BOOK 2)

- Three set problems – practical problems
- Identifying sets by shading
- Set-builder notation

5. UNIT 5: SHAPE AND SPACE 5 (BOOK 1)

- Basic transformations: Translation, Reflection, Rotation, Enlargements
- Combining transformations

6. UNIT 4: GRAPHS 4 (BOOK 1)

- Drawing Quadratic graphs, $y = ax^2 + bx + c$
- Line of symmetry
- Solving $ax^2 + bx + c = 0$ using graphs
- Given a curve, find its equation

7. UNIT 7:GRAPHS 6 (BOOK 2)

- Draw cubic graphs of the form $y = ax^3 + bx^2 + cx + d$
- Draw reciprocal graphs of the form $y = \dfrac{a}{x}$

8. UNIT 8: GRAPHS 7 (BOOK 2)

- Using graphs to solve quadratic equations
- Using graphs to solve other equations
- Using graphs to solve cubic and other equations
- Solving equations by drawing two graphs (eg. A quadratic and a reciprocal)

9. UNIT 7: ALGEBRA 7 (BOOK 2)

- Solving quadratic equations by factorizing and by using the quadratic formula
- Solving quadratic inequalities
- Problems leading to quadratic equations and inequalities

10. UNIT 9: ALGEBRA 9 (BOOK2)
- Solving simultaneous equations (one linear and one non linear)

11. UNIT 6: NUMBER 6 (BOOK 2)

- Negative and fractional indices
- Combined negative and fractional indices including zero

12. UNIT 2: SHAPE AND SPACE 2 (BOOK 1)

- Circle theorems
- Angles in a semicircle and tangents
- Angle at the centre is twice the angle at the circumference

13. UNIT 6: SHAPE AND SPACE 6 (BOOK 2)

- Circle theorems
- Opposite angles of a cyclic quadrilateral add up to $180°$
- Alternate segment theorem
- Intersecting chord theorems and tangents

14. UNIT 5: HANDLING DATA 4 (BOOK 1)

- Probability-Experimental Probability
- Relative frequency
- Theoretical Probability

15. UNIT 7: SETS 3 (BOOK 2)

- Probability
- Venn diagrams
- Conditional probability

16. UNIT 8: HANDLING DATA 5 (BOOK 2)

- Laws of probability
- Combined events
- Independent events and tree diagrams
- Conditional probability

17. UNIT 10: HANDLING DATA 7 (BOOK 2)

- More compound probability
- More tree diagrams
- More conditional probability

18. UNIT 10: NUMBER 10 (BOOK 2)

- Surds
- Expand, simplify, evaluate, rationalise the denominator

19. UNIT 9: HANDING DATA 6 (BOOK 2)

- Histograms
- Interpreting Histograms

20. UNIT 3: GRAPHS 3 (BOOK 1)
- Distance – Time graph
- Speed – Time graph

21. UNIT 1: SHAPE AND SPACE 1 (BOOK 1) and
UNIT 7: SHAPE AND SPACE 7 (BOOK 2)
- Similar triangles
- Similar Shapes

REVISION: <u>FORMS 1 and 2</u>

- Integers, Decimals, Fractions
- Prime factors (LCM, HCF)
- Directed numbers
- Simplify and expand expressions and fractions
- Solve linear equations (verbal problems)
- Angles and Triangles
- The Pythagoras' theorem
- Area and Volume
- Trigonometry (understand and use sine, cosine and tangent of acute angles to determine lengths and angles of right-angled triangle, solve problems including bearings, use angles of elevation and depression)
- Percentages and Ratios
- Inequalities (solve simple linear inequalities and represent the solution set on a number line)
- Inequalities and regions
- Changing the subject
- Standard form
- Indices and Powers (laws of indices)
- Straight lines (gradient, y-intercept, parallel lines)
- Simultaneous equations (two linear equations)
- Symmetry

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