# STAGE TWO PRIOR LEARNING INFORMS

# WHSB MATHEMATICS LOWER SCHOOL CURRICULUM MAP

1



YEAR

# **CONTENT**

Number Theory Algebraic Expressions and Formulae 2D Shapes and 3D Solids Equations

# **SKILLS**

Calculator and Number Skills Calculating Perimeter, Area and Volume **Drawing to Scale Solving Equations** Writing Equations and Formulae **Problem Solving** 

CONTENT

Sequences and Graphs

**Fractions** 

**Angles and Shapes** 

Baseline test in 1st half term 4 Directed Revision Questions 4 Unit Tests 2 Mental Maths Tests

# Revision Questions

3 Directed Revision Qua 3 Unit Tests 2 Mental Maths Tests

**Directed Revision Questions** 3 Unit tests End of Year Examination (all skills tested)

**SKILLS Identifying Patterns** Plotting and Interpreting Graphs Converting between Fractions, Decimals and **Percentages** 

**Accurate Drawing and Measuring Problem solving** Revision of all skills

# **CONTENT**

**Unit Conversions Ratio and Proportion Decimals Data Analysis and Representation** 

# **SKILLS**

**Multiplicative Reasoning** Number Skills Analysing and Displaying Data **Problem solving** 

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**Transformations and Scale Factors Decimals and Percentages** Loci and Constructions

3

# **SKILLS**

CONTENT

**CONTENT** 

**Factors and Powers** 

**Rounding and Estimation** 

**Working with Powers** 

2D Shapes & 3D Solids

Linear Graphs

SKILLS

Developing fluency with algebra

Solving equations from context

Accuracy in calculations

Plotting and Interpreting graphs

Problem solving

Manipulation of 2D shapes Working with percentages, percentage changes and multipliers Accuracy in geometric constructions **Problem solving** 

# **CONTENT**

Probability Scale Drawing and Measures Real Life Graphs

# **SKILLS**

**Probabilistic Reasoning** Accurate drawing and measuring Plotting and interpreting graphs Critical analysis of real-life data **Problem solving** 

3 Directed Revision Questions 3 Unit Tests 2 Mental Maths Tests

4 Directed Revision Questions 4 Unit Tests 2 Mental Maths Tests

3 Directed Revision Questions 3 Unit tests End of Year Examination (all skills tested)

# CONTENT

**Powers and Roots** Quadratics Inequalities, Equations and Formulae Collecting and Analysing data

Index and surd laws Linear and quadratic sequences Expanding and factorising double brackets Solving linear/quadratic equations and linear inequalities

Algebraic manipulation

Non-Linear Graphs **Accuracy and Measures Graphical Solutions** 

Identify and plotting non-linear graphs Compound measures and unit conversions Interpreting distance-time graphs **Error interval calculations** Estimating solutions using graphical methods Solving linear simultaneous equations

# CONTENT

Trigonometry Multiplicative reasoning Mathematical reasoning

## SKILLS

Using trigonometric ratios to solve problems Applying properties of trigonometric graphs Direct and inverse proportion Algebraic proof through mathematical reasoning

## SKILLS

Calculating measures of location and spread

# CONTENT

## SKILLS



3 Directed Revision Questions 3 Unit Tests 2 Mental Maths Tests

3 Directed Revision Questions 3 Unit Tests 2 Mental Maths Tests

4 Directed Revision Questions 4 Unit tests End of Year Examination (all KS3 skills tested)

# **-OWER SCHOOL PRIOR LEARNING INFORMS**

# WHSB MATHEMATICS MIDDLE SCHOOL CURRICULUM MAP





**Problem Solving** 

Applications of Trigonometry **Accuracy in Calculations** Finding Error Intervals in Calculations

# CONTENT

Catch up review of Year 10 (Covid) Rational and Irrational Numbers Surd Manipulation Tangents to Graphs Area Under a Graph Sequences and Proportion

# **SKILLS**

Equation manipulation Algebraic Substitution **Efficient Calculator Use Problem Solving** 

# CONTENT

**Quadratic Simultaneous Equations** Tangents to Circles Iteration **Quadratic Inequalities** Ratio Problems **Function Notation Graph Transformations** 

# **SKILLS**

**Graph Sketching Problem Solving** Algebraic Manipulation

# CONTENT

Catchup and Revision

# **SKILLS**

**Developing Exam Technique** 

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3 Assessed Homeworks 3 Unit Tests 1 Summative Assessment Trial Examinations

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Assessed Homeworks Unit Tests

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Public Examinations

# **GCSE EXAMINATION BOARD: EDEXCEL**

# **LINKS TO A-LEVEL STUDY:**

There are several topics studied at GCSE that form the basis of topics studied at A-Level. For example, expanding brackets leads to binomial expansions, solving quadratic equations leads to the factor theorem and finding the tangent to a curve leads to differentiation and speed/distance/time calculations leads to constant acceleration formulae

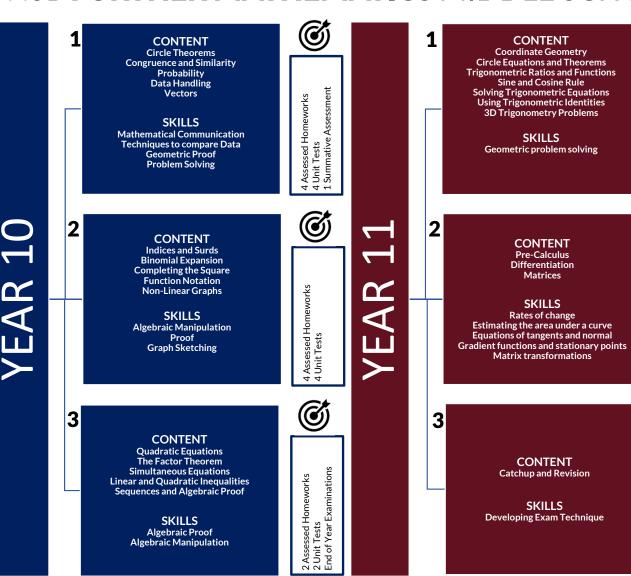
# **ENRICHMENT OPPORTUNITIES:**

Intermediate Maths Challenge **Maths Society** Maths Feast

# **-OWER SCHOOL PRIOR LEARNING INFORMS**

# WHSB FURTHER MATHEMATICS MIDDLE SCHOOL CURRICULUM MAP Westelliff High School







3 Assessed Homeworks 3 Unit Tests 1 Summative Assessment Trial Examinations

3 Assessed Homeworks 3 Unit Tests

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Public Examinations

# **GCSE EXAMINATION BOARD: AQA**

# **LINKS TO A-LEVEL STUDY:**

There is considerable overlap with the study of Further Mathematics in the Middle School and Mathematics in the Sixth Form. For example, the factor theorem, binomial expansions, coordinate geometry and differentiation are all revisited at A-Level and studied in more depth

# **ENRICHMENT OPPORTUNITIES:**

Intermediate Maths Challenge **Maths Society** Maths Feast

# SCHOOL PRIOR LEARNING INFORMS SIXTH LOWER MIDDLE

# WHSB MATHEMATICS SIXTH FORM CURRICULUM MAP

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Baseline Test 3 Assessed Homeworks 3 Unit Tests Formative Assessment

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Assessed Homeworks 4 Unit Tests



# CONTENT Algebra Vectors in 2D and 3D Coordinate Geometry Proof and the Binomial Theorem Kinematics in 1D Data Handling and Representation Forces and Connected Particles SKILLS Algebraic manipulation Modelling using vectors Equations of lines and circles Developing problem solving skills Critical analysis of data

Applications of Newton's Laws of Motion

CONTENT

**Trigonometry and Radians** 

**Differentiation and Integration** 

**Forces and Friction** 

**Probability** 

SKILLS
Fluency using and developing understanding of

trigonometric functions

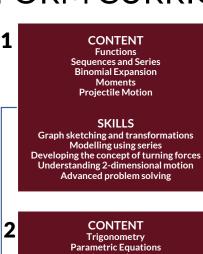
Gradients, tangents and normals

Working out area under a curve

Further use of Newton's Laws of Motion

Probabilistic analysis

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# CONTENT Trigonometry Parametric Equations Integration Numerical Methods The Normal Distribution Static Rigid Bodies Further Kinematics SKILLS pplications of trigonometry



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3 Assessed Homeworks

4 Assessed Homeworks 4 Unit Tests Formative Assessment

3

Trial Examinations 3 Assessed Homeworks 3 Unit Tests

# A LEVEL EXAMINATION BOARD: **EDEXCEL**

# PREPARATION FOR UNIVERSITY AND DESTINATIONS:

KS5 Help Club

# CONTENT

Exponentials and Logarithms Further Algebra Differentiation Variable Acceleration Distributions and Hypothesis Testing

# **SKILLS**

Sketching graphs
Solving logarithmic equations
Partial fractions/polynomial division
Applications of calculus
Probability distribution and statistical analysis
Advanced problem solving skills

Assessed Homeworks 4 Unit Tests Formative Assessment 3 EoY Exams

3

CONTENT Revision

SKILLS Past Paper Revision

# **ENRICHMENT OPPORTUNITIES:**

Senior Maths Challenge Maths Prefects Maths Mentor

# SCHOOL PRIOR LEARNING INFORMS SIXTH ~ LOWE MIDDLE

# WHSB FURTHER MATHEMATICS SIXTH FORM CURRICULUM MAP Westelliff High School



# CONTENT

Further Mechanics-Work, energy and power, strings and springs and Collisions Vectors-cross product

# **SKILLS**

Manipulate algebra, construct and apply knowledge to solve problems in 3 dimensions Working with both the real and imaginary planes and representing diagramatically, Mathematical proof, Vector methods including finding the shortest distance between two points



4 Assessed Homeworks 4 Unit Tests Formative Assessment

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## CONTENT

Hyperbolic functions, methods in calculus, polar coordinates, conic sections, differential equations

## **SKILLS**

Polar and cartesian geometries. Working with exponentials. Solving second order differential equations



# A LEVEL EXAMINATION BOARD: **EDEXCEL**



Formative Assessment 4 Assessed Homeworks 4 Unit Tests

# **PREPARATION FOR UNIVERSITY AND**

KS5 Help Club

**DESTINATIONS:** 

# CONTENT

Further Mechanics- Work, energy and power, strings and springs and Collisions Vectors-cross product

# **SKILLS**

Modelling real life problems and predicting outcomes based on mathematical analysis Using vector skills to approach geometric problems Developing trigonometric skills needed



# CONTENT

t-formula, Taylor series, methods in calculus, numerical methods

# **SKILLS**

Applying & using the t-formula. Deriving & using Taylor series. Applying & using Leibnitz's theorem. L'Hopital's rule. Weierstrauss substitution Applying Euler's method & Simpson's rule



4 Assessed Homeworks 4 Unit Tests

# Assessed Homeworks Unit Tests

# **ENRICHMENT OPPORTUNITIES:**

Senior Maths Challenge Maths Prefect Maths Mentor

# CONTENT

3

De Moivre's theorem and Complex numbers. Volumes of revolution. Inequalities and Series

# **SKILLS**

Calculus skills are developed during this term. Understanding the differences between inequalities and equations



4 Assessed Homeworks 4 Unit Tests

4 Assessed Homeworks 4 Unit Tests EoYExams

# CONTENT Revision

3

**SKILLS** Past paper revision