

6th Applied Maths (H) Course 3

- Integration by Parts & Substitution – Chapter 9.
- Simple Harmonic Motion – Chapter 7.
- Trigonometric Function types in Differential Equations – Chapter 10.
- Inhomogeneous first & second order Difference Equation – Chapter 8.
- Dijkstra Algorithms & Bellman Optimality – Chapter 12.

6th Accounting (H) Course 1

- Revaluation of Fixed Assets (60 Marks).
- Control Accounts (Debtors & Creditors – 60 Marks).
- Club Accounts (60 & 100 Marks).

6th Accounting (H) Course 2

- Incomplete Records (Type B – 100 Marks).
- Ratios (100 Marks).
- Tabular (60 Marks).

6th Accounting (H) Course 3

- Budgets (80 Marks).
 - Cash Production.
 - Flexible.
 - Mixed.
- Accounting Theory Questions/Notes.

6th Ag Science (H) Course 2

- Plant Physiology.
- Grassland.
- Beef.
- Pigs.
- Soil.

6th Biology (H) Course 1

- Digestive System.
- Respirations.
- Enzymes.
- Food.

6th Biology (H) Course 2

- Variation & Evolution.
- Genetic Engineering.
- Genetic Crosses.
- DNA & RNA.

6th Biology (H) Course 3

- Reproductive System.
- Circulatory System.
- Breathing System.
- Nervous System.

6th Biology (H) Course 4

- Defence System.
- Cell Division.
- Bacteria.
- Viruses.
- Fungi.

6th Biology (H) Course 5

- Plant Reproduction.
- Plant Transport.
- Plant Structure.
- Plant Responses.

6th Business (H) Course 1

ABQ Focused:

- Unit 2, 3 & 4.
- How to answer the ABQ & Theory from these Units.

6th Business (H) Course 2

- 4.2 - Tax & Insurance.
- 4.5 – Monitoring a Business.
- 5.2 – Business Start Up.
- 6.2 – Types of Business Organisation.
- 6.3 – Business, The Economy & Government.

6th Chemistry (H) Course 1

- Chemical Equilibrium & Le Chatelier's Principle.
- Rates of Reaction.

6th Chemistry (H) Course 2

- Practical Organic Chemistry Experiments.

6th Chemistry (H) Course 3

- Generic Titration Q1 on Acid – Base Titrations.
- Acid/Bases/pH/Indicators.
- pH Titres.

6th Chemistry (H) Course 4

- Fuels/Octane Numbers – Q6.
- Thermochemistry.
- Radioactivity.

6th Chemistry (H) Course 5

- Redox Titrations in Q1.
- Oxidation & Reduction.
- Water Analysis.

6th Chemistry (H) Course 6

- Organic Chemistry.
- Ionic Addition/Free Radical Substitution Mechanism.
- Reactions of Alkanes/Alkenes/Alkynes/Aldehydes/Ketones/Carboxylic Acids.

6th Computer Science (H) Course 3

- Unit Testing.
- Turing machines & Finite State Machines & Examples such as parity checking.
- Full adders versus half adders.
- Software Development but in dept compared to the Syllabus.
- OS & Internet Protocols.
- Impact of AI.
- Section C new examples in Python.

6th Construction Studies (H) Course 1

- Heating & Hot Water.
- U – Values.
- Sustainable Design.
- Universal Design.

6th Construction Studies (H) Course 2

- Passive Housing.
- Stairs.
- Planning.
- Sectional Drawings.

6th Economics (H) Course 3

- Market Failure.
- Sustainability goals of Government with examples such as HDI & Gini.
- Deep exploration of concepts such as economic rent, supernormal profits, MEC & MRPL, also in context of Market Structures.
- Overview of current state of the Irish economy, key statistics.
- Government intervention.
- Three levels of Price Discrimination & Collusion.
- An overview of contributions to economic thought such as Mercantilism, Marxism & Austrian school of economics.

6th English (H) Course 1

Paper 1:

- Comprehending Question A.
- Writing about Visual Texts.
- Comprehending Question B.
- Composing.
- Unseen Poetry.

Paper 2:

- Unseen Poetry.

6th English (H) Course 2

King Lear:

- Comprehensive Analysis of the Plot.
- Detailed Description of the Main Characters.
- Analysis of Character Relationships.
- Overview of the Main Themes in the Drama.

6th English (H) Course 3

Prescribed Poetry

- Theme, Language, Style of Each Poem & How to Write an Examination Answer.
- **Eavan Boland -**
 - The War Horse.
 - Child of Our Time.
 - The Famine Road.
 - The Black Lace Fan My Mother Gave Me.
 - The Shadow Doll.
 - The Pomegranate.

- **Patrick Kavanagh.**
 - Inniskeen Road.
 - July Evening.
 - Shancoduff.
 - On Ranglan Road.
 - A Christmas Childhood.
 - Advent.
 - Canal Bank Walk.
 - Lines Written on a Seat on the Grand Canal Dublin.

6th English (H) Course 4

Paper 1 – Composition:

- This Question is 25% of your full exam.
- Discussions on Personal Essays, Short Stories & Opinion Pieces.
- Sample Answers & Exam Techniques Discussed.

Paper 2 – Poetry of Sylvia Plath:

- Review of Poems with Notes Concerning Themes, Imagery & Language.
- Sample Responses & Exam Techniques Discussed.

Paper 2 – Poetry of Emily Dickinson:

- Review of Poems with Notes Concerning Themes, Imagery & Language.
- Sample Responses & Exam Techniques Discussed.

6th English (H) Course 5

Paper 1:

- Question B.
- Functional Writing.

Comparative Study

- Overview.

Prescribed Poetry

- Eavan Boland.

6th French (H)

- Layout of Paper.
- Key Grammar Tenses.
- Reading Comprehension Questions.
- Written Question Layouts & Phrases.
- Sample Answers.

6th Geography (H) Course 1

- Plate Tectonics.
 - Boundaries.
 - Volcanoes.
 - Earthquakes.
- Rocks.
- Rivers.
- Isostasy.
- Biomes.

6th Geography (H) Course 2

- Folding & Faulting.
- Weathering.
- Karst Landscapes.
- OS Maps & Aerial Photograph Skills.
- **Geoecology**: Soils

6th German (H)

- Overview of Paper & Timing.
- Key Grammar Topics & Past Paper Exercises.
- *Reading Comprehension, Extension on the Topic & Letter Writing*: Word Order Rules, Key Vocabulary, German Idioms, Opening/Closings, Marking Scheme, Past Paper Examples.
- Exam Strategy.

6th History (H) Course 1

DBQ

- Stalin's Show Trial's.
- The Nuremberg Rallies.
- The Jarrow March.
- Practicing Exam Style Questions & Evaluating Historical Sources.

6th History (H) Course 2

The United States & The World

- The Civil Rights Movement.
- Truman vs Johnson in Domestic & Foreign Policy.
- The Space Race & Technology.

6th Home Ec (H) Course 1

Focus on Long Q1, Q2 & Core Elective.

- Nutrients.
- Food Commodities.
- Processing & Packaging.

6th Home Ec (H) Course 2

Focus on Long Q3, Q4 & Core Elective.

- Microbiology.
- Food Spoilage & Preservation.
- Food Safety & Hygiene.
- Technology in the Home.
- Finance & Housing.

6th Irish (H)

Páipéar 1

- An Aiste: Multiple Sample Essay's Given.

Páipéar 2

- Dánta: The 3 most likely Poems to come up in 2025 will be covered.
- Prós: The 3 most likely Prós to come up in 2025 will be covered.

6th Maths (H) Course 1

Differentiation Calculus

Topics Covered:

- Applying the Rules of Differentiation: This includes using the product, quotient, and chain rule. Applying these rules to differentiate Trigonometric, Exponential, Logarithmic and Inverse Trigonometric Functions.
- Limits, Asymptotes & Continuity of Functions.
- Differentiation using first principles.
- Applications of Differentiation: Turning Points, The Second Derivative Test, Maximum & Minimum Points, Increasing & Decreasing Functions.
- Differentiation Word Problems: Maximum & Minimum Word Problems, Rates of Change & Related Rates of Change.
- Exam Questions from Section A & Section B of the Exam Papers on Differentiation.

6th Maths (H) Course 2

Probability and Statistics

Topics Covered:

- *Statistics*: The Correlation Coefficient & Line of Best Fit. The Normal Distribution, Z Scores & Solving problems using the Normal Distribution Tables.
- *Probability*: The Addition Rule, The Multiplication Rule, Independent Events, Mutually Exclusive Events, Conditional Probability, Expected Value, Bernoulli Trials & The Binomial Distribution, Difficult Word Problems on Probability.
- *Inferential Statistics*: The Central Limit Theorem, Confidence Intervals & Hypothesis Testing using sample means, Proportions & P Values.
- Exam Questions from Section A & Section B of the Exam Papers on Probability & Statistics.

6th Maths (H) Course 3

Co Ordinate Geometry of the Line & Circle

Topics Covered:

- *Co Ordinate Geometry of the Line*: The Area of a Triangle, Internal & External Division of a Line Segment, The Perpendicular Distance Formula, The Angle Between 2 Lines, Finding the Circumcentre, Orthocentre & Centroid of a Triangle using Co Ordinate Geometry.
- *Co Ordinate Geometry of the Circle*: Finding the Centre & Radius of Circles, The Intersection of a Line & Circle, Tangents & Circles, More Difficult Problems in finding the Equation of a Circle when you are given certain restrictions.
- Exam Questions from Section A & Section B of the Exam Papers on Co Ordinate Geometry of the Line & Circle.

6th Maths (H) Course 4

Trigonometry

Topics Covered:

- The Sine Rule, Cosine Rule, Area of a Triangle & 3 Dimensional Problems.
- Solving Trigonometric Equations using CAST.
- The Graphs of Trigonometric Functions.
- Using the Formulae from The Log Tables to prove Trigonometric Identities.
- Exam Questions from Section A & Section B of the Exam Papers on Trigonometry.

6th Maths (H) Course 5

Functions, Indices & Logarithms

Topics Covered:

- Functions: Composite Functions, Completed Square Form, Inverse Functions, Injective Surjective & Bijective Functions.
- Indices: Solving Quadratic Equations Using Indices.
- Logarithms: Solving Log Equations, Writing Expressions a Single Logs.
- Using the Natural Log to get a Power Down, Log Word Problems.
- Exam Questions from Section A & Section B of the Exam Papers on Functions, Indices & Logarithm.

6th Maths (H) Course 6

Financial Maths

Topics Covered:

- Lump Sum & Deprecation Questions.
- Annuity, Savings & Investment Questions.
- Amortisation Schedules & Using the Amortisation Formula.
- The Present Value Series.
- Problems Involving Bonds & Pensions.
- Deriving the Amortisation Formula.
- Exam Questions from Section A & Section B of the Exam Papers on Financial Maths.

6th Maths (H) Course 7

This is a new course in our Mathematics series. It is aimed at tackling the long questions from Section B from Papers 1 & 2. These two sections represent 300 out of the total 600 marks awarded.

Paper 1

- Focus on Long Questions.
 - Algebra.
 - Differentiation.
 - Integration.
 - Sequences & Series.

Paper 2

- Focus on Long Questions.
 - Trigonometry.
 - Geometry.
 - Volumes & Areas.

- Probability.
- Statistics & Hypothesis Testing.

** Techniques from Section A will be reviewed as session progresses.

6th Maths (O) Course 1

Unit 1: Algebra

- Algebraic Operations on Polynomials & Rational Functions.
- Addition, Subtraction, Multiplication & Division & the use of Brackets & Surds.
- Laws of Indices.
- Factorisation of such Polynomials (The Linear & Quadratic Factors having Integer Coefficient).
- Solution of Cubic Equations with at least One Integer Root.
- Quadratic Equations by Factoring or using the -B Formula.
- Form a Quadratic from its Roots.
- Inequalities with X.
- Solving for X as a Power.

Unit 2: Functions with Differential Calculus

- Differentiation by Rule & First Principles.
- Rules of Sums, Products & Quotients.
- First Derivatives of Polynomials, Rational, Power.
- First Derivatives of Products.
- First Derivatives of Quotients.

- Simple Second Derivatives.
- Maxima & Minima.

Unit 3: Complex Numbers

- Real & Imaginary Part to Complex Numbers.
- Adding/Subtracting Complex Numbers.
- Multiplying Complex Numbers.
- The Conjugate.
- Dividing Complex Numbers.
- Plotting Complex Numbers on a Graph (Argand Diagrams).
- The Modules.
- Quadratic Equations with Complex Numbers.
- Transformations with Complex Numbers.

6th Maths (O) Course 2

Unit 1: Co Ordinate Geometry of the Straight Line & Circle

- General Equation of the Line in Form $-ax + by + c = 0$.
- Length of Perpendicular from (x_1, y_1) to $ax + by + c = 0$.
- Angle Between Two Lines with Slopes m_1 & m_2 .
- Equation Circle Centre $(0,0)$ & Radius r ($x^2 + y^2 = r^2$).
- Equation of Tangent at (x_1, y_1) to $x^2 + y^2 = r^2$.
- Intersection of Line & Specific Circle.

Unit 2:

- Probability of an Outcome with one event happening.
- Probability of an Outcome with two events happening.
- Fundamental Principle of Counting.
- Arrangements – Permutations.
- Expected Frequency.
- Or Rule (Add): Mutually Exclusive Events.
- And Rule/The Multiplication Rule – Bernoulli Trial.
- Tree Diagram.
- Expected Values – Law of Large Numbers.

Unit 3: Trigonometry

- Calculate the Area of a Sector of a Circle & the Length of an Arc & Solve Problems Involving these Calculations.
- Pythagoras Theorem.
- Use Trigonometry to Calculate the Area of a Triangle.
- Use the Sine & Cosine Rules to Solve Problems 2D & 3D.
- Define Sine A, Cos A & Tan A for all values of A.

6th Physics (H) Course 1

- **Optics:** Reflection & Mirrors.
- **Optics:** Refraction & Lenses.
- **Current Electricity:** Circuits, Ohm's Law, Resistivity, Resistance, Wheatstone & Metre Bridges.
- **Circuit Problems:** Resistors, Inductance Coils, Diodes with DC & AC Sources.

6th Physics (H) Course 2

- **Sound:** Sound Intensity, Decibel Scale, Velocity of Sound, Doppler Effect.
- **Sound:** Travelling Waves, Standing Waves, Open & Closed Pipes, Sonometer.
- **Electrostatics:** Coulomb Law, Definition of Charge, Electroscope.
- **Capacitance:** Parrell Plate, Van De Graaf Generator, Energy Heat & Temperature, Calibration, Latent & Specific Heat, Heat Exchangers, Heat Engines, Heat Pumps, Refrigerators.

6th Physics (H) Course 3

- **Atomic Theory:** Rutherford, Millikan, Planck, Bohr, Electromagnetic Radiation & Spectrum, Electron, Photon, Line & Continuous Spectra.
- **Photoelectric Effect:** Importance & Photocells.

- **X- Rays:** Rontgen, X-Ray Tubes, Applications.
- **Cathode Ray Tubes:** Electric & Magnetic Fields, Faraday, Fluorescence.
- **Semiconductors:** Theory, Diodes.
- **Radioactivity:** Detectors, Nuclear Decay Processes.
- **Fission & Fusion:** Nuclear Processes, Reactors, Link to Heat Exchangers & Power.

6th Physics (H) Course 4

- **Vectors:** Addition, Equilibrium.
- **Newton's Laws:** Force, Momentum, Momentum Conservation, Friction.
- **Kinematics:** Equations & Problem Solving.
- **Work:** Energy & Power, Mechanical Energy.
- **Conservation Centripetal Forces:** Types of Centripetal Forces, Radians, Problem Solving.
- **Gravitation:** Satellites, Weightlessness, Earth Spin, Link to Doppler & Speed of Light.
- **Simple Harmonic Motion:** Pendulums, Spring Constants.
- **Moments:** Equilibrium, Couples.
- **Archimedes:** Flotation, Hot Air Ballons, Density, Boyle's Law.

6th Physics (H) Course 5

- Mechanics.
- Electricity.
- Sound.
- Optics.
- Heat.
- Light.

6th Spanish (H)

Section 1:

- Comprehension Strategies.

Section 2:

- Opinion Piece & Writing Skills.

Section 3:

- Verbs & Tenses Practice.

Section 4:

- Vocabulary Learning & Synonym Skills.

Section 5:

- Aural & Oral Exam Strategies.