



LITE Regal

EDUCATION

School : Lite Regal International School

Subject Advanced Maths 13-15

Course : 2 weeks

Syllabus and Board Ref Syllabus Content Summer 2024/2025

Course Syllabus Ref : MathsLRIS/2354

SYLLABUS MATHS FOR 13-15 YEAR OLDS

Overview

All Students are expected to be taking GCSE / iGCSE (years 10-11) or Equivalent in Maths and be achieving good grades and want to concrete their existing knowledge already learnt at school and see how maths is applied to real world 21st Century Concepts. Students should have a fundamental grasp of core GCSE Subjects that we will then then build upon : The core knowledge that the Maths 13-15 students will cover will include the core maths syllabus which is :

- Statistics
- Algebra
- Geometry
- Measures
- Probability
- Number

Week 1

1. Lecture on the history of algebra, statistics, geometry, and trigonometry.
2. Pre-Algebra: Real numbers, exponents, and scientific notation
3. Pre-Algebra: Introduction of variables, quantitative reasoning in solving algebraic equations, proportional and non-proportional relationships and functions
4. Algebra: Solving equations and systems of equations, algebraic models involving inequalities, algebraic functions, and interpreting equations in graphs
5. Statistics: Forms of data presentation, calculating mean, median, mode, and range.

Week 2

1. Geometry: Translation, reflection, and dilation on coordinates using algebraic representation
2. Geometry: Cartesian plane, types of angles, types of triangles, Pythagorean theorem, calculating the volume and area of spheres, cones, and cylinders
3. Algebra: Linear functions, equations, and inequalities, rational exponents and radicals, polynomials
4. Algebra: Polynomial operations, quadratic functions, quadratic equations and their graphs
5. Statistics: Statistics: Relative error, weighted average, frequency.

Maths Group Trips 2025 and Workshops

Trips planned for 2025 will include :

Lite Regal is keen to get students out of the classroom to show the how the Maths they have learn in the classroom is put into practical use by incorporating trips of Interest to all students within this group.

1/ Mathematics – The Winton Gallery Zara Hadid London - Maths as used in Building and Design and in infamous objects past and present to present the abstract nature in which mathematicians must think.

A visit to the provoking Gallery in London designed by architect Zara Hadid and how the design or her infamous building were determined by maths. An insight into the machines past and present within the gallery exhibition will give our Mathematician students plenty to think about and calculate as they learn to think and speak in Math. Mathematical Concepts and Workshops and calculating will be required in these active outing given real life observations.

2/ London Mathematical Society since 1856 London– visit the infamous society to listen to guest speaker (TBC)

3/ Bletchley Park Milton Keynes – Maths as used in www and Internet Security Protocol as used in the IP layer to encrypt messages

Home to the code Breakers – Learn the maths behind code breaking and the enigma machine and the Maths behind encrypting and decryption messages that is now so relevant in secure message delivery used in every internet transaction.

4/Astronomy and the Multi Universe at the Royal Observatory Greenwich – Maths as used in Astronomy and Space Exploration

Explore and learn how maths and physics are one into calculating the distances to stars and how wide galaxies are and how stars are born and die.

University and College Trips

There will be trips to other major London and Cambridge College Campuses to include Imperial, Kings, UCL and The Cambridge Colleges – Trinity which is famous for maths, Kings College and others