



Subject: Mathematics
Year/Course: Year 7

Knowledge and Understanding

By the end of this course students will have developed the number, shape and statistics work begun in primary school and moved towards a more formal way of solving problems using this. They will have begun using algebra to solve problems and to generalise.

Subject Specific Skills developed

Skills developed include accuracy in calculations (with and without a calculator), algebraic reasoning and generalising, precision work with graphs.

Transdisciplinary and Generic Skills developed

Stress on basic numeracy skills in year 7.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling, using statistics.

Challenge for All

Support for less able students through differentiated tasks, educational assistant and/or sixth form help. Extension work and enrichment tasks as well as international maths contests for the more able.

Subject: Mathematics

Year/Course: Year 8

Knowledge and Understanding

By the end of this course students will have further developed the number, shape, algebra and statistics work begun in year 7 and continued to move towards a more formal way of solving problems using this. They will have more use of algebra to solve problems and to generalise, and begun to study functions and their graphs via straight lines.

Subject Specific Skills developed

Skills developed include accuracy in calculations (with and without a calculator), algebraic reasoning and generalising, precision work with graphs.

Transdisciplinary and Generic Skills developed

Stress on basic numeracy skills in year 7 continues, students also begin to use mathematical software (such as autograph and geogebra) and to word process their coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling, using statistics. These latter are now expected to be word processed.

Challenge for All

Support classes for less able students with differentiated tasks and sometimes educational assistant and/or sixth form help. Extension work and enrichment tasks as well as international maths contests for the more able.

Subject: Mathematics
Year/Course: Year 9

Knowledge and Understanding

By the end of this course students will have further developed the number, shape, algebra and statistics work begun in years 7 and 8 and moved further towards a more formal way of solving problems using this. They will have more use of algebra to solve problems and to generalise, and begun to explore irrational numbers (through circles and Pythagoras) and begun to explore quadratic functions.

Subject Specific Skills developed

Skills developed include accuracy in calculations (with and without a calculator), algebraic reasoning and generalising, precision work with graphs.

Transdisciplinary and Generic Skills developed

Stress on basic numeracy skills and accuracy in reasoning continue. Students continue to use mathematical software (such as autograph and geogebra) and to word process their coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling, using statistics. These latter are expected to be word processed.

Challenge for All

Support classes for less able students with differentiated tasks and sometimes educational assistant and/or sixth form help. Classes are loosely setted by ability, with two accelerated classes taking IGCSE one year early, and two semi-accelerated classes taking IGCSE five months early. Extension work and enrichment tasks as well as international maths contests for the more able.

Subject: Mathematics
Year/Course: Year 10

Knowledge and Understanding

By the end of this course students will have further developed the number, shape, algebra and statistics work begun in the lower years and moved further towards a more formal way of solving problems with a stress on accuracy and logical reasoning. They will have more use of algebra to solve problems and to generalise, and continued to explore increasingly sophisticated algebra and functions such as quadratics, cubics. They will have started work with trigonometry.

Subject Specific Skills developed

Skills developed include accuracy in calculations (with and without a calculator), algebraic reasoning and generalising, precision work with graphs.

Transdisciplinary and Generic Skills developed

Stress on basic numeracy skills and accuracy in reasoning continue. Students continue to use mathematical software (such as autograph and geogebra) and to word process their coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling, using statistics. These latter are expected to be word processed. End of year examinations in the style of a mock IGCSE paper.

Challenge for All

Support classes for less able students with differentiated tasks and sometimes educational assistant and/or sixth form help. Classes are loosely setted by ability, with two accelerated classes taking IGCSE one year early, and two semi-accelerated classes taking IGCSE five months early. Extension work and enrichment tasks as well as international maths contests for the more able.

Subject: Mathematics
Year/Course: Year 11

Knowledge and Understanding

By the end of this course students will have further developed the number, shape, algebra and statistics work begun in the lower years and moved further towards a more formal way of solving problems with a stress on accuracy and logical reasoning. They will have more use of algebra to solve problems and to generalise, and continued to explore increasingly sophisticated algebra and functions such as quadratics, cubics. They will have started work with trigonometry, and higher sets will have started some calculus.

Subject Specific Skills developed

Skills developed include accuracy in calculations (with and without a calculator), algebraic reasoning and generalising, precision work with graphs.

Transdisciplinary and Generic Skills developed

Stress on basic numeracy skills and accuracy in reasoning continue. Students continue to use mathematical software (such as autograph and geogebra) and to word process their coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling, using statistics. These latter are expected to be word processed. Mid-year examinations in the style of a mock IGCSE paper, external IGCSE examination. (EDEXCEL 4MA0)

Challenge for All

Support classes for less able students with differentiated tasks and sometimes educational assistant and/or sixth form help. Classes are loosely setted by ability, with two accelerated classes taking IGCSE one year early, and two semi-accelerated classes taking IGCSE five months early, these latter then proceed to begin work in the style of IB Mathematics. Extension work and enrichment tasks as well as international maths contests for the more able.

Subject: Mathematics
Year/Course: IB Standard

Knowledge and Understanding

Standard level Mathematics begins by consolidating the algebra, trigonometry and calculus (polynomial differentiation) met at IGCSE. It continues with more general calculus work (product and quotient rules and trigonometric, logarithmic and exponential functions and some integration). There is also an introduction to vectors, matrices and probability distributions.

Subject Specific Skills developed

Skills developed include algebraic reasoning and generalising, use of a GDC (Casio fx9860), and accuracy in calculations.

Transdisciplinary and Generic Skills developed

Use of a graphic display calculator, independent learning, use of mathematical software (such as autograph and geogebra) in order to word process coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling. These latter are expected to be word processed and count 20% towards the final examination. Mid-year examinations in the style of a mock IB Maths SL paper, external IB Maths SL examination in May of year 2 (2 papers, one non-calculator, GDC expected for the other)

Challenge for All

Students who might find this course difficult are advised to consider Mathematical Studies SL. Higher level Maths exists as an alternative for the more able. There are international mathematics contests available for the most talented students.

Subject: Mathematics
Year/Course: IB Higher

Knowledge and Understanding

Higher level Mathematics is only available to students who took IGCSE early and so spent all or part of year 11 consolidating the algebra, trigonometry and calculus (polynomial differentiation) met at IGCSE. The course moves on to an extensive study of calculus (including exponential, logarithmic and trigonometric differentiation and integration). The course also includes work on vectors, matrices, complex numbers and probability distributions. The latter are taken further in the option we choose (Statistics) which includes significance testing.

Subject Specific Skills developed

Skills developed include algebraic reasoning and generalising, use of a GDC (Casio fx9860), and accuracy in calculations.

Transdisciplinary and Generic Skills developed

Use of a graphic display calculator, independent learning, use of mathematical software (such as autograph, mathtype and geogebra) in order to word process coursework.

Assessment

End of unit tests. Coursework tasks of two types - mathematical investigations and modeling. These latter are expected to be word processed and count 20% towards the final examination. Mid-year examinations in the style of a mock IB Maths HL paper, external IB Maths HL examination in May of year 2 (3 papers, 2 for the core: one non-calculator, one using a GDC, and one paper, with GDC for the statistics option.)

Challenge for All

Students who might find this course difficult are advised to consider Mathematics SL. Higher level Maths is a very challenging course. There is Further Mathematics SL which can be taken as a group 6 subject or as an extra subject - discuss this with the head of mathematics if you feel this might be for you. There are international mathematics contests available for the most talented students.