

MATHEMATICS

“Mathematics is, in its way, the poetry of logical ideas.” Albert Einstein

S2 CLASSES AND PLACEMENT

Although young people are placed in set classes, generally, all classes in S2 follow the same curriculum. The classes are set within 2 different groups, X and Y, with sets 1-5 in both groups. Placement of young people is made using assessment data from all assessments in S1 and class teacher judgement. Setting classes allows for easier differentiation of work and means work is set at a more appropriate level for the individual as the topics covered increase in difficulty and complexity.



S2 COURSE CONTENT

The second-year mathematics course is based on CfE experiences and outcomes which are structured within three main organisers, each of which contains several subdivisions:

Number, money and measure

- Estimation and rounding
- Number and number processes
- Multiples, factors and primes
- Powers and roots
- Fractions, decimals and percentages
- Money
- Time
- Measurement
- Mathematics – its impact on the world, past, present and future
- Patterns and relationships
- Expressions and equations.

Shape, position and movement

- Properties of 2D shapes and 3D objects
- Angle, symmetry and transformation.

Information handling

- Data analysis
- Ideas of chance and uncertainty.

A strong emphasis will be placed on numeracy, algebra and problem solving.



LEARNING AND TEACHING APPROACHES

Working as an individual or co-operatively in a small or large group, students use a range of strategies and activities to help develop their confidence in arithmetical and mathematical processes.

Teachers will use a skilful mix of approaches, including;

- opportunities for discussion, communication and explanation of thinking

- developing mental agility
- using technology in appropriate and effective ways
- using relevant contexts and experiences, familiar to young people
- planned active learning which provides opportunities to observe, explore, investigate, experiment, play, discuss and reflect
- building on the principles of Assessment is for Learning, ensuring that young people understand the relevance of what they are learning
- developing problem-solving capabilities and critical thinking skills



ASSESSMENT

Assessment in mathematics will focus on children and young people's ability to work increasingly skilfully with number, data and mathematical concepts and processes and use them in a range of contexts. Assessment is continuous throughout S2, followed by an overall end of year assessment. Students will receive a 'next steps' sheet following every assessment so that they know what to improve on and more importantly, how to improve.



HOMEWORK

Homework will be both regular and appropriate. Along with complementing the work done in class, homework may be research based and interactive via various websites.



S2 INTO S3 BGE MATHEMATICS INFORMATION

On completion of S2, classes are rearranged for S3. Suitable pathways for our young people include our pre N3, N4 and N5 Courses in both Applications of Mathematics and Mathematics.



ENTRY LEVEL – What do I need to do it?

S3 CLASSES AND PLACEMENT

Similarly, as for S2, assessment data for all students along with professional judgement informs course placement in S3.

In S3 classes are set in a different manner than S2 classes, this is to allow young people to engage with the most appropriate course. Suitable pathways include our N3, N4 and N5 Courses in both Applications of Mathematics and Mathematics. Young people are set in classes from 1-10 and as they still come to Mathematics in two groups the class name does not necessarily reflect the set.

Some placements are not finalised until mid-S3 when some movement between sets takes place. This later placement allows young people every opportunity to show their capabilities. (scroll down to see Progression Pathways for S3 – S4). There are 7 progression pathways for young people in S3.

PROGRESSION FROM BGE TO NATIONAL COURSES

From S2 Assessment data and teacher judgement, young people are placed on the most appropriate pathway for them in S3.

Progression Pathways from S3.

Sets 1-4 will attempt both N5 Mathematics and N5 Applications of Mathematics.

Set 5 will attempt both N5 Mathematics and N3 Applications of Mathematics.

Set 6 will attempt both N5 Applications of Mathematics and N4 Mathematics.

Set 7 will attempt both N5 Applications of Mathematics and N4 Mathematics (topics are completed in a different order than Set 6 to allow movement between sets to mid-S3).

Set 8 will attempt both N4 Mathematics and N3 Applications of Mathematics.

Set 9 will attempt both N4 Applications of Mathematics and N3 Applications of Mathematics.

Set 10 will attempt both N2/3 Applications of Mathematics and N4 Numeracy.

Final decisions on placement in sets 5,6 and 7 take place mid-S3 and will be based on **S3** assessment information and class teacher judgement.

In addition to this, sets 1-9 will have the opportunity to attain N4/N5 Numeracy, a standalone award.

Progression Pathways for S5 – S6.

In S5/6 progression in Mathematics depends on attainment in S4/S5.

A pass in N3 Applications of Mathematics allows progression to N4 Applications of Mathematics.

A pass in N4 Applications of Mathematics allows progression to N5 Applications of Mathematics.

A pass in N4 Mathematics allows progression to N5 Applications of Mathematics or N5 Mathematics.

A pass in N5 Applications allows progression to N5 Mathematics or Higher Applications of Mathematics (if offered).

An A or B pass in N5 Mathematics allows progression to Higher Mathematics. (Entrance to Higher Mathematics with a C pass at N5 is only at the discretion of the department.)

A pass in Higher Mathematics allows progression to Advanced Higher Mathematics in S6.



HOMEWORK for all courses

You will be given regular homework. Homework will be communicated to you in class and through the Satchel One app on your iPad. Extra study will also be required at assessment times.



COSTS for all courses

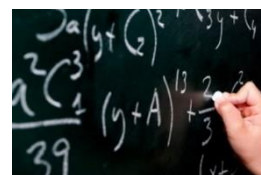
These courses carry no cost implication. A fee will be charged to replace any lost books or printed materials. You will be expected to bring a calculator, pen/pencil and ruler to every lesson.

National Course Information



COURSE CONTENT – What will I learn?

National 5 Mathematics



Course structure

You will acquire and apply operational skills necessary for developing mathematical ideas through symbolic representation and diagrams. You will select and apply mathematical techniques and will develop your understanding of the interdependencies within mathematics. You will develop mathematical reasoning skills and will gain experience in making informed decisions.

(For more information go to: <http://www.sqa.org.uk/sqa/45752.html>)

Mathematics: Expressions and Formulae (National 5)

The general aim of this Unit is to develop skills linked to mathematical expressions and formulae. These include the manipulation of abstract terms, the simplification of expressions and the evaluation of formulae. The Outcomes cover aspects of number, algebra, geometry and reasoning.

Mathematics: Relationships (National 5)

The general aim of this Unit is to develop skills linked to mathematical relationships. These include solving and manipulating equations, working with graphs and carrying out calculations on the lengths and angles of shapes. The Outcomes cover aspects of algebra, geometry, trigonometry and reasoning.

Mathematics: Applications (National 5)

The general aim of this Unit is to develop skills linked to applications of mathematics. These include using trigonometry, geometry, number processes and statistics within real-life contexts. The Outcomes cover aspects of these skills and also skills in reasoning.

ASSESSMENT

National 5 Mathematics

You will sit a formal examination. The course assessment will consist of two papers:

Component	Paper 1 (Non-Calculator)	Paper 2 (Calculator)
Time	1hr 15min	1h 50 min
Marks	50	60



National 5 Applications of Mathematics

Course structure

You will explore the applications of mathematical techniques and skills in everyday situations, including financial matters, statistics, and measurement. The mathematical skills within the course are underpinned by numeracy and designed to develop your reasoning skills in areas relevant to learning, life and work.

The skills, knowledge and understanding in the course support learning in other curriculum areas, such as technology, health and wellbeing, science, and social studies.

Applications: Numeracy (National 5)

The general aim of this Unit is to develop the skills required to solve real life problems involving measurement, time and money. These skills will include probability and graphicacy.

Applications: Geometry and Measure (National 5)

Working with the topics within this unit of you will learn to select and apply skills in measurement and geometry and will understand the necessity of working to a relevant degree of accuracy, numerically and in measurement.

Applications: Finance and Statistics (National 5) Working with the topics within this unit of you will learn to select information, analyse real life situations and apply skills learned to problems in the areas of finance and statistics.

ASSESSMENT

National 5 Applications of Mathematics

You will sit a formal examination. The course assessment will consist of two papers:

Component	Paper 1 (Non-Calculator)	Paper 2 (Calculator)
Time	1hr 5min	2h
Marks	45	65



PROGRESSION IN THE SENIOR PHASE

Students who pass National 5 Applications of Mathematics may progress to N5 Mathematics or to Higher Applications of Mathematics (if offered).



National 4 Mathematics

Course structure

This Course will develop skills for further learning, as well as skills for life and work. You will acquire and apply operational skills necessary for developing mathematical ideas through symbolic representation and diagrams. You will select and apply mathematical techniques and will develop your understanding of the interdependencies within mathematics. You will develop mathematical reasoning skills and will gain experience in making informed decisions.

(For more information go to: <http://www.sqa.org.uk/sqa/45751.html>)

Mathematics: Expressions and Formulae (National 4)

The general aim of this Unit is to develop skills linked to straightforward mathematical expressions and formulae. These include the manipulation of abstract terms, the simplification of expressions and the evaluation of formulae. The Outcomes cover aspects of algebra, geometry, statistics and reasoning.

Mathematics: Relationships (National 4)

The general aim of this Unit is to develop skills linked to straightforward mathematical relationships. These include solving equations, understanding graphs and working with trigonometric ratios. The Outcomes cover aspects of algebra, geometry, trigonometry, statistics and reasoning.

Numeracy (National 4)

The general aim of this Unit is to develop numerical and information handling skills to solve straightforward, real-life problems involving number, money, time and measurement. As you tackle real-life problems, you will decide what numeracy skills to use and how to apply these skills to an appropriate level of accuracy. You will also interpret graphical data and use your knowledge and understanding of probability to identify solutions to straightforward real-life problems involving money, time and measurement. You will use your solutions to make and explain decisions.

Mathematics Test (National 4)

This is the Added Value Unit of the National 4 Mathematics Course. The general aim of this Unit is to enable you to provide evidence of added value for the National 4 Mathematics Course through the successful completion of a test which will allow you to demonstrate breadth and challenge.

Assessment

You will undertake 3 unit assessments:

- Expression and Formulae
- Relationships
- Numeracy

You will also undertake the Added Value Unit test. The test will consist of two parts:

Part 1 will consist of approximately five questions. These questions will be suitable to assess mathematical operational skills without the aid of a calculator. The test will have a time allocation of 20 minutes.

Part 2 will consist of approximately eight questions, four of which will require reasoning skills. In this part of the test a calculator can be used. The test will have a time allocation of 40 minutes.



PROGRESSION IN THE SENIOR PHASE

From a pass in N4 Mathematics, progression is to N5 Mathematics or N5 Applications of Mathematics.



National 4 Applications of Mathematics

Course structure

This Course will develop skills for further learning, as well as skills for learning, life and work.

Mathematics: Managing Finance and Statistics (National 4)

Working with the topics within this unit of you will learn to select information, analyse real life situations and apply the skills learned to problems in the areas of finance and statistics. You will develop skills to interpret data and learn to display, read and understand information displayed in different graphical forms.

Mathematics: Geometry and Measure (National 4)

Working with the topics within this unit of you will learn to select and apply skills in measurement and geometry and will learn to work to a relevant degree of accuracy, numerically and in measurement.

Numeracy (National 4)

The general aim of this Unit is to develop numerical and information handling skills to solve straightforward, real-life problems involving number, money, time and measurement. As you tackle real-life problems, you will decide what numeracy skills to use and how to apply these skills to an appropriate level of accuracy. You will also interpret graphical data and use your knowledge and understanding of probability to identify solutions to straightforward real-life problems involving money, time and measurement. You will use your solutions to make and explain decisions.

Mathematics Test (National 4)

This is the Added Value Unit of the National 4 Mathematics Course. The general aim of this Unit is to enable you to provide evidence of added value for the National 4 Mathematics Course through the successful completion of a test which will allow you to demonstrate breadth and challenge.

ASSESSMENT

You will undertake 3 unit assessments:

- Finance and Statistics
- Geometry and Measure
- Numeracy

You will also undertake the Added Value Unit test. The test will consist of two parts:

Part 1 will consist of approximately five questions. These questions will be suitable to assess mathematical operational skills without the aid of a calculator. The test will have a time allocation of 20 minutes.

Part 2 will consist of approximately eight questions, four of which will require reasoning skills. In this part of the test a calculator can be used. The test will have a time allocation of 40 minutes.



PROGRESSION IN THE SENIOR PHASE

From a pass in N4 Applications of Mathematics, progression is to N5 Applications of Mathematics.