National 5 Mathematics

The overall aim of the course is to develop a range of mathematical operational and reasoning skills that can be used to solve mathematical and real-life problems.

Using mathematics enables us to model real-life situations and make connections and informed predictions. It equips us with the skills we need to interpret and analyse information, simplify and solve problems, assess risk and make informed decisions

The course develops important mathematical techniques which are critical to successful progression beyond National 5 in Mathematics and many other curriculum areas. The skills, knowledge and understanding in the course also support learning in technology, science, and social studies

The course aims to:

♦ motivate and challenge candidates by enabling them to select and apply mathematical techniques in a variety of mathematical and real-life situations

♦ develop confidence in the subject and a positive attitude towards further study in mathematics

♦ develop skills in manipulation of abstract terms to generalise and to solve problems

♦ allow candidates to interpret, communicate and manage information in mathematical form: skills which are vital to scientific and technological research and development

♦ develop candidates' skills in using mathematical language and in exploring mathematical ideas

♦ develop skills relevant to learning, life and work in an engaging and enjoyable way

N4 Mathematics

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Pupils are **required to pass all 3 units and** the final **Added Value Test** in order to achieve a course award.

Numeracy

The general aim of this Unit is to develop learners' numerical and information handling skills to solve straightforward, real-life problems involving number, money, time and measurement. Learners will also interpret graphical data and use their

knowledge and understanding of probability to identify solutions to straightforward real-life problems involving money, time and measurement.

Expressions and Formulae

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.

Relationships

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.

National 3 Applications of Mathematics

In this Course, and its component Units, there will be an emphasis on skills development and the application of those skills. Pupils are **required to pass all 3 units** to achieve a course award.

Numeracy

The general aim of this Unit is to develop learners' numerical and information handling skills to solve straightforward, real-life problems involving number, money, time and measurement. Learners will also interpret graphical data and use their knowledge and understanding of probability to identify solutions to straightforward real-life problems involving money, time and measurement.

Applications of Mathematics: Managing Finance and Statistics

The general aim of this Unit is to develop skills that focus on the use of mathematical ideas and strategies that can be applied to managing finance and statistics in straightforward real-life contexts. This includes using skills in budgeting as well as skills in organising and presenting data, to explain solutions and/or draw conclusions.

Applications of Mathematics: Geometry and Measures

The general aim of this Unit is to develop skills that focus on the use of mathematical ideas and strategies that can be applied to geometry and measurement in

straightforward real-life contexts. This includes using skills in interpreting and in using shape, space and measures to determine and explain solutions.

Advanced Higher Mathematics

The Advanced Higher Mathematics course develops existing knowledge and introduces advanced mathematical techniques, which are critical to successful progression beyond Advanced Higher level in Mathematics and many other curriculum areas. The skills, knowledge and understanding in the course also support learning in technology, science, and social studies. The importance of logical thinking and proof is emphasised throughout the course.

Personal Finance

The Personal Finance Award is very practical and you will spend most of your time on practical tasks using the computer. Other teaching methods will include:

- Class discussion
- Written tasks including research
- Group work
- Role play
- Giving presentations (individual or group)

The Personal Finance Award at SCQF level 4 is jointly awarded by the Scottish Qualifications Authority (SQA) and the ifs School of Finance. It equips candidates with skills to understand and manage money throughout their lives.
The nature of the Award contributes to delivery of the four Curriculum for Excellence capacities.

The importance of financial education in schools is now widely recognised as an important and necessary life skill for young people. The Personal Finance award will equip candidates with the skills to cope confidently and effectively with financial encounters as well as managing money

Higher Mathematics

The Higher Mathematics course develops, deepens and extends the mathematical skills necessary at this level and beyond. Throughout this course, candidates acquire and apply operational skills necessary for developing mathematical ideas through symbolic representation and diagrams. They select and apply mathematical techniques and develop their understanding of the interdependencies within mathematics. Candidates develop mathematical reasoning skills and gain experience in making informed decisions. Skills, knowledge and understanding Skills, knowledge and understanding for the course

The following provides a broad overview of the subject skills, knowledge and understanding developed in the course:

♦ understand and use a range of complex mathematical concepts and relationships

♦ select and apply operational skills in algebra, geometry, trigonometry, calculus and statistics within mathematical contexts

♦ select and apply skills in numeracy

♦ use mathematical reasoning skills to extract and interpret information and to use complex mathematical models

♦ use mathematical reasoning skills to think logically, provide justification or proof, and solve problems

National 5 Numeracy

National 5 Numeracy is a stand-alone Unit that covers the skills noted below.

- Use numerical skills to solve real-life problems involving money/time/measurement by:
    - Selecting and using appropriate numerical notation and units
    - Selecting and carrying out calculations
    - Recording measurements using a scale on an instrument
    - Interpreting measurements and results of calculations to make decisions
    - Justifying decisions using the results of measurements or calculations
- Interpret graphical data and situations involving probability to solve real-life problems involving money/time/measurement by:
    - Extracting and interpreting data from at least three different graphical forms

    - Making and justifying decisions using evidence from the interpretation of data
    - Making and justifying decisions based on probability

Depending on progress pupils may study the Managing Finance and Statistics Unit which covers the skills noted below.

- Use reasoning skills and financial skills linked to real-life contexts by:
    - Analysing a situation involving finance and identifying a valid strategy
    - Using appropriate mathematical processes and/or calculations to determine a solution
    - Justifying a solution in relation to the context
- Use reasoning skills and statistical skills linked to real-life contexts by:
    - Analysing a situation involving data and identifying a valid strategy
    - Representing data appropriately
    - Using statistics to interpret data, compare data and draw conclusions