Higher Maths

What are the aims of this course?
The course will extend students mathematical skills, knowledge and understanding in a way that recognises problem solving as an essential skill. You will be encouraged to challenge your thinking and decision making to solve problems and integrate mathematical knowledge.

What are the recommended entry levels for this course?
Entry onto the Higher course will be in discussion with the department and will be based on the student's final grade being usually an A or B at National 5 Mathematics.

What content is included in this course?
The topics which are covered are:-

1.Mathematics: Expressions and Functions
The general aim of this Unit is to develop knowledge and skills that involve the manipulation of expressions, the use of vectors and the study of mathematical functions. The Outcomes cover aspects of algebra, geometry and trigonometry, and also skills in mathematical reasoning and modelling.

2.Mathematics: Relationships and Calculus
The general aim of this Unit is to develop knowledge and skills that involve solving equations and to introduce both differential calculus and integral calculus. The Outcomes covers aspects of algebra. Trigonometry, calculus and also skills in mathematical reasoning and modelling.

3.Mathematics: Applications
The general aim of this Unit is to develop knowledge and skills that involve geometric applications, applications of sequences and applications of sequences and applications of calculus. The Outcomes cover aspects of algebra, geometry, calculus and also skills in mathematical reasoning and modelling.

What skills will I develop?
The study of Higher Mathematics develops logical reasoning, analysis, problem-solving skills and the ability to think in abstract ways, as well as offering opportunities for creativity. It is a rich and stimulating subject with the capacity to engage and fascinate learners and has a wide applicability to science, engineering, technology, business, industry and not least to everyday life. Mathematics is an ever-expanding body of knowledge, skills, concepts and techniques essential in the efficient handling of information and the solution of problems.

What learning and teaching approaches will I experience?
The course will be teacher led, with students being actively involved in learning through practical work. Emphasis is placed on problem solving, as it is essential that students develop a systematic approach to the solution of problems and learn to communicate their results in a meaningful way.
It must be stressed that students will be required to do work in their own time to reinforce the work done in class, as well as homework tasks.
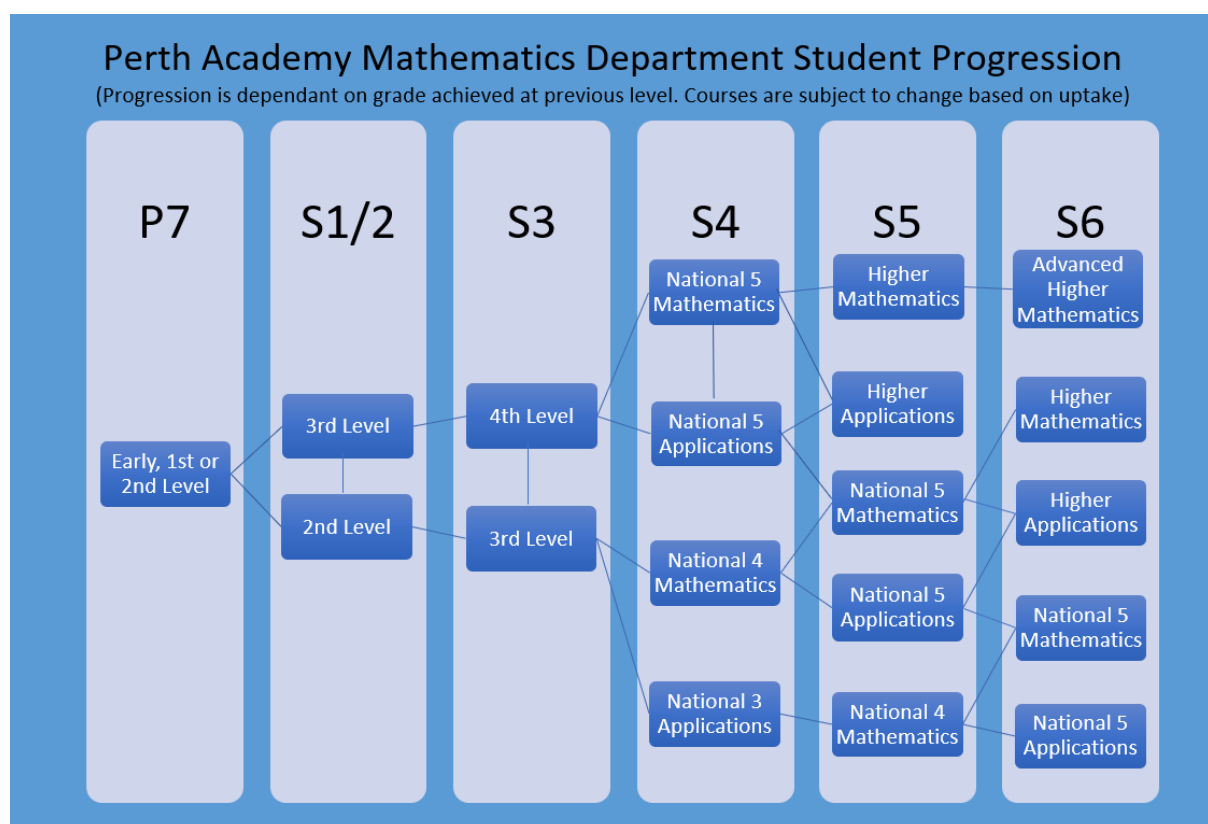
How will I be assessed?

The SQA external assessment consists of 2 papers – one non-calculator, one calculator. A prelim, which is of the same form as the SQA external exam, takes place in January and April under exam conditions.

What are the homework requirements?
Homework will be set to practise the skills that have been learnt during lessons, and to assess the students understanding of a particular topic, so that additional time may be spent revising a topic if needed.
A student will be expected to do a minimum of 3-4 hours work a week, this will consist of homework and consolidation work.

What are the possible progression routes? Students may progress to the Advanced Higher Mathematics, though entry onto the Advanced Higher course will be at the discretion of the department, and will be based on the student's final grade, ability and behaviour. The Higher qualification could also be used either as a general requirement or specific entry requirement for mathematics, engineering or science HNC/D or degree course.

Perth Academy Mathematics Department Student Progression
(Progression is dependant on grade achieved at previous level. Courses are subject to change based on uptake)

Maths or Applications of Maths. Which should I choose?

A common question asked by students is which type of maths should I study. There is more information available on each of them elsewhere. Here, we hope to let you know the basic difference between the Maths courses that are offered to help students make informed choices.

In a nutshell:

Mathematics is offered at National 4, National 5, Higher and Advanced Higher. This is your traditional Maths subject. Full of algebra, trigonometry, calculus etc. All the topics that are extremely useful for those pursuing a career in STEM but likely not used much again by those who don't

Applications of Mathematics is offered at National 3, National 4, National 5 and Higher. This is a more useful course to those who need a maths qualification but don't need the topics mentioned above. The course is more focused on finance, statistics and real life calculations like areas, volumes etc. This is the course for those who want to be a teacher, nurse, etc. or any other career other than STEM.

Both courses share the same tariff points etc. In our experience some students are reluctant to take Applications of Maths because they don't know enough about it or think it a lesser qualification. This is not the case. It is just different. In fact, an S5/6 could in theory do both Mathematics and Applications of Mathematics on their course choice if they wanted to. A bit like some people do 2 sciences or social subjects. However, in most cases it will be one or the other.

In the table below I have tried to simplify what is required for entry into each level. You will notice we would like anyone attempting Nat 5 Maths to have already achieved Nat 5 Numeracy. The Nat 5 Applications of Maths course includes Nat 5 Numeracy within it. Nat 5 Maths does not and there is no time to do this as an extra.

Course	**Entry requirements**
Advanced Maths	Good pass at Higher
Higher Maths	Good pass at Nat 5 Maths
Higher Applications	Pass at Nat 5 Maths or Nat 5 Applications
Nat 5 Maths	Pass at Nat 4 Maths **and** Nat 5 Numeracy
Nat 5 Apps	Pass at Nat 4 Maths **or** Nat 4 Apps
Nat 4	Pass at Nat 3

I hope this helps. Any questions please ask a member of the Mathematics department.

Higher Applications of Mathematics *A Nutshell Guide for Parents*

What is the new Higher Applications of Mathematics course and who is it for?

This course will equip learners with sought after mathematical, statistical and financial skills. It is suitable for a wide range of learners, including those who wish to progress to further learning and employment in non-STEM areas.

> *I am enjoying the way of learning through e-Sgoil and I was surprised at how well it worked even from the first lesson.*

What will your child gain from this course?

- Knowledge & skills in statistics, mathematical modelling, finance and project planning which are relevant to a wide range of careers and courses
- Skills in using technology to manipulate and model mathematical, statistical, and financial information
- Skills in analysing, interpreting and presenting data and numerical information
- Skills in evaluating numerical information critically

How will your child learn?

- Through live, online lessons with a specialist teacher
- Through independent study
- Through practical tasks, many of which will involve the use of technology
- From live inputs delivered by industry experts
- Alongside learners from a range of different schools
- By contributing to class discussion
- By using appropriate digital tools
- By using the interactive course materials available on Scholar

What will be your role?

- To continue to support your child with their learning
- To encourage your child to engage with what will at first be a new and different learning experience
- To encourage your child to communicate effectively with their teacher so they can provide the correct level of support
- To share feedback on your own and your child's experience of e-Sgoil

How will the course be assessed?

The course will be assessed through a **question paper** (exam) and a **project**, which will be marked by SQA and graded A to D.

The question paper makes up **73%** of the total assessment mark and the project makes up **27%**.

National e-Learning Offer

Education Scotland — Foghlam Alba · e-sgoil · A·D·E·S · Smarter Scotland