

# Bringing Maths to life

## QUALIFICATION:

**MATHEMATICS LINKED PAIR (GCSE)  
AND ADDITIONAL MATHS FSMQ**

## CUSTOMER:

**ST PAUL'S CATHOLIC SCHOOL  
LEICESTER**

With just over 1,000 students on roll, St Paul's Catholic School is a high-performing specialist school for students aged 11 to 18 years, situated to the east of the city of Leicester. The school's students come, largely, from Roman Catholic parishes covering a wide area of the city and the surrounding countryside, but the school has students of all faiths and a diverse ethnic mix.

All of the school's students study Mathematics to GCSE level, equating to around 180 in each year group, with smaller numbers going on to study Mathematics at A Level in Years 12 and 13 at the school, and in local 6th form colleges.

Michael Elliott is Faculty Leader for Mathematics at St Paul's.

*"In 2006 we decided to follow the OCR double GCSE Mathematics pilot so that all of our students would be entered for both exams," explains Michael. "We entered an 'express' group early and they sat both GCSEs in January of Year 10. It was very successful with all students achieving two GCSEs and mostly at high grades. All of the remaining Year 11 students then take the first GCSE in January of their Year 11 and then they take the additional GCSE in June of Year 11."*

*"Mathematics is a good support subject for the sciences, psychology, geography and social sciences," says Michael. "The additional Mathematics provides the functional skills as well as problem-solving; something needed at A Level possibly more than any other aspect. So doing the additional Mathematics GCSE provides students with a problem-solving background to carry into whatever their chosen route is."*

Some of the school's pupils complete their GCSE early and then study OCR Additional Maths FSMQ (Free Standing Mathematics Qualification) as a bridging qualification between GCSE and AS level. In 2010, the school decided to become a pilot centre for OCR's newly introduced OCR linked pair in GCSE Mathematics having previously been involved with the OCR 'double' GCSE Mathematics pilot.

The aim of the OCR linked pair qualification is to be inspiring, motivating and challenging for students.

## CASE STUDY St Paul's Catholic School, Leicester

Simon is a Year 11 student at St Paul's who completed his Double Mathematics GCSE early and plans to study A Level Mathematics and A Level Further Mathematics followed by Pure Mathematics at University: "I like doing Mathematics, particularly algebraic equations, because it helps me to problem-solve which will help me in my future career."

*"I was comfortable taking the GCSE early. It is good to get a qualification early and out of the way so that you can concentrate on other exams. The fact that we can accomplish a GCSE in a year will hopefully be recognised by colleges and will benefit us. It also gave me the opportunity to continue Mathematics at a higher level (FSMQ) before starting AS level."*

Two qualifications – GCSE Applications of Mathematics and GCSE Methods in Mathematics – between them cover the entire Key Stage 4 Programme of Study for Mathematics. Each GCSE is distinctive and contains some additional content to the single GCSE.

**First teaching of OCR's linked pair GCSE Mathematics began in September 2010, and first certification was in June 2011. Candidates are required to enter both the Applications of Mathematics and Methods in Mathematics examination papers, and if successful can gain two GCSE qualifications.**

St Paul's Catholic School decided to pilot the new OCR qualifications because of the opportunity to get involved with the new GCSEs and the potential they offered for students of different abilities.

*"We felt that, as with the double GCSE, it presented all our students with two opportunities to achieve a GCSE Mathematics qualification," says Michael. "We also liked the style of the OCR paper. It is not as complicated as those offered by the other exam bodies. It is easier for the students with middle ability to access as it assesses real-life skills."*

The linked pair promote the teaching and learning of Mathematics at Key Stage 4 in schools. They have been designed to provide access to a Grade C in Mathematics for all learners.

The specifications aim to encourage students to develop knowledge, skills and understanding of mathematical and statistical methods, techniques and concepts. The linked pair is designed to help them acquire and use strategies for problem-solving and modelling in context, understanding that models may need refining and that there may be more than one way to solve a problem.

The OCR qualifications also act as a suitable basis for progression to further study in Mathematics or related subjects, or directly into employment.

Having achieved their Mathematics GCSEs, several of the school's students will go on to study A Level Mathematics at the school or in 6th form colleges based in and around the city of Leicester.

The school also runs OCR's FSMQ (Free Standing Mathematics Qualification), designed to meet the needs of students who wish to continue their study of Mathematics beyond GCSE, but for whom AS Level units may not be immediately appropriate. There are plans to offer FSMQ as a discrete course post-16 for students not wishing to follow a full AS course.

Four areas of Pure Mathematics are covered in FSMQ: Algebra, Co-ordinate Geometry, Trigonometry and Calculus. Each of these is used to support a topic from a recognised branch of Applied Mathematics.

From Michael's perspective, students studying OCR's FSMQ have a head start over other students. He explains:

*"Our express groups do the OCR FSMQ which gives them a good grounding for further study, especially algebra and calculus which they will need at AS Level Mathematics."*

*FSMQ has been really successful in terms of how it follows on and is very useful for those who've achieved their GCSEs early to keep them involved with Mathematics. If they are going on to study A Level Mathematics, they haven't lost a year or two idling."*

The FSMQ qualification also gives students UCAS points at the end of Year 11, "which not many students will have by that stage," adds Michael.

So what type of support does Michael and St Paul's receive from OCR to deliver the 'linked pair' Mathematics qualifications?

*"I go to the OCR pilot meetings which are very useful," says Michael, "particularly as things can change from day to day, so it's good to keep up to date. As well as making use of the OCR problem-solving activities, we are also part of the OCR online community for the linked pair."*

Complementing OCR's help, the school also benefits from being part of the Mathematics Enhancement Programme run by CIMT at Plymouth University – a programme that the school joined in 1993.

*"The school's results have improved significantly over the years and continue to rise steadily," reports Michael. "With the Mathematics pilot in place, St Paul's is at the forefront of Mathematics, especially in the Leicester area; we are doing now what other schools may be doing in four or five years' time."*

For further information about St Paul's Catholic School, visit:

[www.st-pauls.leicester.sch.uk](http://www.st-pauls.leicester.sch.uk)

**Brady is a Year 10 student at St Paul's and is planning on studying Mathematics at college and university. "I enjoy dealing with the practical aspects of Mathematics, such as money management; to me it's more enjoyable than algebra and equations.**

**"Mathematics is linked with other subjects such as Science, so if you're doing graphs in Mathematics, it can help you with your Science exams. And if you're doing geography, it can help with things such as co-ordinates and directions.**

**"You do have to work hard to achieve the Mathematics qualifications at school, but if I have any problems, then my teacher will help by explaining things and doing extra courses after school."**

**Mollie-Ann is a Year 11 student at St Paul's. Mollie-Ann's ambition is to become a primary school teacher and her Mathematics studies are essential to helping her with her desired career.**

**"As a teacher, I will have to teach Mathematics, so it's important to learn and have good knowledge of it and know what you're doing.**

**"I don't find Mathematics particularly easy, especially at the start, but once you get into it, it's quite easy to work things through."**

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RECOGNISING ACHIEVEMENT