



# EXETER MATHEMATICS SCHOOL

SERVING CORNWALL, DEVON, DORSET AND SOMERSET



developing tomorrow's mathematicians  
and scientists through excellence today

prospectus



## Headteacher's welcome

It is my great pleasure and privilege to introduce you to Exeter Mathematics School (EMS). We are a unique 6th form specifically designed to meet the needs of able mathematics students throughout the South West.

We aim to provide a world-class education, enabling students to excel at university and pursue successful careers in the mathematical sciences.

Sponsored by the University of Exeter and Exeter College, we are committed to working together with local employers to ensure our curriculum is rich and relevant.

EMS is a mathematically stimulating environment; we encourage enquiry, the pursuit of open-ended problems and engender the confidence to do these things without the scaffolding common in current approaches to pre-university mathematics teaching and assessment.

We recognise students as individuals, each with their own specific needs, and provide a safe, caring and supportive environment in which they can work. We seek to develop the whole person in order that the mathematician can flourish.

I hope you find the content of this prospectus interesting and informative. If you have any further questions or would like to find out more, please do get in touch or visit our website to book a place at an open event: [www.exetermathematicsschool.ac.uk](http://www.exetermathematicsschool.ac.uk)

If you love mathematics and want to be challenged, this could be the school for you!

**Kerry Burnham**  
Headteacher

developing tomorrow's mathematicians  
and scientists through excellence today

# Serving students across the South West



## We are a school for the South West

At EMS we bring together able and enthusiastic students from across the counties of Cornwall, Devon, Dorset and Somerset to learn together and inspire one another. Students benefit from this diversity and are offered a broad experience, which provides a stepping-stone towards future university study.



To enable access to the School, for those who live some distance from Exeter, we have a travel scheme and also provide mid-week accommodation (see page 14). We have also adapted our timetable to support a weekly commute, with a late start on Mondays and an early finish on Fridays.

We provide comprehensive pastoral care (see page 11) for all students as they make the transition to Exeter Mathematics School. Those staying in School accommodation will receive additional support whilst they adapt to their new environment.



## contents

|                                     |    |
|-------------------------------------|----|
| What makes us unique?               | 3  |
| Curriculum overview                 | 5  |
| Mathematics and Further Mathematics | 7  |
| Physics and Computer Science        | 8  |
| Exeter Mathematics Certificate      | 9  |
| Enrichment                          | 10 |
| Pastoral care                       | 11 |
| Accommodation and transport         | 14 |
| Application process                 | 15 |
| Facilities                          | 17 |



**EXETER MATHEMATICS SCHOOL**  
SERVING CORNWALL, DEVON, DORSET AND SOMERSET

# Exeter Mathematics School

## What makes us unique?



EMS is sponsored by the University of Exeter and Exeter College – both outstanding providers of education in the South West.



### **This school is established specifically to meet the needs of gifted mathematics students in the South West**

This is the only 6th form in the South West of England that is specifically focused on the needs of the most able mathematicians. The timetable, curriculum, staffing and resources are all designed with those needs in mind. Therefore we are uniquely placed to cater for this important group of students.

### **Our sponsors are outstanding providers of education**

EMS is sponsored by the University of Exeter and Exeter College – both outstanding providers of education in the South West. Students benefit from the academic rigour and insights of University academics whilst enjoying the social aspects, support services and broader curriculum available through affiliation with the College. In the words of one parent, “You get the best of both worlds”.

### **A challenging and rich curriculum**

The A level syllabus is significantly enriched. Problem-solving, and an ability to think creatively about mathematics, is developed throughout the course. In addition to studying for established, recognised qualifications such as A levels, students will take part in project work and assignments, designed by University academics to develop the skills and attributes needed to flourish at university. Students will have the opportunity to explore the historical context of mathematics, its relevance and applications today and its links to other fields of study, such as the social sciences and music.

### **A school of high esteem**

We are the first university-sponsored mathematics school outside of London. The selection process for this school is demanding and designed to identify those with the potential to flourish in a specialist mathematics environment. Attending this school will, in itself, be an achievement recognised by universities and employers.

“Our ambition for the school is to raise aspirations for the young people of the region and open up the possibility to link beyond our national boundaries to all equivalent maths schools across the world and become a beacon for excellence right here in the city.”

PROFESSOR JANICE KAY, PROVOST AND SENIOR VICE-CHANCELLOR OF THE UNIVERSITY OF EXETER



### Regular university contact

EMS students are mentored by mathematics undergraduates in their 3rd or 4th year at Exeter. Students can expect to have contact with their mentors on a fortnightly basis and will benefit from their experience, enthusiasm and knowledge. In addition, academics from the University have input into the EMS curriculum, leading workshops on rigorous proof, applications of mathematics, and research skills, amongst others.

### Working with like-minded students

Students selected for EMS will need to demonstrate their commitment to working hard, to taking on challenges, their intellectual curiosity and a desire to learn. By attending EMS, students will be working amongst a group of similarly motivated and able peers. They will benefit and learn from each other, sparking ideas; they will form a community of learners working in a mathematically stimulating environment.

### An inspiring environment

The home of EMS is Rougemont House; a Grade II listed building in the heart of Exeter City Centre. It has been refurbished to meet the needs of the School; the design includes features you would expect from a 21st century school such as a purpose-built Physics lab, wifi and a computer suite, together with traditional characteristics such as original cornicing, sash windows and a sweeping staircase within a stately entrance hall of classic (possibly golden) proportions.

Exeter itself is a vibrant city, rich in culture. Students attending the school will be working with peers from across the South West; this will broaden their outlook and be a useful stepping-stone towards university.

### Broad and balanced experience

Exeter College is just a short walk from Rougemont House and is ideally placed to provide a variety of extra-curricular activities and social outlets.

EMS students have full access to the range of clubs and activities provided by the College and will be able to take advantage of other College services such as catering and

learning resource centres. In addition, Exeter College offers EMS students the chance to study a fourth subject of their choice; with over 30 possible options, there will be a course to suit everyone.

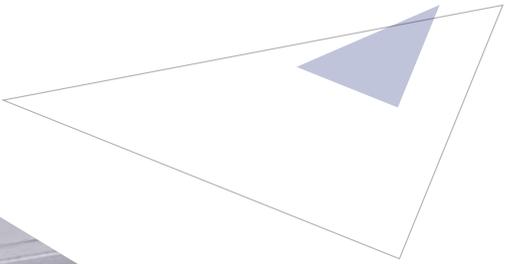
### Shaping the future

By joining EMS in its early years, students have a significant role to play in developing the character of this school. There is an active student council that reports directly to School governors. Feedback from students helps to inform teaching and EMS students are involved in activities to support younger students who have not yet joined the School. EMS students are part of a learning community, working with staff and parents to ensure EMS is the best that it can be.



# Exeter Mathematics School

## Curriculum overview



The curriculum at EMS has been designed to offer challenge and enrichment at an appropriate level for motivated and able students. All students will study three A levels at the School (Mathematics, Further Mathematics and Physics or Computer Science) and study a fourth subject, either at Exeter College or EMS. Students select from a range of A-level and enrichment courses.

In addition to A level studies, the Exeter Mathematics Certificate (page 9) and the enrichment series INSPIRE (page 10) are core components of the EMS curriculum, each a bespoke programme designed with our students in mind.

A comprehensive tutorial programme, which includes aspects of both academic (e.g. target setting, staying organised, and revision techniques) and pastoral support (e.g. stress management, personal safety, and citizenship) is in place to enable students to thrive.

A broad range of extra-curricular activities is available for students either at the Mathematics School or via Exeter College (page 10).



developing tomorrow's mathematicians  
and scientists through excellence today

“It is not enough to have  
a good mind, the main thing  
is to use it well.”

DESCARTES



# A level Mathematics and Further Mathematics

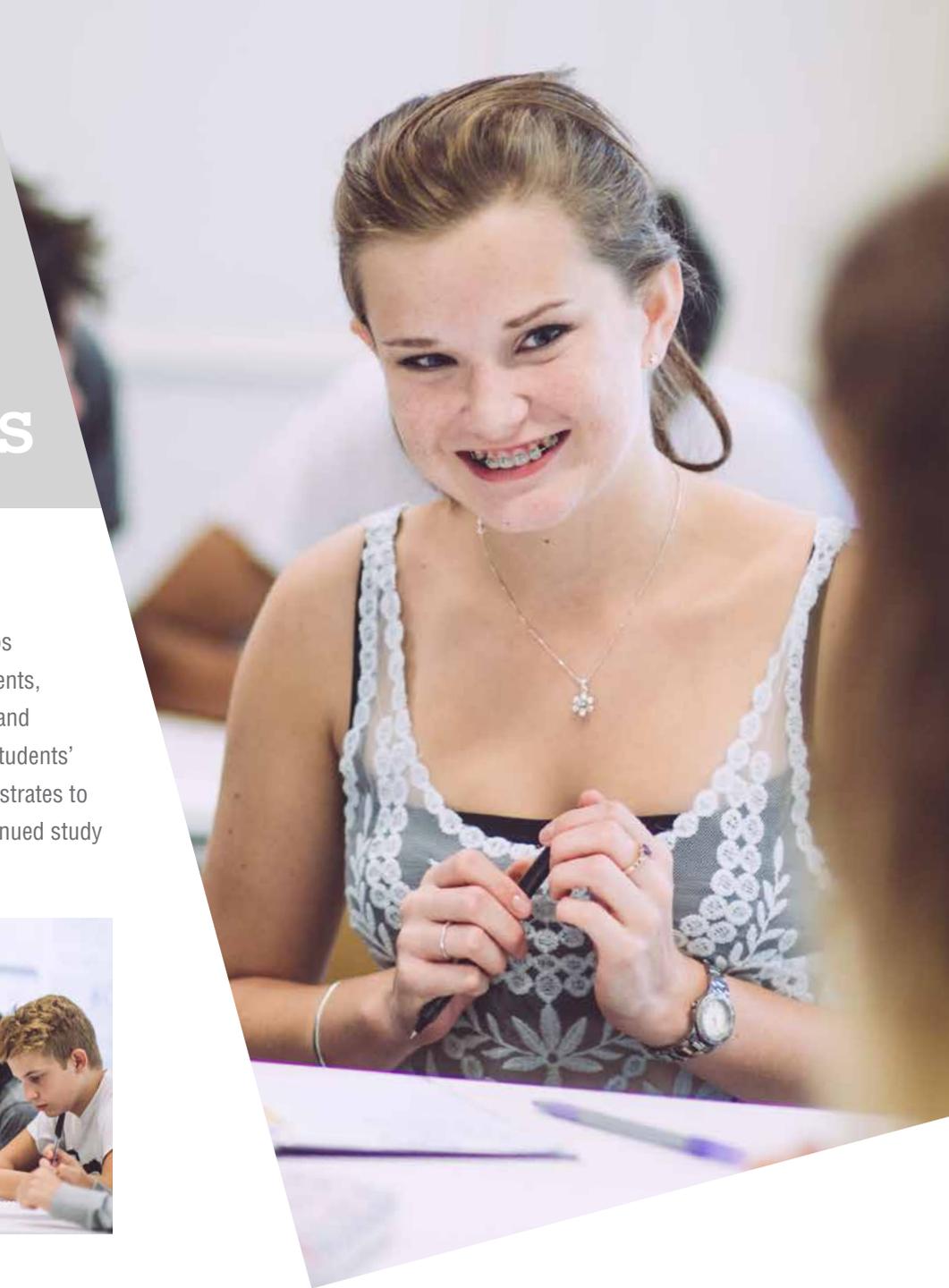
## A level Mathematics and Further Mathematics

All students study and take A level examinations in Mathematics and Further Mathematics. In addition, students are prepared for STEP papers which are required for entrance into many top universities. Mathematics modules will include Statistics, Mechanics, Decision and Pure.

Mathematics is studied to a greater depth than required for A level. Students explore links between different topics, understand the historical significance of techniques and discoveries, and undertake investigations and projects of their own. They use mathematics to solve problems of increasing complexity.

Students are encouraged to think like a mathematician: creatively; rigorously and logically. They are encouraged to develop clear communication and fluency of techniques.

Exposure to university research groups provides context and realism for students, as does their contact with employers and mathematicians from industry. EMS students' engagement with such groups demonstrates to them the depth and relevance of continued study in mathematics.



# A level Physics and A level Computer Science

## A level Physics

Students have the option to take an A level in Physics.

Studying Physics is the process of equipping yourself with the tools, not only to explain and understand the world around you, but also to go wherever your imagination leads. Perhaps you'll design new solar panels, make a leap in medical physics or finally unify our understanding of the four forces. Physics is not only important in its own right but is also an essential component of other Natural Sciences, Engineering and Technology. Furthermore, it is a subject in which mathematical principles, effectively applied, are used to develop understanding and underpin progress.

Physics is a practically taught subject to the highest level, with the majority of lessons in a specialist state-of-the-art laboratory allowing students to learn through logical thought and experimentation.

They explore an enriched physics curriculum, applying mathematics at a level beyond that required by current syllabuses. This equips students with a greater appreciation and understanding of the subject and will prepare them for study at undergraduate level.

As with Mathematics, students benefit from working with university academics and develop an appreciation for the relevance of their studies in light of current research.

## A level Computer Science

Students may take Computer Science as an alternative or in addition to Physics.

Computer Science involves questions that have the potential to change how we view the world; for example, we may be computing with DNA at some stage in the future, with computer circuits made of genes.

This leads to the question, does the natural world 'compute'? Experimental Computer Science can be done with computers whereby we can learn more about the natural world by observing the behaviour of interacting software simulations. Computing is about designing new sets of instructions (algorithms) to solve new problems. In this sense, Computing is no more about computers than astronomy is about telescopes. Many great challenges lie in the future for computer scientists to solve and this course, with its emphasis on abstract thinking, general problem solving, mathematical reasoning, scientific and engineering-based thinking, is a good foundation for understanding these future challenges.

Computer Science is taught in our computer suite (Tutte), enabling students to apply the theory and develop their programming skills throughout the course.



# Exeter Mathematics Certificate



## Bridge the gap...

Designed to bridge the gap between secondary school mathematics and undergraduate study, the Exeter Mathematics Certificate (EMC) is a rigorous academic programme which aims to develop skills in:

- **Proof**
- **Writing**
- **Research**
- **Presentation**
- **Independent Study**
- **Creative Problem Solving**

In year 12, students collaborate in teams, completing group projects. In year 13 they develop a piece of individual research. Students' ability to work independently, meet deadlines and sustain effort is developed and tested throughout the course, forming an essential role in preparing them for university study.

University mentors provide support and guidance to students, meeting them regularly throughout the two years. Students are also linked to local employers, providing a taste of real-world applications for their mathematics.

**“Exeter Mathematics School offers a first-class learning environment for the next generation of mathematicians, and we are delighted to be lending our statistical expertise to help train and inspire them. What could be more important?”**

DR TIM PAULDEN, INNOVATION & DEVELOPMENT MANAGER AT ATASS SPORTS



# Enrichment

## INSPIRE

Taking the form of fortnightly workshops and lectures, INSPIRE exists to broaden and develop the education received by EMS students. It is a varied curriculum with aspects of, for example, Philosophy, History, Politics and Art. Often making links between other subjects and Mathematics, this curriculum explores connections between topics and develops an appreciation of learning: exploring a body of knowledge not bound by conventional, artificial divides. Questions will be explored such as, “Can Beauty be Measured?” and “Does Truth Exist?”

INSPIRE is designed to spark the imagination and foster an appreciation of learning for its own sake.

## Extra-curricular activities

Several clubs and societies exist within EMS, often established as a result of students' own interests. Students also enter a number of competitions and challenges: from the Physics Olympiad and CANSAT competition to the Senior Team Maths Challenge and National Cipher Challenge.

In addition, students have access to the full range of extra-curricular activities enjoyed by their peers at Exeter College. These include the Ten Tors Challenge and the Duke of Edinburgh's Award, a range of choirs, bands and orchestras, theatre productions and sports ranging from rugby to mountain biking to surfing.



# Pastoral Care and Learning Support

## Pastoral Care

All students have a pastoral tutor who meets with them regularly to support their progress. In addition, they deliver a curriculum designed to meet students' developmental needs. We recognise that EMS is an academically demanding environment and care is taken to ensure that students receive support and are equipped with the necessary skills for them to thrive.

Initially, students are assisted in adapting to the unique learning environment at EMS. The induction programme aids students in building effective relationships with their teachers and peers; it also includes orientation of the school, college and university.

Throughout their time at EMS, students receive information, advice and guidance on varied topics: from university applications and living away from home, to managing workloads and personal health.

## Learning Support

All students can expect high levels of support from their teachers and other School staff. Those who have particular needs have a learning support assessment to determine the best way for us to help them. Students are able to request an assessment at any time throughout their course.





“Right from the very start of our dealings with Exeter Mathematics School we knew something special was happening. The combination of a more informal approach coupled with a bespoke, enriched curriculum is a real winner! Our son is in the right place at the right time and we couldn’t be happier. Here’s to continuing success to all at EMS.”

PARENT, EXMOUTH, DEVON



within a year. Solve  
 $x^2 - 92y^2 = 1$  is a  
"mathematician"

ALL THE

# Accommodation and transport

## Accommodation

We have supervised accommodation available for students who live too far away from school for a daily commute. Pastoral staff from EMS support residential students, providing a safe environment in which they are encouraged to develop the skills required to live independently.

All accommodation is offered from Monday to Thursday on a half-board basis and students travel home each weekend to be with their family. There is a charge for accommodation. Families on low incomes may be able to receive financial assistance to meet this cost.

## Transport

All EMS students are invited to apply for a transport pass which can be used for their journeys to and from school by either train or bus. There is a flat-rate charge for the pass. Before applying, students should consider whether an annual pass is the cheapest alternative for them. We have a student support fund which is used to reduce the cost of transport for those on the lowest incomes.



**“I am absolutely delighted at this opportunity for Callum and all the students. He is thoroughly enjoying the whole experience, the school and the boarding. Such a big thank you to all of you who have made it possible and all your hard work.”**

PARENT, TRURO, CORNWALL

# Application process



Our application process is designed to ensure that those who are most likely to benefit from our specialist provision are admitted into the school. Precise dates for this year and an application form are available to download from our website.

## Stage 001

Initially, students should complete an application form, available from our website at the end of September. Those who apply to us during the autumn term will be invited to a workshop in January which will help to prepare them for the entrance test.

## Stage 010

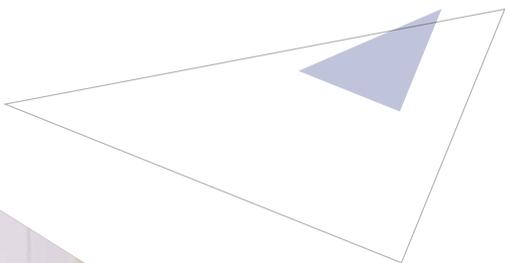
Following receipt of an application we will take up references with a student's school and will invite those who are predicted to meet our minimum entry criteria to sit an entrance test. This test is designed to assess a student's ability to solve problems and work mathematically. No specialist preparation is needed and the level of mathematical knowledge required to complete it will not be beyond that expected in school.

## Stage 011

The next step is an interview. This provides students with the opportunity to ask questions and determine whether EMS is really the right place for them.

**“However impenetrable it seems,  
if you don't try it, then you can never do it.”**

**WILES**



A short maths tutorial will form part of the interview, enabling us to gain a better understanding of the applicant's thinking.

### Stage 100

We will offer conditional places to students.

### Stage 101

On GCSE results day applicants should contact the school, making us aware of the outcome of their exams. We will then get in touch to confirm places.



# Exeter Mathematics School

## Facilities

Set in the heart of Exeter City Centre in an inspiring, listed building within Rougemont Gardens, the School is equipped with a Physics Laboratory, Computer Suite, varied teaching rooms and break-out spaces.

Alongside the state-of-the-art technology, rooms and facilities are provided for quiet study, collaborative working and even music practice.

EMS students have full use of the resources at Exeter College and also have frequent access to the University of Exeter.



developing tomorrow's mathematicians  
and scientists through excellence today



“Coming here, meeting and working with like-minded people has been very enjoyable. It’s a specialist school for my favourite subjects, I couldn’t ask for much more!”

PATRICK, SHEPTON MALLET, SOMERSET

“It’s a great environment in that everyone is very enthusiastic about similar things. If there is ever something you don’t understand, there will always be someone, student or teacher, to help you and keep you on track without making you feel inadequate.”

HANNAH, ST. IVES, CORNWALL

developing tomorrow's mathematicians  
and scientists through excellence today



Exeter Mathematics School  
Rougemont House  
Exeter  
EX4 3PU

telephone: 01392 429 020  
email: [enquiries@exeterms.ac.uk](mailto:enquiries@exeterms.ac.uk)  
[www.exetermathematicsschool.ac.uk](http://www.exetermathematicsschool.ac.uk)

 [exetermathematicsschool](https://www.facebook.com/exetermathematicsschool)  [@exeterMathsSc](https://twitter.com/exeterMathsSc)



**EXETER MATHEMATICS SCHOOL**  
SERVING CORNWALL, DEVON, DORSET AND SOMERSET