RGS
NEWCASTLE

INTRODUCTION TO

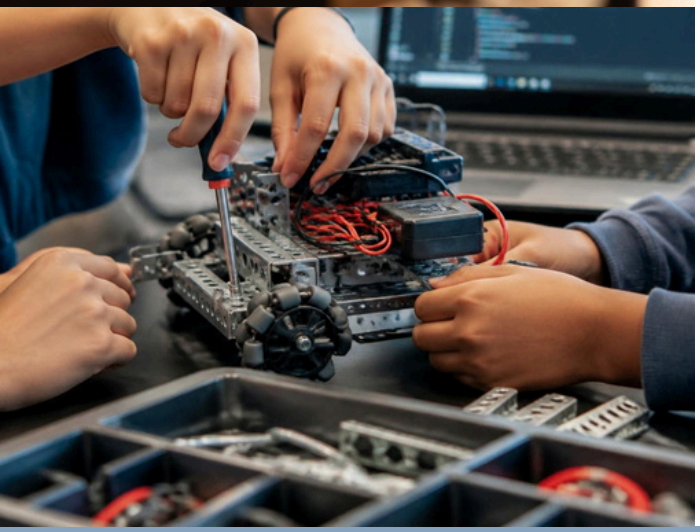
COMPUTER SCIENCE

at RGS







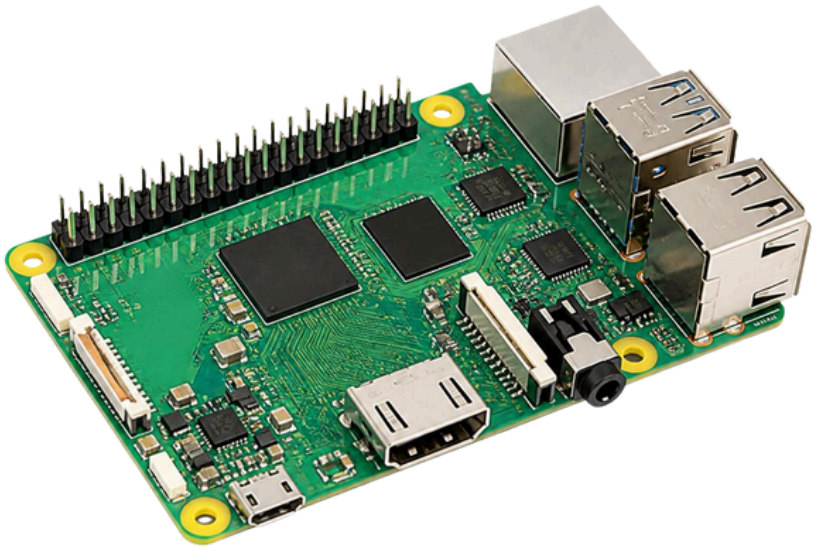


Computer Science at RGS is about much more than technology. It is about creativity, curiosity, and problem-solving.

As the school's newest academic department, Computer Science combines innovative teaching with a forward-looking curriculum that prepares students for an increasingly digital world.

Students learn through exploration, experimentation and practical challenge. Whether programming robots, designing games, building digital solutions or investigating emerging technologies, they develop the confidence to think logically, work creatively and tackle complex problems.

From Year 7 through to Year 13, Computer Science encourages students to become independent thinkers, skilled programmers and innovative problem-solvers.



YEAR 7 AND YEAR 8

All students study Computer Science in Years 7 and 8, where they develop the foundations of computational thinking and programming.

Learning is practical, interactive and engaging. Students solve logic puzzles, create games, program robots and explore how computer systems work. Topics are introduced through hands-on activities that encourage creativity and curiosity whilst developing technical understanding.

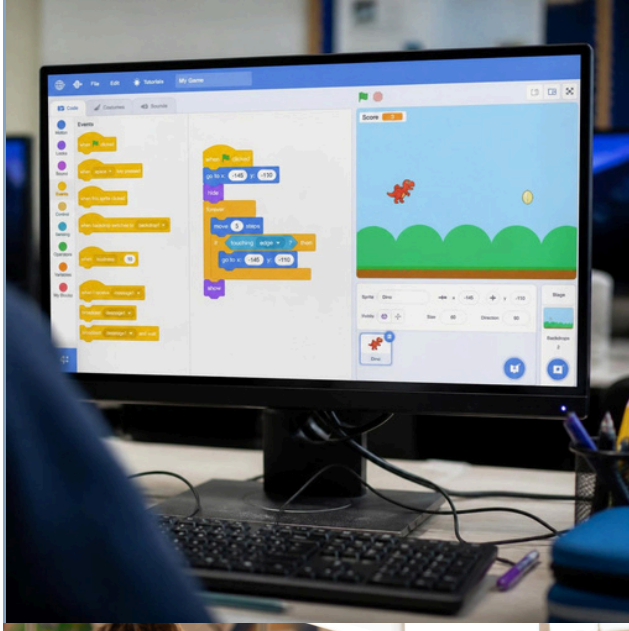
The department's "learning through play" approach ensures students experience Computer Science as a subject that is both challenging and enjoyable.

YEAR 9 TO YEAR 11

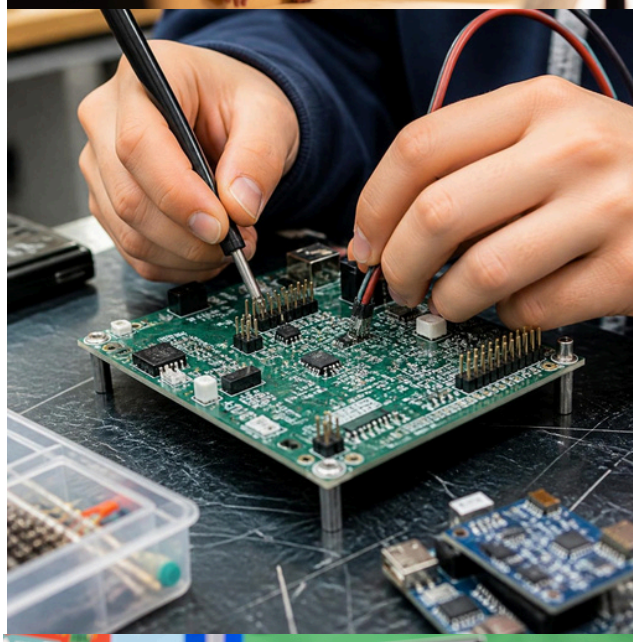
Students can continue their Computer Science journey through GCSE study, developing a deeper understanding of programming, algorithms, data representation, networks and cybersecurity.

Practical application remains central to learning. Students develop increasingly sophisticated coding skills while learning to analyse problems, design solutions, and evaluate their effectiveness.

By the end of Year 11, students have developed a strong foundation in both the theory and practical skills required for further study.



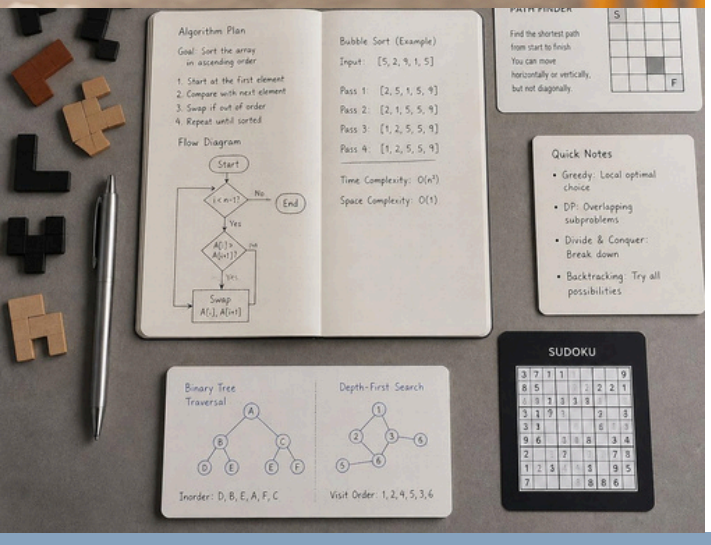












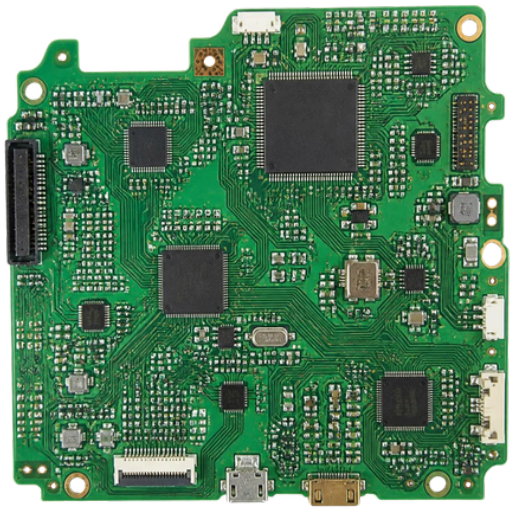
YEAR 12 & YEAR 13

Computer Science at A-Level offers an exciting balance between practical programming and theoretical study.

Students develop advanced technical skills whilst exploring a wide range of topics, including software development, cybersecurity and computational thinking. A significant programming project allows students to pursue an area of personal interest, whether that is artificial intelligence, machine learning, quantum computing or another emerging field.

The department actively supports students beyond the specification, encouraging individual exploration and providing guidance on specialist areas of interest.

Whether students intend to study Computer Science at university, pursue an apprenticeship or enter the workplace, the course develops the skills and adaptability needed to thrive in a rapidly evolving sector.



LEARNING THROUGH PLAY

A defining feature of Computer Science at RGS is the belief that students learn best when they experiment, create and explore.

Every lesson begins with a logic puzzle that encourages students to think systematically and develop their computational thinking skills. Throughout the curriculum, students learn through practical challenges and real-world applications.

Students have the opportunity to:

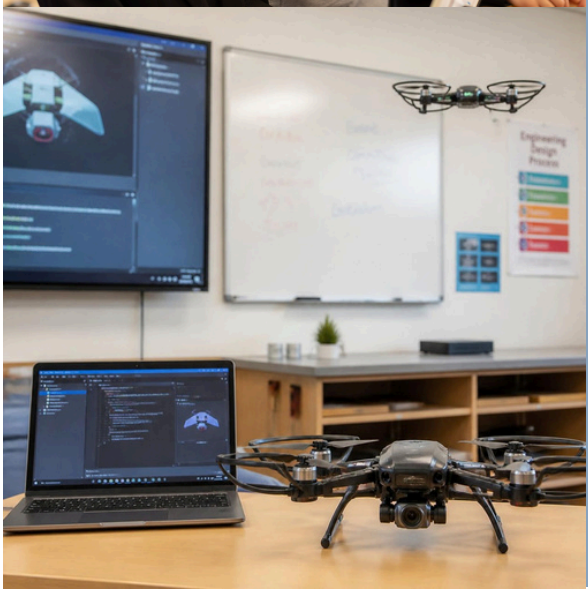
- Program robots to understand algorithms
- Explore wireless communication through drones
- Develop games to learn computational concepts
- Use Raspberry Pi devices to code within Minecraft
- Investigate the history of computing using classic systems
- Experience programming at a machine-code level

This innovative approach helps students build resilience, creativity and confidence whilst developing a deep understanding of Computer Science.

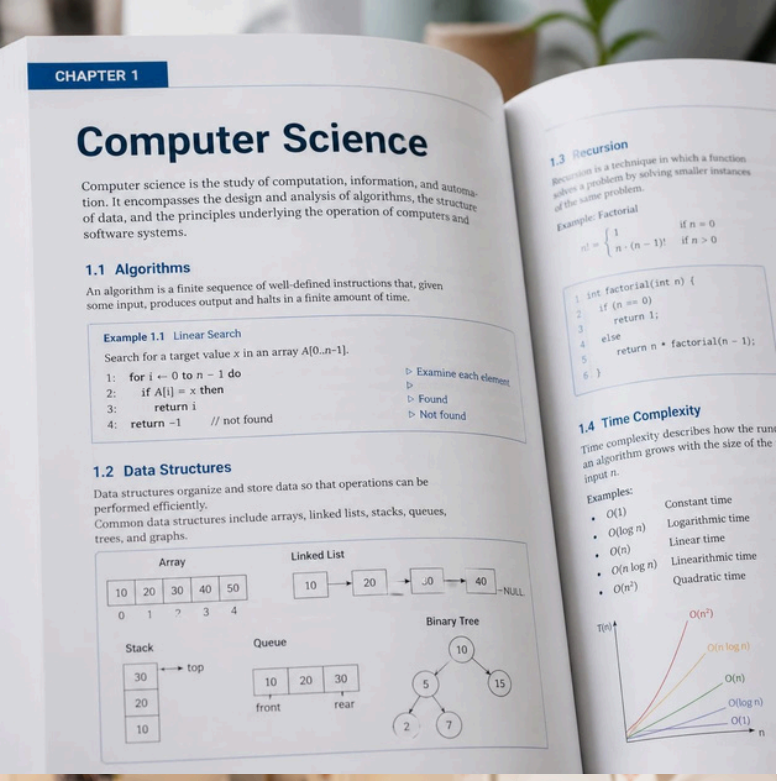
















SKILLS FOR THE FUTURE

Computer Science develops a wide range of highly transferable skills that are valuable across many university courses and careers.

Students learn to:

- Think logically and analytically
- Break complex problems into manageable tasks
- Design, develop and evaluate solutions
- Work creatively and collaboratively
- Communicate technical ideas effectively
- Adapt to new technologies and programming languages

These skills enable students to succeed whether they pursue Computer Science, Engineering, Mathematics, Science, Business or countless other pathways.

The subject provides an excellent foundation for careers in software engineering, cybersecurity, artificial intelligence, data science, technology consultancy and many other rapidly growing industries.

COMPUTER SCIENCE BEYOND THE CLASSROOM

Computer Science extends far beyond the classroom, with opportunities for students to explore their interests, develop new skills and tackle real-world challenges.

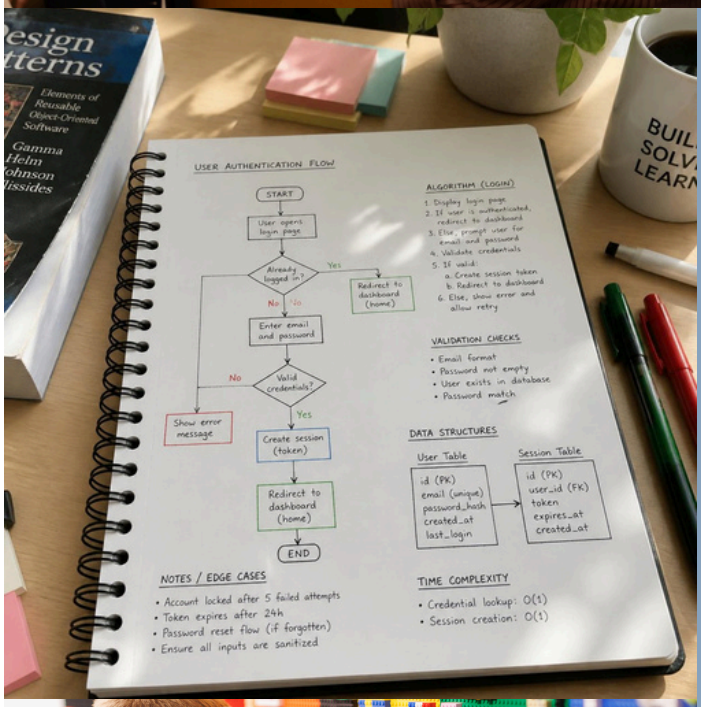
Competitions & Challenges
Students participate in a range of national and international competitions, including Bebras, CyberFirst, FIRST LEGO League, VEX IQ Robotics and Pi Wars.

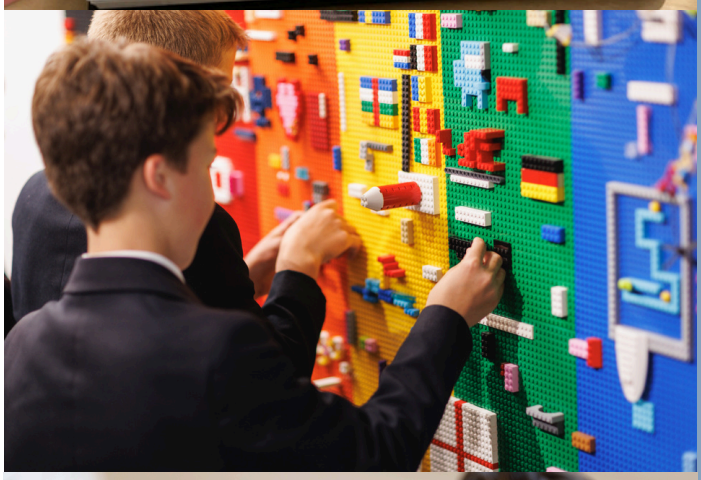
CompSoc
Our student-led Computing Society supports younger pupils through coding clinics, mentoring and collaborative projects.

The Fabricarium
An open-access maker space where students can develop personal projects, experiment with new technologies and bring ideas to life.

Industry Partnerships
Through links with LEGO Education, Nintendo and Digital Schoolhouse, students engage with the wider world of technology and innovation. As a recognised LEGO Education Innovation Studio, the department is at the forefront of learning through play.









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Computer Science at RGS combines creativity, innovation and technical expertise in an environment where students are encouraged to experiment, create and think differently.

From programming robots in Year 7 to developing independent software projects in the Sixth Form, students are equipped with the knowledge, confidence and problem-solving skills needed for an increasingly technological future.

Through a combination of academic rigour, practical learning and exciting opportunities beyond the classroom, Computer Science at RGS enables students to turn ideas into reality.

If you would like further information about Computer Science at RGS please contact Mr C Wilde, Head of Computer Science via c.wilde@rgs.newcastle.sch.uk

