

# Sixth Form Options

## A Level

# Computer Science





# Why Study Computer Science?

Computer Science is a discipline which requires thinking both in abstract and in concrete terms. On a higher level, computer science is concerned with:

- Problem solving
- Modelling and analysing problems
- Designing solutions
- Writing code to implement them



# Why Study Computer Science?

Any problems in the **sciences, engineering, health care, business** and other areas can be solved effectively with computers, but finding a solution requires both computer science expertise and knowledge of the particular application domain. Thus, computer scientists often become **proficient in other subjects**.



# University Degrees

You may find yourself needing to program in other subjects (most likely python)

Accounting & Finance, Animation, Biology, Business, Chemistry, Computer Science, Economics, Engineering, English Language, Geography, Marketing, Maths, Physics, Robotics, Sports Science

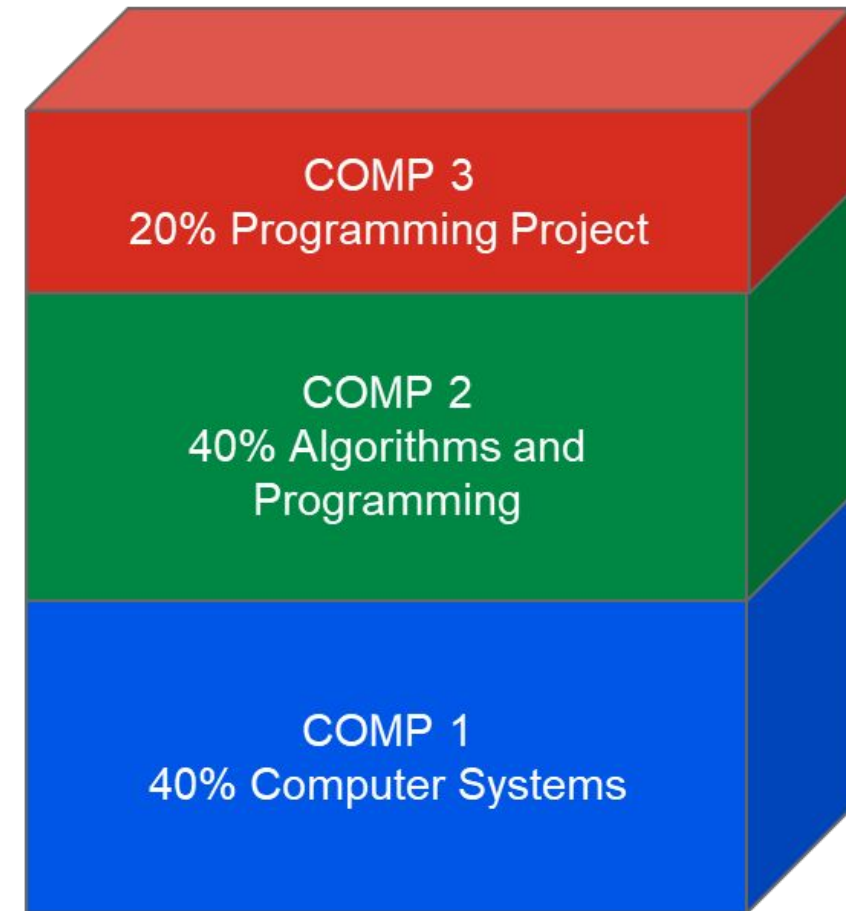
A lot of degrees require an understanding of data and data analysis

# OCR A Level

The learner chooses a computing problem to work through. They will **analyse** problem, **design** a solution, develop the **solution** in a suitable language and then **evaluate** the effectiveness.

Elements of computational thinking  
Problem solving and programming  
Algorithms to solve problems and standard algorithms

The characteristics of contemporary processors, input, output and storage devices  
Software and software development  
Exchanging data  
Data types, data structures and algorithms  
Legal, moral, cultural and ethical issues

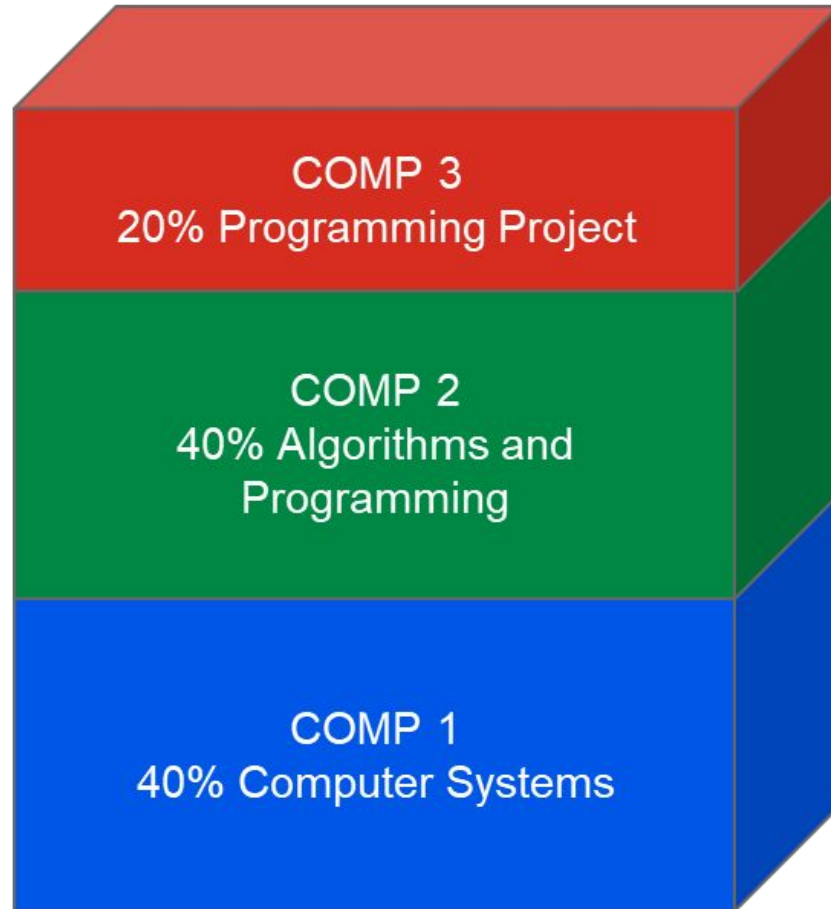




# Units

- 1 - Components of a Computer
- 2 - Systems Software
- 3 - Software Development
- 4 - Exchanging Data
- 5 - Networks
- 6 - Data Types

- 7 - Data Structures
- 8 - Boolean Algebra
- 9 - Legal and Cultural Issues
- 10 - Computational Thinking
- 11 - Programming Techniques
- 12 - Algorithms



**Coursework** – commenced in Spring Term of Y12 and completed by February of Y13

**2 ½ hour written exam**  
taken in the Summer series

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# Our Alumni

**Mathematics and Computer Science** – University of Oxford

**Mathematics and Computer Science (AI and Machine Learning)** – Imperial College London

**Cyber Security** – University of Warwick

**Computer Science** - King's College London, Lancaster University, Loughborough University, University of Reading

**Software Engineering** – Southampton University

**Robotics, Autonomous and Interactive Systems** – Heriot-Watt University

## **Non-computer science**

**Physics** – University of Warwick

**Business & management (Economics)** – Bournemouth University

**Business with International Business Management** – Liverpool JMU

**Mathematics** – University of Oxford

We have also organised talks by alumni about their experiences at university and work

Post 16 Information Evening



# Field Trips etc .....

In the past the department has organised range of field trips to various locations and organisations. These have included:

- **Bletchley Park**
- **The National Museum of Computing**
- **New York City** – Joint Business Trip

Possible plans for future trips and fieldwork activities include:

- Visit to **TikTok** Cyber Security sector
- Visit from **Mojang** (Minecraft)



# Computer Science

*For more information please contact .....*

## Questions

- By email
  - [s.darby@roundwoodpark.co.uk](mailto:s.darby@roundwoodpark.co.uk)
- Call via school office  
Students at lunchtime our office

## Next Steps

- Have a look at the topics
- Speak to our current A Level students
- Visit our website
  - <https://sites.google.com/roundwoodpark.co.uk/compsci/>  
*You will need an RPS login to access the website*