BHASVIC

Computer Science, Computing & IT

Our dept is more than ‘just’ a Curriculum

We encourage our students to take part in a wide range of competitions and activities, such as:

- BEBRAS Computational Thinking Challenge
- The OUCC - Oxford University Computing Challenge
- Cyber Discovery skills program
- CyberCenturion competition
- British Informatics Olympiad competition (Uni of Cambridge)
- STEMettes programs
- The Computer Science in Action conference
- Big Bang Fair South East
- Apps For Good Awards
- CREST awards (Silver & Gold)

UNIVERSITY OF OXFORD

cyber discovery

Cyber Security Challenge UK

STEMettes

STEMettes

Classes at BHASVIC are **balanced** – you won't be in a class alone or with very few girls!

MONSTER Confidence

A brilliant group aimed at developing confidence and employability skills in young women who want to work in STEM industries

In our department:

- **Significant numbers of high grades (A*-B / DS-DS*) & 100% pass rates**
  - Our students consistently achieve much higher grades than their GCSEs would predict. We hugely outperform the national & exam board averages in both exams and coursework
  - This happens whether students have taken GCSE Comp Sci/IT or have no prior experience

- **Fantastic acceptance rate for Oxbridge and other top-rated universities**
  - Last year 4 students gained places at Cambridge to read Computer Science - more than any other single institution in the UK

- **60-70%** of our students go to uni to study Computer Science/IT related courses

- A higher number each year also gain places on **Degree/Higher Apprenticeship programs** e.g. Amazon, Thales, PwC, Bank of England, Capgemini, Amex, NATs

Which Q's interest you most?

Computing (Games, Apps, Encryption)	Computer Science	IT (Digital Marketing & Web Dev)
• How do **new technologies** like virtual reality affect how **computer games** are designed? • How can we use GPS, accelerometers or gamification concepts to **make better apps**? • What different ways can we protect our IT systems against **cyber-attacks**?	• Why would you use the **A*** rather than **Dijkstra's** shortest path **algorithm** to find a way through a game map or maze? • What's a **heuristic** algorithm and why does some anti-virus software use them? • Is a **quicksort** always faster than an insertion sort?	• What's the best way to use **social media** to market a new product online? • How does Amazon manage drone deliveries to customers and keep track of their data? • What are the most effective ways of **optimising a website** to be smartphone and tablet compatible?

Comp Sci & IT Courses

Computing (Games, Apps, Encryption)	Computer Science	IT (Digital Marketing & Web Dev)
Become a strong programmer using a range of different languages. Work on several in depth units: • The **gaming and app industries**, the approaches they take and how **to design & create your own mobile games/apps** • **Computer systems' vulnerabilities**, how cyber criminals work and how to **defending systems against attacks and encrypt** data. • **Computer systems**, hardware and software configurations and how components work to process data.	**Become a strong programmer using a range of different languages.** A wider range of theory topics: • How **different algorithms** solve different types of problem • Computer system **architecture, processors and operating systems** • **Boolean algebra, logic, binary** and hex number systems • **Networks** and directing traffic • **Web technologies** and the **databases** behind them	**Develop the contemporary skills needed by today's work force.** Work on several in depth units: • Business use of **digital technologies & social media** to market services. Develop strategies to interact with target audiences • Evaluate **websites** and **produce innovative & engaging designs** using HTML, CSS & JavaScript • **Design, create, test and evaluate different information systems** e.g. setting up, searching and reporting on data in databases

Assessment

Computing (Games, Apps, Encryption)	Computer Science	IT (Digital Marketing & Web Dev)

60% External Assessment:
• Two 2-hour exams
• One exam each year:
  • Y1 – Computer Systems
  • Y2 – Principles of Computer Science
 	
40% Internal assessment:
• 2 large units of work
• One completed each year
	80% Exam:
	• 2 two and a half hour papers at end of Y2:
	  • Algorithms & programming
	  • Computer Systems
	
	20% Coursework:
	• Started in April of Y1
	• Carried out over 9 months
	• In a language/ IDE of your own choice
		60% External Assessment:
		• 1 controlled assessment
		  • Practical skills paper done in Y1 in class (5 hours/2 sittings/1 week)
		• One 2-hour exam in Y2
		
		40% Internal assessment:
		• 2 large units of work
		• One completed each year

Computer Science – Languages

- In **Y1 CS** we currently teach:
  - C
  - Java
  - JavaScript
- In **Computing** Y1 & 2:
  - Python
  - JavaScript
  - C#
- In **Y2 CS** students choose an IDE & language(s) to use for their coursework e.g.:
  - Java
  - Swift/ C# in XCode
  - Visual Basic
  - Python
  - Web-based PHP, SQL & JavaScript
  - C++
  - Unity (C#)
  - Pi/ Arduino hardware & Python/C++

Computing Live!

A 3 day conference trip held in Disneyland Paris, aimed at showing how computer science is applied in the real world & different directions a career in computing could take.