

# Curriculum Area Guide: ICT and Computing

## 1 Key Stage 4 Courses

GCSE Computer Science AQA

Cambridge National Certificate in iMedia Level 1 and 2

## 2 Why do we study ICT and Computing?

Computer programming is becoming a core skill of the 21st century. A high-quality computing education equips students to use computational thinking and creativity to understand and change the world.

Computing has deep links with mathematics, science and design and technology, and provides insights into both natural and artificial systems.

At Ipswich Academy we give every student an introduction into the world of computer science, in which students are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming.

We encourage our students to be e-safe and teach them about ICT in the modern world. Our aim is to assist them on their journey and build on their knowledge and understanding. Students are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate; able to use, express themselves and develop their ideas through, information and communication technology.

ICT and computing qualification offers up opportunities into the world of work. The IT industry still remains a fast growing industry and our goal is to equip our students to participate and excel in it.

## 3 Programme of study for ICT and Computing:

## Key stage 3

In Key Stage 3 IT & Computing we aim to build on the skills and learning from Key Stage 2 and prepare for Key Stage 4 and GCSE.

### Year 7 Topics

- Kodu
- Scratch
- Input devices
- Algorithms
- Design
- Output devices
- Digital Literacy
- E-safety

### Year 8 Topics

- E-safety
- Web design
- Binary number system
- Hardware and software
- Animation
- Advanced Scratch
- IT project

### Year 9 Topics

- IT security
- Computer systems
- Binary and Hexadecimal systems
- Python- for making programs
- Problem solving
- Logic gates
- Flowcharts and pseudo code
- Digital graphics
- Advanced IT project

## Key Stage 4

	<p>Year 10 Topics</p> <p><u>Computer science</u></p> <ul style="list-style-type: none"> <li>• 3.1 Algorithms</li> <li>• 3.2 Programming</li> <li>• 3.3 Data representation</li> <li>• 3.4 Computer systems</li> <li>• 3.5 Computer networks</li> </ul> <p><u>iMedia</u></p> <ul style="list-style-type: none"> <li>• Unit R081 Pre-production techniques ( external exam)</li> <li>• Unit R082 Digital Graphics</li> <li>• Unit R091 Designing a game concept</li> </ul> <p>Year 11 Topics</p> <p><u>Computer science</u></p> <ul style="list-style-type: none"> <li>• 3.6 Cyber security</li> <li>• 3.7 Ethical, legal and environmental impacts including privacy</li> <li>• Programming</li> <li>• Exam preparation</li> </ul> <p><u>iMedia</u></p> <ul style="list-style-type: none"> <li>• Unit R087 Multimedia</li> <li>• Unit R086 Digital Animation</li> <li>• Portfolio building</li> </ul>
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<b>4</b>	<b>Important textbooks, resources and websites we use at each Key Stage:</b>
Key stage 3	<a href="http://www.teach-ICT.com">www.teach-ICT.com</a> <a href="http://www.codeavengers.com">www.codeavengers.com</a>

	<p><a href="http://www.codecademy.com">www.codecademy.com</a>  <a href="http://www.w3schools.com">www.w3schools.com</a></p> <p>A free download of the following software is also available:</p> <p>Kodu <a href="http://www.kodugamelab.com/">www.kodugamelab.com/</a>  Scratch <a href="http://scratch.mit.edu/">scratch.mit.edu/</a>  Mit App inventor <a href="http://appinventor.mit.edu/">appinventor.mit.edu/</a></p>
Key Stage 4	<p><a href="http://www.teach-ICT.com">www.teach-ICT.com</a>  <a href="http://www.codeavengers.com">www.codeavengers.com</a>  <a href="http://www.learnpython.org">www.learnpython.org</a>  <a href="http://www.codecademy.com">www.codecademy.com</a>  <a href="http://www.w3schools.com">www.w3schools.com</a>  <a href="http://www.bbc.co.uk/education/subjects/z34k7ty">http://www.bbc.co.uk/education/subjects/z34k7ty</a> for computing</p> <p>A free download of the following software is also available:</p> <p>Python  <a href="http://www.python.org/">www.python.org/</a>  Scratch  <a href="http://scratch.mit.edu/">scratch.mit.edu/</a>  Mit App inventor  <a href="http://appinventor.mit.edu/">appinventor.mit.edu/</a></p> <p>Books</p> <p>AQA GCSE Computer Science by Steve Cushing</p>

	<p>Keywords for definition and spelling tests</p> <p>Research for assessments</p> <p>Homework workbooks</p> <p>Completion of a topic/objective via Google Classroom</p>
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<b>7</b>	<b>Enrichment opportunities in ICT and Computing:</b>
	<p>Computer Science Club</p> <p>KS4 – After school session setup to support KS4 pathways</p>

<b>8</b>	<b>Gifted and more able students in the IT and Computing department:</b>
	<p>Learning schemes in all Key Stages are differentiated to provide extension materials for Gifted and Talented students.</p> <p>We encourage the Gifted and Talented pupils to access the online courses where they can work at the own pace of learning.</p>

<b>9</b>	<b>How parents can help their children to study ICT and Computing:</b>
	<p>Set up an area for them to study at.</p> <p>Support them with literacy and keyword searches when using the internet to research.</p> <p>Logging in to google classroom at home to see the assignments set and if the student has submitted the work.</p>