



Key Stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 7

Year 8

Year 9

Year 10

Year 11

Term 1

Block programming

Programming using an online editor

- Sequencing & iteration
- Variables & use in programs
- Loops, random, if and else

Developing programming

Programming skills using a high level language:

- Strings and variables
- Functions, procedures repetitions & loops
- Writing algorithms

Development of Computer Science

Developing computational skills

- Logical thinking
- Data representation
- Python programming

Algorithms & Practical programming skills

Higher level programming skills:

- Searching, sorting & pseudocode
- Iteration & expressions
- Arrays, lists & files

Logic Languages & Data representation

- Logic diagrams and truth tables
- Binary & hexadecimal ASCII
- Images, sound & compression

Term 2

Using computers safely securely & responsibly

Skills in internet searching, presentations, word processing:

- Social networking
- Data security
- Being safe online

Intro. To Computer Science

Practical skills of how computers work:

- New technologies
- Binary representation
- Hardware & software

Creative iMedia

Skills in combining images, text and video across applications:

- Animation
- Video and sound creation
- Image & text manipulation

System Architecture & Networks

- Purpose of CPU, VNA & registers
- Volatile and non volatile storage
- WAN, LAN, wired & wireless

Algorithmic thinking & defensive design

- Flowcharts
- Searching and sorting algorithms
- Pseudocode

Term 3

Carousel—16 lessons approximately over two blocks. These can run concurrently or over two separate occasions throughout the year.

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System software, security & Ethics

- Network threats
- Operating system and utility software
- Ethics, culture legislation & privacy

Revision

- Exam paper skills
- Past questions, structure, commands marking

Cultural Exposure:

- Digital literacy
- What to post and not to post online
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Cultural Exposure:

- Use of programs in everyday life
- Artificial systems and how they impact our lives

Cultural Exposure:

- Visit by & to a local university to experience CS courses
- Advertising and its influences in our everyday lives

Cultural Exposure:

- Creativity in computing to understand & change the world
- Security threats that could jeopardise our systems
- Ethical use of robots, illegal downloads

Cultural Exposure:

- Relationship between human & computer interaction
- Privacy issues and potential attacks
- Exam practise