

ICT Programme of Study Albany Academy

ICT	
Prior learning: KS3	Pupils should be taught to: • design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems • understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem • use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions • understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] • understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems • understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits • undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users • create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability

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	understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and privacy; recognise inappropriate content, contact and conduct and know how to report concerns	
KS4 Taught content: Knowledge/Skills	All pupils must have the opportunity to study aspects of information technology and computer science at sufficient depth to allow them to progress to higher levels of study or to a professional career. All pupils should be taught to: - develop their capability, creativity and knowledge in computer science, digital media and information technology - develop and apply their analytic, problem-solving, design, and computational thinking skills - understand how changes in technology affect safety, including new ways to protect their online privacy and identity, and how to identify and report a range of concerns	
	Using devices and handling information Students should know: - the main features and uses of different types of device (including desktop, laptop, mobile and smart devices) - what an application is and the main types of application software (including email clients, web browsers, mobile device apps, security apps, word processors and presentation software)	Using devices and handling information Students should: - know how to carry out searches on the internet (including by using keywords, exact phrases and search filters) - know how to take account of currency, reliability and copyright when selecting information from the internet

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	• how to apply system settings (including those related to display, sound, wi-fi, time, language and accessibility) • how to navigate online content to locate required information • how to carry out searches on the internet (including for information, images and videos) • how to use files to read and store information (including creating, opening, reading, editing and saving a file) • how to use files and folders to organise and retrieve information (including local and remote storage) • when there is a problem with a device or software, and the difference between system errors (including a device crashing or freezing, or a slow response) and user errors (including using the incorrect credentials or incorrectly connecting hardware) • how to apply a solution to solve a simple technical problem (including restarting a device)	• understand that search results may include sponsored results or advertisements, and be able to recognise these • know how to carry out searches for files (including on file names, partial file names and file content) • know how to create and use a hierarchical folder structure to organise files and an appropriate file-naming convention • know how to save a file on cloud storage using one device and open it on another device • know and be able to appropriately use terminology (including 'bytes', 'kilobytes', 'megabytes', 'gigabytes' and 'terabytes') to describe data storage requirements • know and understand limitations on file sizes when using some online services, and the benefits of using file compression to make effective use of storage capacity and reduce data transfer times
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	to address a system error, or correcting a user error) Creating and editing Students should know how to: • use a suitable application to enter, edit and format text (including bold, underline, italics, font sizes and colours, text alignment, and bulleted and numbered lists) • use a suitable application to enter, edit and format graphics (including position and size) • combine different types of information (including text, graphics and images) for a given purpose • capture digital media (including images and video) and view it in a suitable application Communicating Students should know: • how to create and edit details in a contacts list • how to compose and reply to online communications comprising text and other	• know how to use online resources to identify solutions to common technical problems (including when to reinstall an application and change wi-fi settings or a system or software setting) and apply the solution Creating and editing Students should know how to: • use suitable applications (including word-processing and document or web presentation software) to enter, edit, format, lay out and save information (including text, tables, graphics and charts) for a range of purposes and audiences • use appropriate layout conventions for information (including formal and informal communication, presentations and advertisements) and audiences (including familiar and unfamiliar audiences) • edit an image (including captioning, cropping, resizing and changing the contrast and colour balance) using an appropriate tool
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	digital content to individual and multiple recipients • how to initiate and participate in a video call • what is meant by a digital footprint, understand its implications and be aware of the range of activities (including social media activity, web searches and emails) that leave a digital footprint Transacting Students should know how to: • complete and submit an online form (including personal details) and comply with data validation • comply with verification checks to complete an online transaction Staying safe and responsible online Students should: • understand the need to stay safe and respect others when using the internet and communicating online	• process numeric data using simple formulae (including sum, subtraction, multiplication, division, maximum, minimum and average) using relative cell references • process (including sorting and filtering) numeric data by values in a column • format numeric data (including font sizes and styles, alignment, row height, column width, and formatting, merging and splitting cells) • chart a single series of numeric data using an appropriate type of chart and apply suitable titles and labels (including chart title, axis titles, and data legends and labels) Communicating Students should know how to: • use email for a range of contexts and audiences • use online messages (including instant message, text message and social media) for a range of contexts and audiences
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	• know simple methods to protect personal information and privacy online (including not sharing personal information and identifying safe URLs that begin with 'HTTPS' when logging in) • know how to set up and use security features (including authentication methods) to access devices and online services • understand the benefits of using security software (including an anti-virus and firewall) to protect against online risks • know of and know how to minimise the effects of physical stresses (including pain from poorly positioned equipment or bad posture, repetitive strain injury or eye strain) that may result from using devices	• limit their digital footprint (including using privacy tools to manage cookies and website tracking, using private browsing and restricting GPS location-tracking information) Transacting Students should know how to: • manage account settings for an online service (including personal details, login credentials, and marketing and communication preferences). • complete online forms and upload documents or images • carry out checks to reduce the risks involved in transactions online (including checking for the padlock symbol next to the URL in the browser, checking if the website appears professional and has a legitimate domain name, and checking reviews) Staying safe and responsible online Students should:
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		• understand key rights under data protection laws (including the right to see what personal data organisations hold about you and to withdraw consent) and the circumstances in which you can request that personal data be rectified or deleted • understand the importance of protecting personal information and privacy online and know of the methods to do so (including private browsing, social media settings, mobile device settings that restrict or grant GPS location information, and using a secondary email address) • know how to back up files to the cloud • know how to avoid exposure to malware (including worms, trojans and ransomware) • know how to minimise health risks (including weight gain, a decline in physical fitness and
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		poor sleep patterns) that may result from using digital devices and the internet
Subsequent learning	<i>Post 16+</i> This programme of study is designed to allow progression within other GCSE courses and to support continuation and potential entry for GCSE or Level 1 or 2 qualifications at Dual Placement schools. This programme of study could lead to supporting with skills required for a range of Level 2 and Level 3 qualifications or other vocational qualifications. It should support students to transition to adult life.	