



ICT at Red House Academy aims to give pupils the capability to participate and engage in modern society. The increasing use of technology in all aspects of society makes confident, creative and productive use an essential skill for life. We aim to give pupils the skills and understanding needed to use technology effectively, every day and in the world of work ahead.

Within Red House Academy we have dedicated ICT classrooms, all of which are fitted with the most up to date computers. The equipment is of the highest quality and has the technical capacity to allow students to use industry standard software.

Key Stage 3

In Year 7, 8 and 9 pupils currently study ICT following a scheme of work which matches the National Curriculum Programme of Study. This incorporates Information Technology and Digital Literacy. An end of unit test taken is to assess knowledge and forms part of the assessment process which is undertaken throughout the year. Within lessons pupils complete work booklets to enhance their literacy skills to aid work completed on the computers.



Please see an overview of our new KS3 programme of study below:

ICT Department

Term	Year 7	Year 8	Year 9
Autumn Term	<p>Introduction to ICT at Red House Academy and E-Safety.</p> <p>Unit 7.1 – Under The Hood: This unit provides a brief outline of the history of computing; practical study of components that make up a computer; inputs, processing and outputs; data and binary; bits, bytes and megabytes.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Knows that digital computers use binary to represent all data. • Understands how bit patterns represent numbers and images. • Knows that computers transfer data in binary. • Knows that there is a range of operating systems and application software for the same hardware. 	<p>Unit 8.1 – Publishing on the Web: In this unit pupils use web technology to design and create a website to promote a campaign of their choice. Pupils will design and implement a sequence of linked web pages. Pupils will develop sufficient understanding of web technology to create and evaluate an efficient and effective website design.</p> <p>Pupils will understand that web browsers display web pages in different ways and they will need to consider this when they are creating their websites.</p> <p>A range of applications will be used to create web pages and websites.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Understands how search engines rank search results. Understands how to construct static web pages using HTML and CSS. • Evaluates the appropriateness of digital devices, Internet services and application software to achieve given goals. • Recognises ethical issues surrounding the application of information technology beyond school. • Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution. 	<p>Unit 9.1 – Cracking the Code: Pupils will learn about binary characters and how these translate into language using ASCII tables. They will learn about the history of cyphers and encryption and how modern encryption techniques protect sensitive data.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Understands the von Neumann architecture in relation to the fetch-execute cycle, including how data is stored in memory. • Understands the basic function and operation of location addressable memory. • Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals. • Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience. • Identifies and explains how the use of technology can impact on society. • Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.

<p>Spring Term</p>	<p>Unit 7.2 – Creating an Animation:</p> <p>This unit requires the students to think about and create algorithms, so you will need to be comfortable with algorithms and the need for precision in framing instructions. Throughout we have supplied resources based on version 2.0 of Scratch, but students are free to extend this at home or in computing club using other graphical programming languages, such as Snap.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals. Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience. Identifies and explains how the use of technology can impact on society. • Understands that programming bridges the gap between algorithmic solutions and computers. • Has practical experience of a high-level textual language, including using standard libraries when programming. • Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control. Selects the appropriate data types. 	<p>Unit 8.2 – Binary:</p> <p>This unit teaches pupils about the role of the binary number system in a computer alongside how to convert between binary and decimal number systems and how to perform binary arithmetic. Pupils will produce a guide to teach Year 7 pupils about binary and how to perform basic binary math.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Knows that digital computers use binary to represent all data. • Understands how numbers, images, sounds and character sets use the same bit patterns. • Performs simple operations using bit patterns e.g. binary addition. • Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals. Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience. Identifies and explains how the use of technology can impact on society. • Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution. 	<p>Unit 9.2 – Representing Sounds:</p> <p>Pupils will be asked to take the role of a publicist working within a digital media company. A local record label wants to open its own independent music store that allows users to stream music live to their mobile digital devices over 3G. Pupils must devise a compression strategy that will allow them to keep the file size down without compromising on sound quality. Pupils will be asked to explain how sound can be sampled and stored in digital form. They will learn how sampling intervals and other considerations affect the size of a sound file and the quality of its playback.</p> <p>The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Justifies the choice of and independently combines and uses multiple digital devices, internet services and application software to achieve given goals. • Evaluates the trustworthiness of digital content and considers the usability of visual design features when designing and creating digital artefacts for a known audience. Identifies and explains how the use of technology can impact on society. • Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution.
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<p>Summer Term</p>	<p>Unit 7.3 – Think Like a Computer Scientist: This unit introduces students to computational thinking and pupils are challenged to create an emergency evacuation plan for their school. The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Understands that iteration is the repetition of a process such as a loop. • Recognises that different algorithms exist for the same problem. • Represents solutions using a structured notation. Can identify similarities and differences in situations and can use these to solve problems (pattern recognition). • Understands that programming bridges the gap between algorithmic solutions and computers. • Has practical experience of a high-level textual language, including using standard libraries when programming. • Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control. Selects the appropriate data types. 	<p>Unit 8.3 – Instruction Set Design: Students are introduced to how computers store instructions in binary and go on to create a simulation of a n-bit instruction set for a robot using Scratch. The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Understands a recursive solution to a problem repeatedly applies the same solution to smaller instances of the problem. Recognises that some problems share the same characteristics and use the same algorithm to solve both (generalisation). • Understands the notion of performance for algorithms and appreciates that some algorithms have different performance characteristics for the same task. • Uses nested selection statements. • Appreciates the need for, and writes, custom functions including use of parameters. • Knows the difference between, and uses appropriately, procedures and functions. • Understands and uses negation with operators. • Uses and manipulates one dimensional data structures. • Detects and corrects syntactical errors. 	<p>Unit 9.3 – Programming with Python: Pupils will begin with basic coding practice such as creating a “Hello World” program in the Python and identifying and correcting common errors in Python programs. They will learn how to manipulate strings and how variables can be used to collect and store data. Pupils will use these skills to adapt a program to create an interactive quiz, involving the use of modules, images, variables and string manipulation. The following learning objectives will be taught:</p> <ul style="list-style-type: none"> • Uses nested selection statements. • Appreciates the need for, and writes, custom functions including use of parameters. • Knows the difference between, and uses appropriately, procedures and functions. • Understands and uses negation with operators. • Uses and manipulates one dimensional data structures. • Detects and corrects syntactical errors.
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KS4

ICT is of enormous importance to the economy, and the role of ICT as a discipline itself and as an 'underpinning' subject across science and engineering is growing rapidly.

Computer technology continues to advance rapidly and the way that technology is consumed has also been changing at a fast pace over recent years.

The growth in the use of mobile devices and web-related technologies has exploded, resulting in new challenges for employers and employees.

Businesses today require an ever-increasing number of technologically-aware individuals.

Our ICT curriculum at KS4 will follow three distinct strands:

Strand 1: AQA Technical Award in Information Technology

IT is about the real world, practical application of theory. IT professionals are the users of technology, utilising established building blocks and existing operating systems, software and applications, to create a system to solve a problem. IT professionals interact with clients and co-workers, and help to explain how to solve technology problems or work to construct a technology solution that meets a need.

This qualification will equip learners with the necessary knowledge and skills to translate business/user needs into practical and workable IT solutions. Learners taking this qualification will study the fundamental knowledge, understanding and skills required in the two IT occupational areas covered by this specification: creative and data management. Learning will take place through a mixture of real life case studies, practical tasks and a study of theoretical concepts, enabling learners to develop their IT knowledge, understanding and skills. Learning will be engaging and take place in a vocational context, allowing the learner to create products or artefacts that demonstrate their ability to put theory into practice. The occupational areas have been chosen from industry research showing current shortages of skilled people within the creative and data management areas.

Learners will gain a range of practical skills in IT. They'll then focus on the system life cycle to design, create, test and evaluate a solution to an IT problem. Learners will underpin this with fundamental knowledge and understanding of IT including:

- web technologies
- software
- networks
- securing IT systems
- data and information, and
- emerging technologies

Learners will achieve a qualification that is relevant to the needs of the industry, placing them in a sound position for progression to further study and equipping them with relevant employment skills.

Strand 2: Cambridge National Certificate in ICT:

These qualifications will assess the application of ICT skills through their practical use. They will provide learners with essential knowledge, transferable skills and tools to improve their learning in other subjects with the aims of enhancing their employability when they leave education, contributing to their personal development and future economic well-being.

The Cambridge Nationals in ICT will equip learners with sound ICT skills for everyday use and provide opportunities to develop in context those desirable, transferable skills such as planning, research and analysis, working with others or communicating technical concepts effectively. They will also challenge all learners, including high attaining learners, by introducing them to demanding material and skills; encouraging independence and creativity; providing tasks that engage with the most taxing aspects of the National Curriculum (including data handling, modelling and programming).

The hands on approach that will be required for learning will chime appropriately with the way young people use new technology and will underpin a highly valid approach to the assessment of their skills. The qualification design, including the range of units available, will allow learners the freedom to explore more deeply the things that interest them as well as providing good opportunity to enhance their learning in a range of curriculum areas. of assessment is un-tiered, covering all of the ability range assessed as Pass, Merit and Distinction. If pupils achieve a Distinction in all units, a Distinction is awarded.

Strand 3: Students will also benefit from the IFS Personal Finance Certificate qualification which is a level 2 qualification and has the same weight as a GCSE.

Students will use technology, and access technological resources such as online banking, e-commerce and online financial tools. Students will gain knowledge about the practical and legal constraints on the sources and uses of money, the methods of organising their money through personal budgeting, the considered use of appropriate bank and building society accounts and the concepts and consequences of overspending or payment default.

For further information regarding the ICT department or curriculum please contact Mrs Hall, Head of ICT at red House Academy.

For further information concerning E-safety or if you are concerned about anything please contact the school or follow this link <https://www.thinkuknow.co.uk/>