

ICT 5 Year Curriculum Plan

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Teaching and Learning Vision

Knowledge is power. Information is liberating.

Kofi Annan

At Smith's Wood Academy, we believe all students, whatever their background, are able to become **experts** in the disciplines that they study. Their expertise will be achieved through quality teaching and the dissemination of deep knowledge by highly skilled and knowledgeable subject experts. The Mastery approach to teaching will prevail – in every classroom, every lesson, every day.

Our students have the right to be introduced to **deep knowledge** and a **wealth of information** from the spectrum of subjects that they study. They will be introduced to, and understand, theories and principles that have influenced, continue to influence, and will influence in the future, the world in which they live. They will be prepared to fully engage in academic discussion about their learning.

This learning will secure a successful place in society for our students. They will go further than they ever thought possible.

Teaching and Learning Vision for the WRL Department

The WRL Faculty will prepare our students for the world of work in the 21st Century through quality structured independent study. We will create a culture in which young adults are ambitious, resilient and who are willing to go the extra mile to achieve their full potential.

We can turn every ICT learner into a digitally wise individual who has the ability to think and act using knowledge, experience, understanding and insight related to digital technologies

At the end of Year 11 students in ICT will....

Know and understand

- How to demonstrate knowledge and understanding of audiences at which work is targeted.
- The purpose in common applications and/or applications they have used.
- How to demonstrate knowledge and understanding of strengths and weaknesses in the ways information is presented.
- How to demonstrate knowledge and understanding of intellectual property.
- Common file types and the implications of open and proprietary standards.
- Information flow starting with input of information, processing and output.
- The costs associated with different applications including direct and indirect costs.
- Have the confidence to deal with the unfamiliar such as the code in a computer program and work out what to do.
- The principles of ordered list of instructions underpinning algorithms.
- Abstraction as picking out common features of objects in order to simplify. E.g. A common structure for a template to input information into different systems.
- The benefits of target setting for IT projects.
- Specific characteristics of software in order to make choices of tools.
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Be able to

The over-arching aim is to enable students to support their learning in all subjects using IT tools that are freely and legally available from the internet. Subordinate aims include:

- developing the skills needed for employment.
- gaining practical experience and competence with contemporary technologies including programming where appropriate.
- increasing the capacity to transfer knowledge and skills between contexts.
- developing practical skills in creativity and problem solving.
- developing an understanding of the social and commercial impact of IT.
- developing an understanding of the legal, social, economic, ethical and environmental issues raised by IT.
- developing safe, secure and responsible practice when using IT including reducing risk.
- developing the skills to work collaboratively with IT.
- developing skills in critical evaluation and feedback
- demonstrate a practical understanding and respect for acceptable use policies.

Have been exposed to the following texts (TBC)

Websites

www.film.org.uk

www.bbc.co.uk/bitesize

www.teach-ict.com

www.scratch.mit.edu

www.codeavengers.com

www.reviseict.co.uk

Have been exposed to the following knowledge and theories that span beyond the Level 2 specification

Level 3 text books and resources which will extend and develop their knowledge.

Developed their cultural and social capital through the following extra-curricular work

University workshops and taster days

5 Year Curriculum Plan

<u>Year 7 ICT at Smith's Wood Academy</u>		
<p>During Year 7 students will have an introduction to Computing, following 4 strands, of Programming, Ethics and Legislation, Hardware & Software and binary. This will build upon the work completed in Primary School, and begin to build digitally literate students, who can use the information superhighway in a safe and secure fashion, drawing knowledge from it's depths, whilst avoiding any pitfalls. Students will begin programming, using MSW Logo, and learn the basic 4 part model of a computer.</p>		
<u>Year 7 Units of Study</u>		<u>Length of unit</u>
Unit 1	<p><u>Computer Systems 1</u> Standalone computers:</p> <ul style="list-style-type: none"> • Understand what a computer is e.g. smart phone, lap top, tablet, table computer are all computers. • The four part system. 	5 weeks
Unit 2	<p><u>Computer Systems 2</u></p> <ul style="list-style-type: none"> • The fetch-execute cycle • The inside of a computer (including different types. • Operating systems <p>Software choices – understanding the best software to use for a particular use</p> <p><u>Binary</u></p> <ul style="list-style-type: none"> • Counting in binary. • Converting binary to denary and denary to binary. • Adding in binary. <p>Understanding that everything saved on a computer is saved in binary.</p>	8 weeks
Unit 3	<p><u>Programming</u> Programming Techniques:</p> <ul style="list-style-type: none"> • Pupils will be creating flow charts using basic symbols. <p>MSWLogo Programming:</p> <ul style="list-style-type: none"> • To use the IDE for MSWlogo. • To understand data types. • To write and identify variables. • To write and identify procedures. • To write and identify procedures in procedures. 	1 term

	<ul style="list-style-type: none"> To debug problems within code. Keywords: Algorithm, IDE, variable, procedure, debug. 	
Unit 4	<u>Ethics and Legislation</u> E-safety: <ul style="list-style-type: none"> Pupils will learn about the purpose and importance of an AUP (Acceptable Use Policy). They will learn about the threats caused by the internet. The focus will be on social media (including sharing personal information – it's purpose and importance. Threats to safety – personal information, public profiles, cyberbullying, fake identities, weak passwords, logging out. Methods of protection (including, passwords, meeting people. Understand the advantages and disadvantages of social media. 	<i>In lessons – 1 term</i>
Year 8 ICT at Smith's Wood Academy		
In Year 8, students will have continue their exploration of Computing, expanding their knowledge of the same 4 strands, of Programming, Ethics and Legislation, Hardware & Software and binary. This will build upon the work completed in Primary School and in Year 7, and further develop them into digitally literate students. Students will acquire new skills in programming, using Scratch, and learn about how networks can influence the performance of a computer.		
Year 8 Units of Study		Length of unit
Unit 1	<u>Hardware and Software</u> <u>Networks 1:</u> <ul style="list-style-type: none"> Know what a network is. LAN networks <ul style="list-style-type: none"> Hardware needed. Topologies and their advantages/disadvantages. WAN networks <ul style="list-style-type: none"> Hardware needed Advantages/disadvantages compared to LANs	<i>5 weeks</i>
Unit 2	<u>Networks 2</u> <ul style="list-style-type: none"> The internet - Understanding what it is (and what it isn't) and how it works. <ul style="list-style-type: none"> Internet search – Boolean, tags etc. HTML 	<i>5 weeks</i>

	<ul style="list-style-type: none"> • Cloud computing – Understanding what it is and how it works. Understanding the advantages and disadvantages. • Cloud storage – Understanding what it is and how it works. Understanding the advantages and disadvantages. 	
Unit 3	<p><u>Binary</u></p> <ul style="list-style-type: none"> • ASCII table – converting symbols to binary and binary to symbols. Understanding that it is stored in binary. • How images are stored in binary. <p>How sound is stored in binary.</p>	3 weeks
Unit 4	<p><u>Programming</u></p> <p>Programming Techniques:</p> <ul style="list-style-type: none"> • To write pseudocode. <p>Scratch Programming:</p> <ul style="list-style-type: none"> • To use the IDE for Scratch. • To understand data types. • To write and identify iteration (forever). • To write and identify repeats. • To write and identify selection (if). • To debug problems within their own code and code they have been given (to be done as a DNA each lesson) • To plan and write code independently. <ul style="list-style-type: none"> • Keywords: pseudocode, iteration, repeat, selection, sprite, script. 	In lessons – 1 term
Unit 5	<p><u>Ethics and Legislation</u></p> <p>Cyber security:</p> <ul style="list-style-type: none"> • Threats to security – viruses, hacking, physical threats. • Protection to security – encryption, back up, strong passwords, biometrics, unsecure WANs, physical locks/protection. • Evaluating moral issues e.g. ethical hacking and businesses such as Apple refusing government requests to access personal information for legal cases. 	In lessons – 1 term

Year 9 ICT at Smith's Wood Academy

Year 9 students at Smith's Wood Academy will start their Key Stage 4 journey in ICT, starting the **(DRAFT)** new ITQ qualification from TLM. The TLM Level 2 Certificate in Open Platforms and Digital Skills programme of study develops an appreciation of the fact that

data is all around us but that it is when data is processed that data is turned into information and with information comes power to make decisions. Year 9 students will study Unit 1, The understanding of digital platforms and open standards. This will cover understanding the structure and properties of digital material, planning, designing and using digital information in appropriate ways and analysing and evaluating the control of digital information.

In Unit 2 students will understand the way digital information is managed and modified, plan, create and manage different digital material as required and assess the strengths and weaknesses of digital material management and systems.

These students will be completing the course in Year 10 (starting September 2018)

Year 9 Units of Study		Length of unit
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Unit 1	The understanding of digital platforms and open standards	TBC
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Unit 2	The management of digital platforms and the application of digital skills	TBC
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Year 10 ICT at Smith's Wood Academy (TBC) (Altius / Fortius Students ONLY, Citius students do not study ICT at Smith's Wood Academy)		
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The **(DRAFT)** TLM Level 2 Certificate in Open Platforms and Digital Skills programme of study develops an appreciation of the fact that data is all around us but that it is when data is processed that data is turned into information and with information comes power to make decisions. The linked unit structure allows students to develop a "joined up" view of the digital world and the way that it impacts upon their lives and the personal decisions they make everyday. The "themed" sets of practical units build a digital portfolio that showcase a true "Can do" capability to tutors or agencies recruiting students to level 3 courses or to an advanced apprenticeship programme. The programme of study is divided into 4 sections

1. The understanding of digital platforms and open standards
2. The management of digital platforms and the application of digital skills
3. The evolution of threats to digital platforms and the skills required to counter these threats
4. The Extended Project: Planning, executing and evaluating systems to promote a learner's digital skills in a contemporary and accessible way.

Year 10 students (from September 2017) will study Unit 1, The understanding of digital platforms and open standards. This will cover understanding the structure and properties of digital material, planning, designing and using digital information in appropriate ways and analysing and evaluating the control of digital information.

In Unit 2 students will understand the way digital information is managed and modified, plan, create and manage different digital material as required and assess the strengths and weaknesses of digital material management and systems.

These students will be completing the course in Year 11 (starting September 2018)

Year 10 Units of Study (TBC)		Length of unit
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Unit 1	The understanding of digital platforms and open standards	TBC
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Unit 2	The management of digital platforms and the application of digital skills	TBC
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Year 11 ICT at Smith's Wood Academy (Altius / Fortius Students ONLY. Citius students do not study ICT in Yr 11 at Smith's Wood Academy)

In Unit 1 Students will plan select and use appropriate IT systems and software to meet needs, review and adapt the ongoing use of IT tools and systems to make sure that activities are successful and develop and test solutions to improve the ongoing use of IT tools and systems.

In Unit 4 Students will select and use appropriate methods to minimise security risk to IT systems and data

In Unit 5 students will use a spreadsheet to enter, edit and organise numerical and other data, select and use appropriate formulas and data analysis tools to meet requirements and select and use tools and techniques to present and format spreadsheet information

In Unit 10 Students will input and combine text and other information within presentation slides, use presentation software tools to structure, edit and format slide sequences and will prepare slideshow for presentation

In Unit 13, Students will use e-mail software tools and techniques to compose and send messages and will also manage incoming email effectively.

Students will then complete an examination in ICT to complete the Level 2 ITQ qualification.

Year 11 Units of Study		Length of unit
Unit 1	Improving Productivity	4 credits
Unit 4	IT Security for Users	2 credits
Unit 5	Spreadsheet Software	4 credits
Unit 10	Presentation Software	4 credits
Unit 13	Using Email	3 credits
EXAM	TLM Level 2 Certificate for IT User Skills in Open Systems and Enterprise	N/A

5 Year Curriculum Plan Overview

Year 7

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn Term 1		Log on and rules	Computer Systems 1: What is a computer?	Computer Systems 1: 4 Part system: Input and output	Computer Systems 1: 4 Part system: storage and Processor	Computer Systems: Assessment	Computer Systems 1: Deep feedback	
Autumn Term 2	Computer Systems 2: Inside a computer	Computer Systems 2: Fetch-execute cycle	Computer Systems 2: Counting and adding in binary	Computer Systems: Assessment	Computer System 2s: Deep feedback	Computer Systems 2: Software choices	Computer Systems 2: Operating systems	Computer Systems 2: Open and closed software
Spring Term 1	Programming: Creating flowcharts	Programming: MSWLogo data types	Programming: IDE (maze)	Programming: Procedures (basic shapes)	Programming: Assessment.	Programming: Deep feedback		
Spring Term 2	Programming: Procedures in procedures	Programming: Variables	Programming: Variables	Programming: Practical Assessment	Programming: Deep feedback			
Summer Term 1	Computer Safety: AUP	Computer Safety: Phishing (threat and protection)	Computer Safety: Protecting accounts (passwords)	Computer Safety: Inappropriate images	Computer Safety: Assessment	Computer Safety: Deep feedback		
Summer Term 2	Computer Safety: Advantages and disadvantages of social media	Computer Safety: Public profiles (threat and protection)	Computer Safety: Fake identities (threat and protection)	Computer Safety: Cyberbullying	End of year Assessment	Computer Safety: Deep feedback	Computer Safety: Social action on social media	

Year 8

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn Term 1		Log in and rules	Networks 1: LAN networks/ topology	Networks 1: WAN networks	Networks 1: Wireless communication	Networks 1: Assessment	Networks 1: Deep feedback	
Autumn Term 2	Networks 2: How the internet works	Networks 2: HTML overview	Networks 2: Cloud computing	Networks 2: Assessment	Networks 2: Deep feedback	Binary: Symbols and ASCII code	Binary: Images	Binary: Sound
Spring Term 1	Programming: Pseudocode and why it's important.	Programming: Data types in Scratch.	Programming: iteration (repeat, repeat until and forever)	Programming: if and else with a variety of senses.	Programming: Assessment	Programming: Deep feedback		
Spring Term 2	Programming: Timers	Programming: Scores	Programming: Pseudocode plan	Programming: Short game/ multi choice story	Programming: Deep feedback			
Summer Term 1	Cyber Security 1: The threat of and protection from viruses	Cyber Security 1: The threat of and protection from passwords	Cyber Security 1: Physical threats and protection	Cyber Security 1: Methods and importance of back up	Cyber Security 1: Assessment	Cyber Security 1: Deep feedback		
Summer Term 2	Cyber Security 1: The threat of hacking	Cyber Security 1: Protection from hacking	Cyber Security 1: Ethical hacking	Cyber Security 1: Protection from hacking	End of year Assessment	Cyber Security 1: Deep feedback	Cyber Security 1: Government information requests	

Year 11 (from Sept. 2017)

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Autumn Term 1	Unit 10: Presentation Software	Unit 10: Presentation Software	Unit 10: Presentation Software	Unit 10: Presentation Software	Unit 10: Presentation Software	Unit 1: Improving Productivity	Unit 1: Improving Productivity	
Autumn Term 2	Unit 1: Improving Productivity	Unit 1: Improving Productivity	Unit 5: Spreadsheet Software	Unit 5: Spreadsheet Software	Unit 5: Spreadsheet Software	Unit 5: Spreadsheet Software	Unit 13 : Using Email	Unit 13 : Using Email
Spring Term 1	Unit 13 : Using Email	Unit 13 : Using Email	Unit 13 : Using Email	Unit 4: IT Security for Users	Unit 4: IT Security for Users	Unit 4: IT Security for Users		
Spring Term 2	Preparation for examination	Preparation for examination	Preparation for examination	Preparation for examination	Exam			