GRANVILLE ACADEMY

Curriculum Guide for ICT

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The de Ferrers Trust

1. Curriculum Rationale

2. What students will learn in ICT

1. INTENT

The objective of the IT/Computing curriculum is to enable student to have a clear knowledge of computer systems looking at hardware and software. This will enable the students to take their knowledge into the work place as computers are used in all walks of business life. In year 7 the SOW looks at e-safety which will give further knowledge following from lessons taught in year 6. They are introduced to programming language and understanding how to use the internet. By the end of year 7 the students should have a good round knowledge of spread sheets, programming code and an understanding of how systems work for leisure and industry. Critical Thinking is developed as they identify appropriate coding structures for solutions, collaboration to discuss the efficiencies of code and identify errors. Pupils can be Creative with their solutions as there are multiple methods to arrive at the solution, with theory work pupils can demonstrate their understanding in a variety of ways. Challenge is prevalent throughout the course; pupils investigate a deeper understanding of WHY or HOW the computer functions or use professional methods to create re-usable, maintainable code.

Throughout year 8 the computing knowledge increases with networks and different types of programming language introduced. These are all covered within the national curriculum and are to help toward a GCSE in computer science or a GCSE in IT.

In Year 9 pupils will start a Creative iMedia course with the intention of continuing with it throughout KS4.

Each key stage 3 class will have two hours of IT per week this will be able to reflect the amount of subject knowledge which is delivered. Due to computing and IT always changing but is a constant within industry all students will have a good understanding and knowledge of the future technology which has to include coding and IT skills. The SOW for KS3 show a range of topics which will enable them to continue with their studies in computer science or IT but will also give them a good structured knowledge of IT/Computing skills ready for the work place.

2. IMPLEMENTATION

The way in which each of the topics are delivered depends on the topic but overall the teacher will demonstrate and explain the uses of the software and benefits and the students will copy and reproduce work following from the demonstration. In year 9 the top sets will be introduce into more programming language as they would be suitable for the GCSE computer science course where as the lower sets would be encouraged to go down the IT route which will give them an IT qualification. During year 7 and 8 the whole cohort will be doing a mixture of IT and computing units to enable them to have a greater understanding

of the subject. In each year we revisit e-safety as it is an ongoing issue with the students and making sure they always remember how to use the internet safely.
All topics can be reduced due to particular students and equally deepened for more able students.

The impact of the SOW is to make sure the students have a good knowledge of IT/computing. Students come to an IT lesson thinking they know everything about computers but the only thing they know is how to open apps send messages and look at the internet. What they don't know is how the computer works how it is connected to the internet or a network within school how they can design a system of their own or how they could store lots of information in lots of different ways the SOW tells them all that. The national curriculum states all the topics that have to be covered and the SOW maps it easily.

COVID

Due to C0VID we have had to look at the way some of our lesson are carried out as we link to two other school which follow the same SOW. When we returned to school following the two lock downs each school dealt with keep the infection at bay by keeping their students in one room for all lesson and the teacher moving instead of the student. This cause an issue with the SOW as year 7 and 8 could not carry out certain tasks without a computer room. The scheme of work had to be change to accommodate the other schools. Therefore, this coming SOW will have to be changed to allow the students to catch-up with the topics that they missed.
In year 8 they will have a programming unit and it will be longer than normal to allow the students to gain understanding as they will not have had any programming lessons before.
In year 9 we are having to share the lessons with programming and network lesson to increase knowledge to enhance learning

KS3 ICT Plan

KS3	YEAR 7	YEAR 8	YEAR 9
	iPads	**iPads**	**iPads**
Week 1- 6/09/21	Rules and regulation and introduction of the ICT department	Rules and regulation and introduction of the ICT department	Rules and regulation and introduction of the ICT department
Week 2- 13/09/21	Introduction of how to use iPads within school- What the school expects -The basics of how to use and charge the iPad.	Introduction of how to use iPad within school- What the school expects -The basics of how to use and charge the iPad.	Introduction of how to use iPad within school- What the school expects -The basics of how to use and charge the iPad.
Week 3-20/09/21	Apps that are regularly used within the school- Google classroom, uploading of work from iPad.	Apps that are regularly used within the school- Google classroom, uploading of work from iPad.	Apps that are regularly used within the school- Google classroom, uploading of work from iPad.
Week 4-27/09/21	Security and safety.	Security and safety.	Security and safety.
Week 5-04/10/21	**Game addiction**	**Cyberbullying**	**Cybercrime**
Week 6-11/10/21	Explore safe usage of computers - addiction, anti-social usage, medical considerations	Introduce terms, Real life stories, Legal considerations, agencies people to contact	Importance of ICT, Emerging Technologies, The Information Age
Week 7 – 18/10/21	contingency	contingency	Cyber Security, Data Security Data Reliability
Half Term			
week 8- 1/11/21	**E-safety/Search the web - Techniques to stay safe**	**ICT in Today's World**	**Introduction into iMedia course**
week 9 -08/11/21	Important considerations when using the web	Importance of ICT, Emerging Technologies, The Information Age	What is a digital graphic and where are they used? What type of file formats are needed within a digital graphic?
week 10- 15/11/21	Agencies / people to contact if concerned- Legal aspects	Cyber Security, Data Security Data Reliability	What is composition and white space? Write up a report on digital graphics.
week 11- 22/11/21	Assessment 1 - iPads and esafety	Assessment 1 - iPads, cyberbullying and cyber crime	Assessment 1- iPads and Cyber crime
week 12- 29/11/21	Research techniques	**Cryptography**	**pre-production documents** / **Networks**

	Browsers and search engines	Historical concepts of encryption (Caesar Cipher / WW2 Enigma & Turing bombe)	Storyboards, mood boards	The Internet, Connectivity
week 13-06/12/21 Data deadline 8th DEC	URLs	Modern applications of encryption-	Visualisation diagrams	Topology
week 14-13/12/21	Domain Names	Use within shops (bar codes/check digits)	Mind Maps	Client-server networks
week 15-20/12/21	Effective searching	Application of QR barcodes - Data Rights Management	scripts	Encryption
Christmas break				
week 16- 10/01/22	**Spreadsheets**	**Databases**	**Using graphic software**	**Algorithms**
week 17- 17/01/22	Spreadsheet skills to include the following:	Introduction to databases	Serif Affinity designer and publisher	solving a problem using a Flow charts
week 18 - 24/01/22	Basic formula (+-*/)	Creating a database table	Affinity	searching/sorting
week 19 - 31/01/22	More complex formula (min, Max, Avg)	Queries	Comiclife	Sequencing
week 20 - 07/02/22	Spreadsheet formatting Graphs, filtering and spreadsheet modelling	Input forms	Pixton	Pseudocode
week 21 - 14/02/22	Disseminating from brief the requirements of a spreadsheet	Creating a report	Affinity	
Half term				
week 22- 28/02/22	Assessment 2 - spreadsheets	Assessment 2 - databases	Assessment 2 - digital graphics and Networks	
week 23 - 07/03/22	**Algorithms**	**Python/Small Basic**	**Producing graphic artwork**	**Python**
week 24- 14/03/22 Data deadline 16th March	Introduction to algorithmic thinking- Breaking down everyday tasks into algorithms	The basics	Manipulation graphics	Fundamentals
week 25-21/03/22	Production of flow charts	Loops	creating finished products following a brief	selection and iterative
week 26 - 28/03/22	**First steps in small basic - Introduction**	Lists	Using correct software for particular graphic tasks	functions
week 27-04/04/22	For loops and colour, text windows	Procedures	Checking client brief against final work	reading and writing files
week 28 25/04/21	Variables and conditions	Functions	contingency	programming techniques
Easter Holidays				
week 29 02/05/22	**Understanding computers**	**HTML**	**Start coursework**	**Binary**

week 30-09/05/22	Elements of a computer system- The CPU	HTML/CSS	coursework	History of binary
week 31- 16/05/22	Understanding binary- and binary addition	Design	coursework	Binary addition
week 32- 23/05/22	Storage devices	Development	coursework	Hex and Hex addition
week 33-06/06/22	Convergence and new technologies	Creating a web form	coursework	
Half Term				
week 34- 13/06/22	Assessment 3- algorithms and understanding a computer	Assessment 3- Python and HTML	Assessment 3 Digital graphics, programming and Binary	
week 35- 20/06/22	Game Creation Learning a new software - swift	Game Creation Learning a new software - swift	coursework	**Databases**
week 36- 27/06/22	Learning the codes to create a game	Learning the codes to create a game	coursework	Table, Forms, Reports
week 37- 04/07/22	Design a game	Design a game	coursework	Relational
week 38- 11/07/22 Data deadline 13th July	Create the game and demonstrate	Create the game and demonstrate	coursework	Queries
week 39-18/07/22	contingence	contingence	coursework	Entity relationship diagrams

3. Assessment Plan

KS3

At the end of each topic a small test is given to check knowledge this is then marked and discussed with peers to show understanding. The formal assessments will be 3 per year and these are based on a range of topics that have been covered. The formal assessment will be marked and feedback given allowing the student time to evaluate their work and make changes. The impact of their growing knowledge will be easily shown as their confidence gets better with different software's and applications. The assessments will then be moderated either internally or cross-Trust, and directly influence students' progress rank.
IT/Computing is a cross curriculum activity as in many lesson IT is used. The better the understanding of the different software's also helps other subjects when they have to create projects , graphs or a Curriculum Vitae .
The curriculum is differentiated for all ability ranges with pupils encouraged to attempt challenge tasks.
Drop in sessions at lunchtime or afterschool offer pupils the opportunity to enhance their understanding of ICT.

4. Specialist Vocabulary

KS3 Computing	GCSE Computer Science	OCR Creative iMedia
Digital literacy Formatting Consistency Hardware and software Algorithm Pseudo code Sequence Selection Iteration Formula Bitmap Vector	Von Neumann architecture Logic gates Abstraction Iteration Sequence Decomposition Algorithm Application Program Interface Attribute Bandwidth Bit Rate Bubble Sort Cipher Text Client Client Server System Database	Pre production documents Visualisation diagram Mind map Mood board Script Assets Health and Safety Legislation Client requirements Target audience House style Work plan Copyright Data protection Version control

	Database Management System Decryption Embedded Systems Encryption Float / Real Human Computer Interface Interpreter Linear Search List / Array Maintenance Overflow Peer to peer network Phishing Humans as the “weak link” Primary Key Field Record Integer String Character Sample Rate SQL WHERE FOR WHILE RANGE LEN IF ELIF ELSE Router Server ALU Cache RAM ROM MDR MDA Control Unit Topology RING BUS STAR MESH CPU Motherboard Primary Storage Secondary Storage Volatile Non-Volatile Python Idle Compiler Interpreter Translator Assembler Assembly	

Key Words are emphasised at the start of the lesson.

Understanding of keys words is reinforced by recaps of previous learning.

Pupils are encouraged to use the words in the annotation of their work and evaluations

It is the ambition of the faculty to use social media to share key words and concepts. The faculty Instagram has been well received by pupils. Opportunity for digital leaders/most able in Year 9 and 10 to produce content on the iPads using Clips/Movie maker.

Knowledge organisers can be found here: http://www.deferrerstrust.com/knowledgeorganisers

5. Homework and independent learning

Homework helps to reinforce learning and develop good study habits and life skills. Homework also allows parents to be involved with their child's learning.

Homework and the regularity there of at KS3 is dependent on the topic.

USEFUL GCSE ICT REVISION WEBSITES

Computer Science Revision

https://www.computerscience.gcse.guru/

Revision Quizzes for GCSE IT

http://www.school-resources.co.uk/GCSEITRevisionQuizzes.htm

BBC - Schools - GCSE Bitesize Revision - ICT

http://www.bbc.co.uk/schools/gcsebitesize/ict/

ICT GCSE = Recommended ICT revision site.

http://www.ictgcse.org.uk/

Top Sites for: GCSE ICT revision

http://onebigworld.co.uk/ukdirectory/gcse-ict-revision.html

GCSE ICT Theory Index Page

http://www.klbschool.org.uk/ict/gcse/theory/

How to 'revise'

You need to make your revision time as productive as possible. Just reading does not tend to be very effective. Making revision notes, writing topic summaries, attempting questions and then checking the answers are much better strategies. Writing or typing something forces you to concentrate and your mind is less likely to wander off your revision onto something you would rather be doing.