

Sir Thomas Boughey 2018/19
Computer Science KS3

Year 7 Content / topics	Autumn 1 Logons, File Management & Baseline test (3) Digital Literacy Booster (skills) Expectations of presentation (6)	Autumn 2 Computer Systems IPO Parts of a System Hardware/Software Binary Basic Networks (5)	Spring 1 E Safety	Spring 2 Control – Flow Diagrams/Algorithms	Summer 1 Python Turtle Sequence, Iteration and Procedures	Summer 2 Technology Networks Intro Data Representation Robotics
Skills	File management skills Organisation and access to schools resources Recap of presentation skills and overview of expectations in terms of using systems to create documents	Identify parts of a computer system and be able to describe what functions they perform How a computer talks (binary)	Understanding the issues of being online being able to make informed decisions about the content contributed and acquired. Be knowledgeable about safe practices.	Essentials for constructing programs how to structure the processes prior to programming and being able to structure on thoughts. Use stimulations to solve everyday situations.	Command line programming developing structure into script product to solve challenges	Project looking a new technologies and possibilities of development in IT and Computing. Some programming and presentation required
Assessments / PPEs	End of Unit review	End of Unit review	End of Unit review	End of Unit review	End of Unit review	End of Unit review

Year 8 Content / topics	Autumn 1 Scratch Project Game based with game to create	Autumn 2 Photoshop Project Pixels and data representation	Spring 1 Using the Microbit	Spring 2 Python – Maths challenge	Summer 1 Networking	Summer 2 Data handling
Skills	Continue to develop programming techniques and procedures using a block style coding environment	Develop understanding of how graphics work and be able to edit and manipulate pictures using a professional software package	Programming challenges using a small computer to further develop skills. Visual outcomes and can interact with other devices as a portable device.	More Python to develop programming constructs and structure to coding skills.	Understand the principles behind networking. Apply understanding to a practical situation to connect devices and allow them to be able to talk.	Data storage and retrieve is fundamental in data communication and knowing how to store sort and retrieve data in a control manner is important.
Assessments / PPEs	End of Unit review	End of Unit review	End of Unit review	End of Unit review	End of Unit review	End of Unit review

Key assessed pieces of work

Unit of work Year 7	Assessment document
Logons and Baseline test	Online Test- Baseline ICT/CS
Computer Systems	Written paper in class – students assessed
Digital Literacy Booster (skills)	Software tasks – creation of several business document
E Safety	Project Presentation – Online test
Python Turtle	Tasks completed with evidence Online test
Control – Flow Diagrams/Algorithms	Activity outcomes Exercise to solve real world situation and print screen outcomes.
Technology:	
Networks Intro	Configuring workstations
Data Representation	Binary test
Robotics	Progress in challenges
Unit of work Year 8	Assessment document
Photoshop Project	Magazine Cover – evidence of tasks completed
Pixels and data representation	Worksheets with theory covered
Using the Microbit	Project assessment – code printed and solution demonstrated
Data handling	Assessment sheet – creation of working solution
Python – Maths challenge	Program and peer assessment
Networking	Activity – configuration evidence and online test
Scratch Project	Assessment project and code evidence – peer feedback
End of Year Examination	Written test

KS3 Computing Curriculum Map Sept

Unit of work	Assessment	Computational Thinking
Start of KS3 Test Pupils will complete a baseline test that assess them on the progression pathway assessment framework and indicates their proficiency at computational thinking.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Introduction to computational thinking Pupils will learn about the importance of computational thinking and how it relates to everyday problem solving. Pupils will be given several scenarios where they are challenged to solve a problem and identify where each aspect of computational thinking has been demonstrated.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
What are computers? This scheme of work will give learners an understanding of the key components that make up a computer system, input and outputs, basic binary conversation, health and safety aspects of using technology and the various types of operating systems.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation Algorithmic thinking Generalisation X Decomposition
Digital Literacy Covers some of the basic skills students require for using ICT in their work. Including file management, software transferable skills and ability to text process at a reasonable rate (opportunity to undertake the KS3 text processing examination in an ICT club).	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation X Algorithmic thinking Generalisation X Decomposition
E Safety Understand the issues associated with the use of digital data and in particular social media. Main issues with a digital footprint and ways of safeguarding.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation X Algorithmic thinking Generalisation X Decomposition X
Python Turtle Introduces the language of Python with the commands used to control a turtle. Introduces the two shells for editing and scripting, along with running simple script in a window to view the results. Produces outcomes from being able to use basic mathematical angles to create shapes and efficiency of scripts with the use of appropriate repetition code.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Computer Control (Algorithms) Planning outcomes with the use of flow diagrams and understanding the structure of solutions prior to programming. Using sensors to input data and control outputs as a result of the input received. The idea of a control system used in the real world.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Networks and Data Representative Concepts of joining devices to communicate and how they work. Looking at types and topologies with practical hands on configuration of a peer to peer system with shared resources. Aim is to bring robotics into this with most warehouses etc handing orders with robots.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Using the Microbit Device with inputs and outputs where students can program control of these to interact with the environment it is in. Projects based around different scenarios using initially the block graphical interface but learning how this translate and looks in other languages such as Python. Having previous experience of both environments would help progress and understanding here.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Data Handling Most modern day IT systems are based around databases and students need to understand how they function. Based on initially a flat file – students should be able to venture to be able to create a relational database which mimics a real world situation – model it with such as a web front end.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation X Algorithmic thinking Generalisation X Decomposition
Python – Maths Challenge This scheme of work will give learners an understanding of the key components that make up a computer system, input and outputs, basic binary conversation, health and safety aspects of using technology and the various types of operating systems.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Networking Continue on the theme of connecting devices so they are able to communicate. Focus should be more on the client/server systems and allow students to connect devices for validation via servers. Logons to restricted access – more to do with how the internet works.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation Algorithmic thinking Generalisation X Decomposition
Scratch Project Looking at language construction and using a blocks configuration where the structure is placed for the program and the attributes are then added to control the objects. Based on a simple interface students will learn to solve problems using a graphical programming environment.	Algorithms X Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction X Evaluation X Algorithmic thinking X Generalisation X Decomposition X
Photoshop – Data Representation Understanding the basic principles behind programming using binary and data representation. All students will be able to identify the structure of how pictures are represented in binary and how the computer stores them. Hence be able to comprehend file sizes and initial ideas behind compression techniques.	Algorithms Program. & Develop. X Data Representation X Hardware & Process. X Comm. & Networks X Info. Technology X	Abstraction Evaluation Algorithmic thinking Generalisation X Decomposition