Curriculum Intent, Implementation and Impact

Subject: Computer Science

Year group: Year 7 , Year 8 , Year 9

Periods per fortnight: 2

Computing National Curriculum

Intent:
Our vision in The Buckingham School Computing department is that students are able to build the skills and confidence to understand all aspects of computing, from the impacts of the technology, e-safety to designing programs of their own. Students will develop learnership and independence through use of cooperative learning in the subject.

We aim to ensure that **all** students are able to:

- Understand how to research and present data
- Analyse current affairs and discuss the impact that technology has on society
- Plan and build programs, using a variety of programming languages
- Have a deeper understanding of the internal and external functions of a computer (software and hardware)
- Keep themselves safe online and while using technology
- Have developed the basic digital literacy skills to thrive in the current world

Curriculum Mapping for KS3

IMPLEMENTATION (Year 7):

Term	Topics studied	Extended learning opportunities	How parents could support students
Term 1 and start of Term 2	Cat Testing (benchmark testing) Digital Literacy: ● Where to report concerns ● Healthy and unhealthy behaviour online ● Cyberbullying Computer Systems: ● Data ● Input and Output Devices ● The CPU ● Memory ● Storage Devices ● Software ● Operating Systems	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Effective studying is continuous small amounts over time vs studying the night before. It's testing themselves on the content (practising questions- recommend flashcards) and doing something with the information vs reading and highlighting. **Useful Websites:** BBC Bitesize

			Seneca Learning
Term 2 and Term 3	Programming Fundamentals: ● Overview of the programming fundamentals ● Sequential Programming ● Count Controlled Loops ● Condition Controlled Loops ● Conditional Statements	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Parents/Guardians can also support students by practising coding with them at home. **Useful Websites:** BBC Bitesize Code.org Seneca Learning
Term 4	Planning Programming with Basic JavaScript: ● Introduction to drawing (ellipse, rect, fill, colouring), using javaScript ● Flow diagrams ● Follow a flowchart to produce that image ● Producing flowcharts	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Parents/Guardians can also support students by practising coding with them at home. **Useful Websites:** BBC Bitesize Khan Academy Seneca Learning
Term 5	Photo editing using photopea: ● Bitmaps (introduction to how images are produced) ● Creating a Logo (layering) ● Filters ● Cropping	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment)	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** Photopea tutorials

Term 6	E-Safety Media Campaign: ● Research and build a full scale (social) campaign about E-Safety. This will involve producing assemblies, workshops and talking to the community.	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment)	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** Fake News ThinkUKnow (ages 11-13) ThinkKnow (ages 8-10) Seneca Learning

IMPLEMENTATION (Year 8):

Term	Topics studied	Extended learning opportunities	How parents could support students
Term 1	Computer Networks ● Types of networks ● Network Topologies ● Network hardware ● Malware ● Social Engineering ● Prevention methods	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Effective studying is continuous small amounts over time vs studying the night before. It's testing themselves on the content (practising questions- recommend flashcards) and doing something with the information vs reading and highlighting. **Useful Websites:** BBC Bitesize Seneca Learning
Term 2	Computer Topics ● Digital Footprint ● Internet censorship ● Digital Laws ● Environmental Issues ● Ethical Issues	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Parents/Guardians can also support students by practising coding with them at home. **Useful Websites:** BBC Bitesize Seneca Learning

Term 3	Number Systems (Binary) ● Reading Binary (binary to decimal) ● Decimal to Binary ● Binary Addition ● Hexadecimal (challenge for some students)	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** BBC Bitesize Seneca Learning
Term 4	Data Representations : ● Characters ● Images ● Sound ● Compression	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** BBC Bitesize Seneca Learning Seneca Learning (Advanced)
Term 5	Animations in JavaScript ● Review of javaScript programming ● Variables ● Game loops	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** Khan Academy	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Parents/Guardians can also support students by practising coding with them at home **Useful Websites:** Khan Academy BBC Bitesize Seneca Learning Seneca Learning (Advanced)
	Game Making in JavaScript ● Simple functions (no parameters) ● Complex functions (parameters and return functions) ● Planning games ● Executing our plans	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** Khan Academy	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** Khan Academy

IMPLEMENTATION (Year 9):

Term	Topics studied	Extended learning opportunities	How parents could support students
Term 1	Searching and Sorting Algorithms:4 ● Linear Search ● Binary Search ● Bubble Sort ● Insertion Sort	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** KS3 Computer Science Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Effective studying is continuous small amounts over time vs studying the night before. It's testing themselves on the content (practicing questions- recommend flashcards) and doing something with the information vs reading and highlighting. **Useful Websites:** BBC Bitesize Seneca Learning Seneca Learning (Advanced)
Term 2/	Introduction to Python: ● Print and input ● Arrays and Libraries ● If Statements ● While Loops	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment) **Independent work:** Introduction to Python Seneca	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. Parents/Guardians can also support students by practising coding with them at home. **Useful Websites:** BBC Bitesize Seneca Learning (Advanced) Seneca Learning (Python)
Term 3	Logic Circuits and careers: ● Logic Gates ● Truth Tables ● Research and presentation into careers in the computing field	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment)	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** BBC Bitesize Seneca Learning (Advanced) Logicly (Circuit building website)

Term 4	Microbit Game Design and Robotics Unit: ● Microbit Basics ● Snap the dot ● Space invaders ● Catch the dot ● Robot basics ● Remote controlled cars	Flipped Learning via Google Forms: Set 1- Content videos and research websites Set 2: Exam based questions (preparation for assessment)	Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** Tutorials
Term 5	Advanced E-Safety ● Fake news ● Echo Chambers ● Scams ● Addictive designs of apps ● Toxic and healthy relationships online *Plus any relevant topics		Parents can support their child by checking extended learning progress at home and help guide students into creating an effective revision timetable prior to assessment. **Useful Websites:** Fake News ThinkUKnow (ages 11-13) ThinkKnow (ages 8-10) Seneca Learning

IMPACT:

Students will be assessed to prove that they have understood and can apply what has been taught at the end of each unit. Students will be tested using GCSE exam style assessments, with flipped learning exam support in place to prepare students for higher level questioning.

Each student will be graded as Emerging/Developing/Secure/Mastered/Mastery*, with each unit being weighted equally.

This approach enables students to confidently complete the Computing National Curriculum and be GCSE ready when they reach the end of KS3. If students choose to not pursue Computing at the higher level they will have the necessary digital literacy skills to thrive in the modern world.