Year 8 – COMPUTER SCIENCE Programme of Study

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit/Topic	**Cybersecurity**	**Video Editing**	**Digital Ethics 2.0**	**The Easter Market Stall**	**P5.js: Creating flags**	**Computer Unit Part 2: Algorithms and B/D/H**
Enquiry Question	What is Cybersecurity and how does it affect me?	How can we create a compelling video of the Drama Silent Movie milestone?	How do we stay safe online in this digital world?	How can I make a profit? Why should the Dragons invest in your pitch?	How do I create art using basic Processing shapes? How can I develop my art to accurately create flags in P5.js?	How do computers think?
Key Content	• Data and information - the difference • Data Protection Act - what is it and why is it important? • How do I minimise risk and what/why is my personal information important • What is the Computer Misuse Act? How does it affect me? • Social engineering and other online threats (Malware, Phishing, Cyber attacks and Bots)	**Film clips:** Investigation into different camera angles and techniques. Consideration of: • purpose of a video • target audience • camera positions/techniques used and why? • emotions conveyed by the director File types used in video production **Video editing:** Introduction to video editing software. • Importing content. The timeline. • Multiple transitions and effects. • Exporting videos. • Collaboration and teamwork.	• Understand a range of ways to use technology responsibly, respectfully, safely and securely • Protecting your online identity and privacy • Recognising inappropriate content, contact and conduct • Knowing how to report concerns	**Introduction to Google Sheets:** • The unitary method (from Maths) • Cell references • Basic formulas • Formula repetition and absolute referencing • Common functions • Aggregate functions • Drawing conclusions from the data **Introduction to Google Slides:** • What makes a good presentation? • Effectively using notes in slides • Creating a script (links with Drama) • Sound effects **What makes a suitable product?** • Planning considerations. • Logo designs and introduction to vector image editing. • Finding recipes and ingredients.	**Introduction to P5.js as a JavaScript library** • The setup() and draw() functions • The canvas, and coordinates rect() and ellipse(); • origins of shapes • RGB colours; additive vs. subtractive colours • Stroke weight, fill and background • Variables • Keypress and mouse event handling • Variables inside loops; patterns and repetition • Functions • Curves, quads and arbitrary shapes • Basic functions, shapes, colours. • Accurately determining and using colours. • Understanding proportion, and using width and height effectively. • Adding "magic" to sketches using variables, mouse position and events. • Documenting work.	**Introduction to the binary number system.** • Converting between denary (decimal) and binary. • Introduction to hexadecimal. • Converting between binary and hexadecimal, and hexadecimal and denary. **Computational thinking:** • Accurately describing common algorithms (making a sandwich) • Searching algorithms • Sorting algorithms
Milestone Assessment	N/A but links to prior eSafety content in Year 7	Two finished video productions - one on a subject of the students choosing, used to experiment and learn basic video editing techniques. The second should be their finished silent movie, including credits and appropriate effects etc exported in a suitable format.	An individual website that covers the key Digital Ethics issues as well as extension investigations (for higher ability)	A portfolio of documents including: planning, logo designs, recipes and ingredient lists, cost/profit models and key profit data, presentation of idea and, potentially, radio advert script, flyer advertisment and website.	A journal of at least three flags of different categories and complexities; a range of P5.js "magic".	N/A (but a booklet will be completed for this unit)