Computer Science & Digital Media Year 8

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1 & 2
Topics	Introduction & Staying safe online	Computer Systems	Control Systems using Flowol	2D Animation	Physical Computing (Microbits)
Learning components	Introduction Logging onto the school network How to use Microsoft packages. Demonstrate basic computer skills. Download the DSHS App. Understand and agree to the acceptable use policy. Online safety Use of social media Fake news Online security.	Boolean Logic Logic gates and truth tables Binary numbers Converting binary to denary and vice versa. Binary addition Inside a computer system Practical activity of taking a part a computer. Components of a computer system CPU Primary (RAM/ROM) and Secondary (HDD, SSD) storage. Artificial intelligence Machine learning/Neural networks Ethics in AI	Programming constructs Sequence, Selection and Iteration How algorithms are represented using flow charts. Sequencing Using Flowol to simulate Traffic lights. Understand multiple sequencing such as bridge lights. Selection and Iteration Understand the term IoT (Internet of Things) Using Flowol to simulate how a home can be controlled by technology (e.g. thermostat)	Frame-by-frame animation Bouncing ball animation. Layering to create multiple bouncing balls. Tweening Understand the movement between frames. Use software to use Tweening for a passing car. Interactivity Using buttons to control animation. Use software to create a controlled traffic light sequence. 7 Practical project Students create their own animation which is then exported into a suitable file format.	Microbit Hardware Explore the hardware components of the microbit Coding first program Flashing the microbit Understanding input and output Programming constructs Iteration Using loops to display output Reading, understanding and amending existing code Coding a game Using Selection to create a game. Understanding how computers can generate data Creating a digital artifact Interpreting pre-existing code to create a digital pet Applying coding knowledge to create an original product

Linked learning	• The units allow students to distinguish between Computer Science and Digital Media as it shares as many as similarities as it does in differences. • The units in Year 8 build on prior knowledge in middle school and are transferable into Year 9 and beyond if they choose one of the subjects as an option.
SMSC links	• Close links with Product Design/Engineering through programming and handling hardware (PC components) • Basic ICT skills applicable across all subjects. • Maths – Using computing-related mathematics to solve problems.

Literacy	• Subject specific terminology (e.g. rendering, debugging) • Vocabulary – when answering questions in their digital portfolio.
Numeracy	• Counting, Adding, Logical thinking. • Using algorithms to solve complex problems.
Enrichment	• Computing Club that runs after school each week. • Educational trips (e.g. Girls in IT (Swansea), Bletchley, Cadbury World)
Impact	• Students are required to develop a range of techniques using a wide range of software packages and apply them effectively when developing their own digital artefacts or to solve complex problems. • Using real-life problems that will help students become more logical in their thinking and have the confidence to break down complex problems into smaller and more manageable tasks that make it easier to solve, a skill that is transferable and can be applied to all subjects and beyond education.

Ways to support student learning in this subject
• Encourage the use of technology at home, provide an opportunity for students to use our facilities that they may not be provided with at home. • Homework completed on time and to the expected standard. • Help students understand the 'bigger picture' – technology is becoming more prominent in our everyday lives and because they can use a smartphone they assume they know everything they ever need to about the subject. • Change their mind-set – there is evidence that they're not receiving the best experience at middle school and it's switching students off before they even walk through the door.