Computing

Preparing students for tomorrow, bit by bit

The Computing department will help to create, share, and apply knowledge in all branches of Computer Science and ICT. We will educate students to be successful, ethical, and effective problem-solvers with a passion to innovate and create, rather than just passive consumers and users of technology. We will develop an understanding and appreciation of all aspects of digital products, from how they work to how they look. We will foster curiosity and encourage exploration to create students who can contribute positively to the well-being of our society and who are prepared to tackle the complex 21st Century challenges facing the world.

Summary focus areas:

- Innovate, create, develop
- Solving 21st Century problems
- Active developers not passive consumers

Autumn		Spring		Summer	
Video Editing & Sound Effects	Sound Effects & Multimedia Production Project	Data Handling and Manipulation	Robotics	Networks & Security	Digital Graphics

Homework for Computing is set with half-termly themes that cover a range of concepts and topics to extend and supplement the curriculum delivered in lessons. Students are offered a menu of activities to choose between, with each activity being worth a number of 'points' based on its size, complexity or difficulty. Each half-term students will be expected to hand in any combination of activities they choose that add up to the required target number of points. By giving the students flexibility to choose their homework tasks and when they complete them across the half-term, this helps to develop independence, resilience and time-management skills. Activity choices could include tasks such as:

- Research and presentation of findings
- Creative use of video, animation and sound to present understanding
- Visual representations of concepts and theories
- Literacy-based activities, such as poetry or song lyrics for a topic
- Comprehension-based quizzes

Completed activities will be collected and marked at the end of each half-term block, but students are free to hand in completed work throughout the period to help them balance and manage their workload.

Unit	Duration (lessons)	Learning Objectives/Outcomes
Video Editing	8	• Film making techniques and tactics • Planning video • Editing video using VideoPad • Special effects
Sound Effects	8	• Use and impact of sound effects & music • Sound libraries and Foley • Editing sound effects using Audacity
Multimedia Production Project	8	• Systems lifecycle • Collaborative working • Creating a product to meet a need
Data Handling & Manipulation	12	• Revisit basic spreadsheet functionality • Advanced formulas and features and their uses • Using spreadsheets in real-life contexts • Uses of databases • Database terminology • Creating databases using Microsoft Access • Forms, queries and reports
Robotics	12	• Exploring real-world robots • Programming physical objects i.e. sensors/motors etc. • Controlling robots with code • Solving real-world problems by designing and/or building robots
Networks & Security	12	• How computers communicate using networks • Types of network and their uses • Security threats to networks • Preventing security issues using hardware and software
Digital Graphics	12	• Creating, editing and manipulating digital graphics • Raster vs vector images • Layering and blending effects