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 being 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
Using ICT Systems and E-Safety	Presenting Information	Spreadsheets, Modelling and Simulations	Digital Graphics	Introduction to Programming

Homework for Computing is designed to cover a range of concepts and topics to extend and supplement the curriculum delivered in lessons. Students can hand in homework either digitally or on paper, and will be expected to exercise their creative as well as academic skills. Homework helps to develop independence, resilience and time-management skills. Activities could include tasks such as:

- Research and presentation of findings
- Creative use of graphics and design 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, and failure to submit homework on time will require students to attend interventions to ensure this is not left unsubmitted for too long.

Unit	Duration (lessons)	Learning Objectives/Outcomes
Using ICT systems and E-Safety	14	• Logging on and network security • File management • Use of Email, Edulink and Teams • Sensible and safe online behavior, risks of technology • The dangers and impact of cyber-bullying and social media • Social Engineering • Viruses and Malware • Presenting information in creative ways • Health and Safety when using computers
Presenting Information	10	• Formatting text and images to produce professional documents • Fast and accurate data entry • Presenting information for a given audience/purpose • Digital design choices – e.g. font, colour, layout • Creating effective information campaigns
Spreadsheets, modelling and simulations	14	• Spreadsheet terminology • Storing basic data electronically • Formatting • Basic formulas and functions • Graphs and charts • Nature and purpose of simulations and models • Examples of real-world simulations • Using a simulation to try ideas and test hypotheses • Conducting, analysing and using market research
Digital Graphics	12	• Creating, editing and manipulating digital graphics • Raster vs vector images • Layering and blending effects
Introduction to programming	26	• Introduction to algorithms • Introduction to programming languages • Common programming constructs • Solving problems with code • Code efficiency • Procedures • Variables and data structures • Commenting and documenting code