Computing at Coombe Wood School

Subject Vision Statement
"I have not failed. I've just found 10,000 ways that won't work." – Thomas Edison "Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important." – Bill Gates In Computing, pupils cover three strands: Digital Literacy which includes E-Safety, ICT and Computational Thinking. Together this forms the core computing pupils need to prepare them for KS4. They will have the option to further specialise in Computer Science at KS4. Our intent is to promote computational thinking and IT skills. We want our students to develop the foundations to enable them to be life-long learners in a fast-moving digital and technological world. Our curriculum is designed to allow students to provide a balanced and informed curriculum across all key stages giving students access to Computer Science, IT and Digital Literacy. We aim for students to develop the following skills: • Understand and apply the fundamental principles and concepts of Computational Thinking including: abstraction, decomposition, algorithms, and pattern recognition. • Analyse problems in terms of computational thinking. • Practical experience of solving such problems and becoming resilient via programming including designing, writing, and debugging programs (it's okay if it does not work the first few times...don't give up!). • Think creatively, innovatively, analytically, logically, and critically. • Understand the impacts, ethics and legal aspects of digital technology to the individual and to wider society. • Develop, in context, desirable, transferable skills such as research, planning, and review, working with others and communicating creative concepts. In the Computing department we have an expectation that students will have the opportunity to get an understanding of Computer Science, Information Technology and e-Safety. We feel opening up students to these topics will give them a wider understanding of the world today and how to keep safe in its ever changing technological environment. When they leave school in either KS4 or 5 they would have the skills that would help them in future work place.

Enrichment:

This is a fundamental element of our curriculum, and encourages students to take part in the many clubs, competitions, trips and events we offer. At Key Stage 3 students will be offered clubs such as coding. Year 10 Computer Science students will also be able to visit Bletchley Park and the Computing Museum as part of their enrichment trip in the summer. In the Autumn Term KS4-5 take part in EDC at Imperial College.

At Key Stage 4 students will have the opportunity if they take Computer Science as a GCSE, a computing enrichment school trip in the Summer Term. In the summer term they also help out in the STEM day where we invite the local primary school to have a taste of what STEM is at secondary school. The Key Stage 4 students help the Key Stage 5 student deliver different coding workshops.

At Key Stage 5 students will have to take part in a student teaching program where they will be running a code club in a local primary school. They will also get the opportunity to take part in the UKSDC. In the summer term they will also be teaching a workshop at Coombe Wood on the Primary School STEM day. Some Computer Science students with have the chance to work with an IT company near London Bridge in a one week work experience. All these opportunities will benefit the students not only with the understanding and enjoyment of the subject but also when writing their personal statement for UCAS.

Curriculum Map: Long Term Plan

	Autumn		Spring		Summer	
	Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
7	CATs Test and e-Safety : Digital Footprint	Data Representation	Programming in VB.Net	Inside a PC - Hardware and Software	Data Handelling	micro:bits
8	e-Safety: Networks and Viruses	Data Representation	Programming in VB.Net	AI- What it is and how it works	Database and SQL	Robotics
9	e-Safety: Laws, Big Data and Privacy	Programming in C#	AI: Using it Smart	Spreadsheet Modelling	Multimedia Presentation	Multimedia Presentation
10	CV and Cover Letters	e-Safety: Fake News	e-Safety: the Bubble AI and Exam Revision	AI and Exam Revision Programming with Kodu	Programming with Kodu	Unlocking Opportunities with Tech
11	e-Safety: Impact of Technology	e-Safety: Impact of Technology IT and the world of work (Office Skills)	IT and the world of work (Office Skills) Budgeting	Budgeting Revision with AI	Revision with AI	

iMedia						
10	Controlled Assessment	Controlled Assessment	Controlled Assessment	Controlled Assessment	Theory	Theory
11	Controlled Assessment	Controlled Assessment	Theory and Controlled Assessment	Theory	Theory	

Computer Science GCSE						
10	Programming in C# Data representation	Programming in C# Data representation Computer Systems	Programming in C# Computer Systems	Programming in C# Networking	Programming in C# Cyber Security	Programming in C# Database
11	Programming in C# Ethics Application of Databases to Past Paper Questions	Application of Programming to Scenarios Application of Data Representation and Computer Systems to Past Paper Questions	Application of Programming to Scenarios Application of networking and Cyber Security to Past Paper Questions	Past Papers Revision	Past Papers Revision	

Computer Science A Level						
12	-Fundamentals of Programming in C# -Fundamentals of Data Representation -Fundamentals of Data Structures	-Mini Programming Project in C# -Fundamentals of Algorithms -Fundamentals of Computer Systems	-Skeleton Code- Prep for EOY Paper 1 Test in C# -Theory of Computation -Fundamentals of Computer Organisation & Architecture	-Skeleton Code- Prep for EOY Paper 1 Test in C# -Consequences of Uses of Computing -Fundamentals of Communication & Networking -NEA - Analysis -Fundamentals of Databases	- Skeleton Code- -Prep for EOY Paper 1 Test in C# -NEA - Analysis -Big Data -Fundamentals of Functional Programming	NEA EOY Tests
13	Skeleton Code in C# NEA	Skeleton Code in C# NEA	Skeleton Code in C# Past Paper Questions Practice	Skeleton Code in C# Past Paper Questions Practice	Skeleton Code in C# Past Paper Questions Practice	