



# SUNNYDOWN SCHOOL

## COMPUTER SCIENCE CURRICULUM PLAN

<b>Subject</b>	<b>Computer Science</b>	<b>Year group</b>	<b>Y7</b>
<b>Subject Intent</b>	<p>The aim of computer science at KS3 is to ensure learners become confident and proficient in the use of technology. The KS3 curriculum focus is to equip learners with the knowledge required to stay safe in the digital world and builds on the topics covered at KS2. It creates a solid foundation for learners to progress to Computer Science and other Computing disciplines at KS4. We cover the key concepts of Computational thinking, Programming, Software development, Computer Systems and Online safety. Computing ensures digital literacy and aids communication skills, key as a COIN setting.</p>		

<b>Term</b>	<b>Topic</b>	<b>Core learning</b>	<b>Key concepts</b>	<b>Sequencing</b>
<b>Autumn 1</b>	Working safely with digital applications.	<p>E-safety: Basic Introduction to safe computing practices and online safety.</p> <p>Introduction to Basic software applications.</p> <p>Communicating online</p> <p>Organising files and Folder structures</p> <p>Mind Maps</p>	<p>G-Suite</p> <ul style="list-style-type: none"> <li>● Gmail</li> <li>● Docs</li> <li>● Slides</li> <li>● Sheets</li> <li>● Photos</li> <li>● Drawings</li> <li>● Snapseed</li> </ul>	<p><b>Building on...</b> Autumn 1 will reinforce concepts of E-safety students may have learned in KS2. It will build on the safe use of technology and respectful practices and teach students about protecting online identity, privacy, inappropriate content and how to report concerns.</p> <p>Students may have worked on different platforms prior to joining Sunnydown. As a Google School, students will be introduced to Classroom and various G-Suite Apps for learning.</p> <p><b>Building towards....</b> Students will use a variety of software to collect, analyse, evaluate and present information. Students will learn how to communicate respectfully and effectively electronically. Students will learn the effectiveness of each tool to enable them to combine and create end user specific content that</p>

				can be deployed on various platforms. This skill will later be required at KS3 and KS4 when building applications.
<b>Autumn 2</b>	Introduction to Hardware and Networking	Define a computer and a system. Inputs, Process, Output Software and Hardware Basic System Components	<ul style="list-style-type: none"> <li>● Computer systems</li> <li>● Inputs and Outputs</li> <li>● Components and peripherals</li> <li>● RAM, ROM, CPU, GPU, Motherboard</li> </ul>	<p><b>Building on....</b> Students will look at computing in various everyday objects. They will build on their basic knowledge of Algorithms from KS2 and apply it to the real world.</p> <p><b>Building towards.....</b> Students will understand at a basic level how software and hardware components make up computer systems, and how they communicate with one another and other systems. This creates a foundation for systems design which will be covered later in KS3 and further in KS4.</p>
<b>Spring 1</b>	Computational Thinking and Introduction to Scratch	Problem solving Structured mind maps Programing and Sequencing Working with variables	<ul style="list-style-type: none"> <li>● Mind Maps</li> <li>● Variable</li> <li>● Constants</li> <li>● Algorithm</li> <li>● Sequencing</li> <li>● Decomposition</li> </ul>	<p><b>Building on.....</b> In KS2 students build and debug simple programs through decomposition. Building on their knowledge of sequence, selection and repetition, students will create programs with a series of variables and instances.</p> <p><b>Building towards.....</b> Students will be taught problem solving techniques using computational thinking. They will learn basic skills in abstraction and decomposition in order to problem solve in a structured way.</p>
<b>Spring 2</b>	Programing with Scratch	Using Logical and Mathematical operators.  Creating Instance and Variables.  Loops and Iteration	<ul style="list-style-type: none"> <li>● Loops and Iteration</li> <li>● Variables</li> <li>● Selection</li> <li>● Algorithm</li> </ul>	<p><b>Building on.....</b> With basic knowledge acquired from Spring 1, students will begin to appreciate the role of functions in programming.</p> <p><b>Building towards...</b> Students will begin to plan, analyse and improve their code using functions. This is a skill that will later be required in KS3 and KS4 computing.</p>

		Introduction to Functions		
<b>Summer 1</b>	Data Modelling	<p>Introduction to Spreadsheets. Collecting and Modelling Data Basic calculations Formulae and Functions Data Analysis Charts</p>	<ul style="list-style-type: none"> <li>● COUNTIF, AVERAGE, MAX, MIN, SUM,</li> <li>● Cell Reference</li> </ul>	<p><b>Building on...</b> Building on the basic knowledge acquired on data storage in KS3, students will be introduced to a structured data system.</p> <p><b>Building towards.....</b> Working with spreadsheets will slowly introduce students to the concept of a database which will later be explored in KS3 and KS4. This will also provide a basic understanding of arrays. Students will learn how to analyse data and present them as useful information. They will learn about data types and the importance of defining data.</p>
<b>Summer 2</b>	Summer Computing Project	<p>Students will have the opportunity to showcase their learning from all the topics covered this academic year. They will research, design and develop a product for their intended target audience against a framework.</p>	<ul style="list-style-type: none"> <li>● Trustworthy sources</li> <li>● Image types</li> <li>● Compression</li> <li>● End user</li> <li>● Systems Life Cycle</li> </ul>	<p><b>Building on...</b> This project will cover most of the topics covered in KS3 curriculum including</p> <p><b>Building towards.....</b> Undertake creative projects that involve selecting, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals, including collecting and analysing data and meeting the needs of known users Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability The skills and knowledge acquired will create a foundation for topics which will be later be covered in KS3 and KS4 including compression, data representation, repurposing artefacts, trustworthy sources and systems design</p>