

Computing

Curriculum overview

All children are entitled to a curriculum and to the powerful knowledge which will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this particular subject, at each key stage from Reception through to Year 6, in order to equip students with the cultural capital they need to succeed in life. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema.

		Knowledge, skills and understanding to be gained at each stage*		
		Cycle 1	Cycle 2	Cycle 3
EYFS	Knowledge introduced	Introduce a PC, mouse, keyboard, mouse control, navigating the screen, taking a photograph with a camera or tablet, exploring mechanical toys, listening to music using a device.	Using a device to play games ie. the interactive whiteboard, Using the IWB to create a digital painting and to watch a video clip.	Using a device to search for information on the internet (with support).
YEAR 1	Knowledge introduced	<p>Computing Systems and Networks - Technology around us.</p> <p>Recognising technology in school and using it responsibly</p> <p>Creating Media - Digital painting</p> <p>Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally.</p>	<p>Programming A - Moving a robot</p> <p>Writing short algorithms and programs for floor robots, and predicting program outcomes.</p> <p>Data and Information - Grouping Data</p> <p>Exploring object labels, then using them to sort and group objects by properties.</p>	<p>Creating Media - Digital Writing</p> <p>Using a computer to create and format text, before comparing to writing non-digitally.</p> <p>Programming B - Programming animations</p> <p>Designing and programming the movement of a character on screen to tell stories.</p>
YEAR 2	Knowledge introduced	<p>Computing Systems and Networks - Information Technology Around Us</p> <p>Identifying IT and how its responsible use improves our world in school and beyond</p> <p>Creating Media - Digital photography</p> <p>Capturing and changing digital photographs for different purposes</p>	<p>Programming A - Robot Algorithms</p> <p>Creating and debugging programs, and using logical reasoning to make predictions.</p> <p>Data and Information - Pictograms</p> <p>Collecting data in tally charts and using attributes to organise and present data on a computer.</p>	<p>Creating Media - Digital Music</p> <p>Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.</p> <p>Programming B - Programming quizzes.</p> <p>Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.</p>
YEAR 3	Knowledge introduced	<p>Computing Systems and Networks - Connecting Computers</p> <p>Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.</p> <p>Creating Media - Stop-frame animation</p>	<p>Programming A - Sequencing Sounds</p> <p>Creating sequences in a block-based programming language to make music.</p> <p>Data and Information - Branching Databases</p> <p>Building and using branching databases to group objects using yes/no questions.</p>	<p>Creating Media - Desktop Publishing</p> <p>Creating documents and modifying text, images and page layouts for a specific purpose.</p> <p>Programming B - Events and actions in programs</p> <p>Writing algorithms and programs that use a range of events to trigger sequences of actions.</p>



Knowledge, skills and understanding to be gained at each stage*

		Cycle 1	Cycle 2	Cycle 3
		Capturing and editing digital still images to produce a stop-frame animation that tells a story.		
YEAR 4	Knowledge introduced	<p>Computing Systems and Networks - The Internet</p> <p>Recognising that the internet is network of networks including the WWW, and why we should evaluate content.</p> <p>Creating Media - Audio production.</p> <p>Capturing and editing audio to produce a podcast, ensuring that copyright is considered.</p>	<p>Programming A - Repetition in shapes</p> <p>Using a text-based programming language to explore count-controlled loops when drawing shapes.</p> <p>Data and Information - Data logging</p> <p>Recognising how and why data is collected over time, before using data loggers to carry out an investigation.</p>	<p>Creating Media - Photo Editing</p> <p>Manipulating digital images, and reflecting on the impact of the changes and whether the required purpose is fulfilled.</p> <p>Programming B - Repetition in games</p> <p>Using a block-based programming language to explore count-controlled and infinite loops when creating a game.</p>
YEAR 5	Knowledge introduced	<p>Computing Systems and Networks - Systems and Searching</p> <p>Recognising IT systems in the world and how some can enable searching on the internet.</p> <p>Creating Media - Video production</p> <p>Planning, capturing, editing video to produce a short film.</p>	<p>Programming A - Selection in physical computing</p> <p>Exploring conditions and selection using a programmable microcontroller.</p> <p>Data and Information - Flat-file databases</p> <p>Using a database to order data and create charts to answer questions.</p>	<p>Creating Media - Introduction to vector graphics</p> <p>Creating images in a drawing program by using layers and groups of objects.</p> <p>Programming B - Selection in quizzes</p> <p>Exploring selection in programming to design and code an interactive quiz.</p>
YEAR 6	Knowledge introduced	<p>Computing Systems and Networks - Communication and collaboration.</p> <p>Exploring how data is transferred by working collaboratively online.</p> <p>Creating Media - Webpage Creation</p> <p>Designing and creating webpages, giving consideration to copyright, aesthetics and navigation.</p>	<p>Programming A - Variables in Games</p> <p>Exploring variables when designing and coding a game.</p> <p>Data and Information - Introduction to spreadsheets.</p> <p>Answering questions by using spreadsheets to organise and calculate data.</p>	<p>Creating Media - 3D Modelling</p> <p>Planning, developing, and evaluating 3D computer models of physical objects.</p> <p>Programming B - Sensing Movement</p> <p>Designing and coding a project that captures inputs from physical devices.</p>

*A powerful, knowledge-rich curriculum teaches both **declarative knowledge** (facts; knowing that something is the case; what we think about) and non-declarative or **procedural knowledge** (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them.

In some subjects, a further distinction can be made between substantive knowledge (the domain specific knowledge accrued e.g. knowledge of the past) and disciplinary knowledge (how the knowledge is accrued e.g. historical reasoning).

Please refer to the DAT Curriculum Principles, published on our website, for further information about how we have designed our all-through curriculum.



