



Knowledge Progression in Computing

Key Knowledge Area: Computer Science						
Throughout their school career, a North Downs pupil will...						
Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Understanding what algorithms are through programming physical toys and simulations of those toys.</p> <p>Understand that computer programs execute by following a precise set of instructions.</p> <p>Take the concept of algorithms into a different setting to sort images into groups using binary questions.</p> <p>Introduce the concept of debugging an algorithm by debugging basic algorithms on physical toys. Predicting</p>	<p>Build on Year 1 algorithm understanding using physical toys, moving into programming of digital toys through simple Scratch programs.</p> <p>Continue to develop understanding and skills in debugging algorithms, moving to debugging digital toys in simple Scratch programs.</p> <p>Develop skills of prediction further, moving onto predicting the behaviour of objects in digital programs.</p>	<p>Further develop debugging skills through explicit teaching of common issues through dedicated debugging lessons.</p> <p>Be able to apply debugging through the creation of simple animations using basic programming languages such as Scratch.</p>	<p>Build on previous skills in design, writing and debugging on simple programs to create a basic educational game involving selection and repetition as well as use of variables. This will introduce the concept of decomposition to aid design and debugging.</p> <p>Transfer understanding of debugging into a new programming language to create html webpages. Linking of knowledge of variables with Science and ICT Computing strand</p>	<p>Capitalise on all prior knowledge and skills in basic programming language to develop a game including progression and reward. This will include the use of logical reasoning to evaluate choices and make improvements.</p>	<p>Using the breadth of understanding and skills acquired to date to project manage the design an application that will serve a realworld purpose. This will include the use of logical reasoning to explain why certain coding features would be used to engage the user (sequencing, selection, repetition, progression and reward).</p>

	behaviour of algorithms using physical toys e.g. predicting where a programmed toy will end up after following instructions?			to record and analyse data.		
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Key Knowledge Area: ICT

Throughout their school career, a North Downs pupil will...

Foundation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Learn how to login to devices using usernames and passwords.</p> <p>Search for and use images from the internet, grouping them in office suite software.</p> <p>Select and use a range of digital paint tools, understanding how these differ from paint tools in the real world.</p> <p>Understand the need to save work and how to retrieve saved work once closed.</p>	<p>Further develop use of internet search to collaboratively research a topic to present to the class.</p> <p>Take notes in the form of digital mind maps, moving into basic presentation of research in office suite software.</p> <p>Use office suite software to record and present basic data in tally charts, bar charts and pictograms.</p> <p>Take, edit and enhance photographs,</p>	<p>Develop and understanding of how the internet, the web and search engines work.</p> <p>Continue to develop competent use of search engines to research topics.</p> <p>Plan, design and deliver a digital presentation, utilising a video slidecast of a narrated presentation that could be uploaded as a vlog post.</p>	<p>Further develop their understanding of the link between the internet and the web, gaining insight into how some technical aspects of the internet make the web possible.</p> <p>Understand the similarities and differences between analogue and digital data collection, using digital data logging to automate the recording of data.</p> <p>Use spreadsheets to record and</p>	<p>Researching and understanding the main features of websites and how to use them effectively. Use this understanding to design and build a website.</p> <p>Introduction to cryptography to allow information to be shared securely online, including the technical features that make it possible.</p> <p>Consolidate presentation skills to produce an informative presentation on the features and</p>	<p>Capitalise on all prior ICT knowledge and skills to project manage the planning and design of an application.</p>

		building on digital paint skills from Year 1.		data and create charts, using these to analyse the data, exploring inconsistencies. Further develop presentation skills using presentation software, possibly including video.	uses of cryptography.	
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Key Knowledge Area: Digital Literacy

Throughout their school career, a North Downs pupil will...

Foundation	Year 1	Year 2	Year 3	Year 4	Year5	Year 6
	Find and use images on the web, understanding what to do if they come across something that cause concern.	Begin to evaluate information found on the internet, knowing how to respond if they see or read anything that causes concern.	Becoming more critical of and evaluating images and other online content for appropriateness in their work. Design and evaluating and adapting content to ensure it meets the needs of the audience. Begin to consider personal consent in online material.	Further understanding some of the risks in using the web, including the trustworthiness of websites and the information they contain. Begin to develop understanding of copywrite law and the need to gain permission to use other people's work or images. Further consideration of	Design and build a website, taking into account knowledge of target audience, functionality and the impact of aesthetic design. Develop a more complete understanding of copywrite and where to find free-to-use images and video content. Be Introduced to cryptography to allow information	Project manage the planning and design of an application. Evaluate existing content discerningly to ensure there is a niche for their product and that it is not in violation of copywrite law. Receive explicit teaching of ESafety focussing again on use of social media moving into

				<p>personal consent in online material, specifically in photographs and video content. Receive explicit teaching of ESafety focusing on what classes as personal/private information that should not be openly shared.</p>	<p>to be shared securely online, including the reasons why it is needed.</p> <p>Receive explicit teaching of ESafety focusing on sharing personal information online, including the permissions given to social media providers and how to report inappropriate activity.</p>	<p>secondary education.</p>
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