



Barnton Community Nursery and Primary School

Whole School Computing Curriculum Overview 2018-2019

	<i>Autumn Term 1 Online Safety Grouping & Sorting</i>	<i>Autumn Term 2 Pictograms Lego Builders</i>	<i>Spring Term 1 Maze Explorers</i>	<i>Spring Term 2 Animated Story Books</i>	<i>Summer Term 1 Coding</i>	<i>Summer Term 2 Spreadsheets Technology outside school</i>
Year 1	<ul style="list-style-type: none"> Login safely. To start to introduce to the children the idea of 'ownership' of their creative work. Start to add pictures and text to work. Sort items using a range of criteria. 	<ul style="list-style-type: none"> Understand that data can be represented in picture format Contribute to a class pictogram Use a pictogram to record the results of an experiment. Follow and create simple instructions on the computer. Consider how the order of instructions affects the result. 	<ul style="list-style-type: none"> Understand the functionality of the basic direction keys. To be able to use the direction keys to complete the challenge. Understand how to create and debug a set of instructions (algorithm). Understand how to change and extend the algorithm list. 	<ul style="list-style-type: none"> To be introduced to e-books and to 2Create a Story. Continue a previously saved story. Add animation to a story. Add sound to a story including voice recording and music the children have created. Add backgrounds and copying and pasting pages. Share e-books. 	<ul style="list-style-type: none"> Explain what is meant by coding. Understand block coding on screen. Make a character move left and right. Make a character move when clicked. Write a program where objects can stop moving and a sound is played when the objects collide. 	<ul style="list-style-type: none"> Navigate around a spreadsheet. Explain what rows and columns are. save and open sheets Add images to a spreadsheet and use an image toolbox. 'Lock' cells to prevent changes. Use the 'speak' and 'count' tools in 2Calculate to count items. Understand what is meant by 'technology'. considered types of technology used in school and out of school.
E-safety in Key Stage 1						
Knowledge and Understanding				Skills		
<ul style="list-style-type: none"> understand the different methods of communication (e.g. email, online forums etc.). know you should only open email from a known source. know the difference between email and communication systems such as blogs and wikis. know that websites sometimes include pop-ups that take them away from the main site. know that bookmarking is a way to find safe sites again quickly. begin to evaluate websites and know that everything on the internet is not true. know that it is not always possible to copy some text and pictures from the internet. know that personal information should not be shared online. know they must tell a trusted adult immediately if anyone tries to meet them via the internet. 				<ul style="list-style-type: none"> follow the school's safer internet rules. use the search engines agreed by the school. act if they find something inappropriate online or something they are unsure of (including identifying people who can help; minimising screen; online reporting using school system etc.). use the internet for learning and communicating with others, making choices when navigating through sites. send and receive email as a class. recognise advertising on websites and learn to ignore it. use a password to access the secure network. 		

	<i>Autumn Term 1 Coding</i>	<i>Autumn Term 2 Online Safety and Spreadsheets</i>	<i>Spring Term 1 Questioning</i>	<i>Spring Term 2 Effective Searching</i>	<i>Summer Term 1 Creating Pictures Making Music</i>	<i>Summer Term 2 Presenting Ideas</i>
<i>Year 2</i>	<ul style="list-style-type: none"> Use arithmetic operators, if statements and loops, within programs. Use logical reasoning to predict the behaviour of programs. Find and correct simple semantic errors i.e. debugging in algorithms. Explore the possible actions of different types of objects. To create a more complex program to retell a story, using 2Code. 	<ul style="list-style-type: none"> Know how to refine searches using the search tool. share work electronically Understand how to share work on the internet. <i>How do we talk to others when they aren't there in front of us?</i> Send and receive an email. Use Copy and Paste & the totalling tool. Use a spreadsheet to add amounts. Create a table and block graph. 	<ul style="list-style-type: none"> Show that the information provided on pictogram is of limited use beyond answering simple questions. Use YES or No questions to separate information. Construct a binary tree to separate different items. Use a database to answer more complex search questions. Use the search tool to find information. 	<ul style="list-style-type: none"> Understand the terminology associated with searching. Gain a better understanding about searching on the Internet. Identify the basic parts of a web search engine search page. Know how to search for information on the Internet. 	<ul style="list-style-type: none"> Use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart. Introduce to making music digitally Add sounds to a tune Upload a sound from a bank of sounds Record own sound and upload it. 	<ul style="list-style-type: none"> Explore how a story can be presented in different ways. Know that digital content can be represented in many forms. Extract information and emded into Publisher. Insert photos and data. use a variety of software to manipulate and present digital content and information. Collect, organise and present data and information in digital content Children can create digital content to achieve a given goal by combining software packages.
E-safety in Key Stage 1						
Knowledge and Understanding				Skills		
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	<i>Autumn Term 1 Coding Online Safety</i>	<i>Autumn Term 2 Spreadsheets</i>	<i>Spring Term 1 Touch-typing</i>	<i>Spring Term 2 Email</i>	<i>Summer Term 1 Branching Databases</i>	<i>Summer Term 2 Simulations Graphing</i>
Year 3	<ul style="list-style-type: none"> Design and write a program that accomplishes a specific goal. Design and write a program that simulates a physical system. Use repetition commands. Debug a program. Set and change variables. Understand the use of passwords for online safety. Understand accuracy of information online. 	<ul style="list-style-type: none"> Create a table of data. Input data into a program to create a chart or graph. Use 'more than', 'less than' and 'equals' tools. Describe a cell location in a spreadsheet using the notation of a letter and number. 	<ul style="list-style-type: none"> Understand the names of the fingers. Understand what is meant by 'top row', 'home row', 'bottom row' and 'space bar'. Practise and improve typing skills. Type words using the correct fingering. Improve the speed and efficiency of typing. 	<ul style="list-style-type: none"> Understand different methods of communication. Open and respond to an email. Compose an email using an address book. Learn how to use email safely. Add an attachment to an email. Explore a simulated email scenario. 	<ul style="list-style-type: none"> Sort objects using YES/NO questions. Complete a branching database. Debug a database 	<ul style="list-style-type: none"> Understand that a simulation can represent real and imaginary situations. Explore a simulation. Use simulations to test different options and predictions. Analyse and evaluate simulations. Enter data into a graph. Solve an investigation and present the results in graphic form.

E-safety in Key Stage 2 Year 3/4

Knowledge and Understanding	Skills
<ul style="list-style-type: none"> understand the need for rules to keep them safe when exchanging learning and ideas online. recognise that information on the internet may not be accurate or reliable and may be used for bias, manipulation or persuasion. understand that the internet contains fact, fiction and opinion and begin to distinguish between them. use strategies to verify information, e.g. cross-checking. understand the need for caution when using an internet search for images and what to do if they find an unsuitable image. understand that copyright exists on most digital images, video and recorded music. understand the need to keep personal information and passwords private. understand that if they make personal information available online it may be seen and used by others. know how to respond if asked for personal information or feel unsafe about content of a message. recognise that cyber bullying is unacceptable and will be sanctioned in line with the school's policy. know how to report an incident of cyber bullying. know the difference between online communication tools used in school and those used at home. understand the need to develop an alias for some public online use. understand that the outcome of internet searches at home may be different than at school. 	<ul style="list-style-type: none"> follow the school's safer internet rules. recognise the difference between the work of others which has been copied (plagiarism) and re-structuring and re-presenting materials in ways which are unique and new. begin to identify when emails should not be opened and when an attachment may not be safe. explain how to use email safely. use different search engines.

	<i>Autumn Term 1 Coding</i>	<i>Autumn Term 2 Online Safety Spreadsheets</i>	<i>Spring Term 1 Writing for Different Audiences</i>	<i>Spring Term 2 Logo</i>	<i>Summer Term 1 Animation</i>	<i>Summer Term 2 Effective Searching Hardware Investigators</i>
Year 4	<ul style="list-style-type: none"> Design and write a program that accomplishes a specific goal. Create variables. Use repetition and user input. Debug a program Debug someone else's program. Explain how a program can be changed. Control a simulation. Manipulate graphics to achieve a desired look for a program. Use an algorithm when making a simulation of an event on the computer. 	<ul style="list-style-type: none"> Share knowledge of online safety. Investigate ways to share information online. Create online safety materials. Use formatting tools to ass formulae to cells. Combine tools to explore number. Create a series of data in a spreadsheet to create a line graph. Make practical use of a spreadsheet plan actions. Use currency formatting. Allocate values to images. 	<ul style="list-style-type: none"> Explore how font size and style can affect the impact of a text. Create a news report using a simulated scenario. Select an appropriate program based on its functionality. 	<ul style="list-style-type: none"> Learn the language of Logo. Input instructions to a program Use 'repeat' function in Logo. Use logical reasoning to explain how some simple algorithms work and detect errors. 	<ul style="list-style-type: none"> Discuss what makes a good animated film or cartoon. Understand how animations are crated by hand. Learn how to use 'onion-skinning' in animation. Add backgrounds and sounds to animations. Create a stop-motion animation. Share animation by blogging. 	<ul style="list-style-type: none"> Locate information on the search results page. Structure queries to locate specific information. Use search to effectively find information. Assess whether an information source is true and reliable. Understand and identify the different parts that make up a computer.

E-safety in Key Stage 2 Year 3/4

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	<i>Autumn Term 1 Coding</i>	<i>Autumn Term 2 Online Safety Spreadsheets</i>	<i>Spring Term 1 Databases</i>	<i>Spring Term 2 Game Creator</i>	<i>Summer Term 1 3D Modelling</i>	<i>Summer Term 2 Concept Maps</i>
Year 5	<ul style="list-style-type: none"> • Design and write a program that accomplishes a specific goal. • Simulate a physical system. • Introduce text variables. • Create and improve a game. • Use coding knowledge to create a program that explains internet safety. • Solve problems by decomposing them into smaller parts. • Use logical reasoning to explain how some algorithms work and detect errors. 	<ul style="list-style-type: none"> • Understand the importance of keeping personal information safe. • Understand issues concerning the reliability of sources and people online. • Create a comic strip to share knowledge about online safety. • Create a formula in a spreadsheet to convert m to cm. • Use the count tool in spreadsheet. • Use a spreadsheet to work out the area and perimeter. • Create simple formulae that use different variables. • Use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied. 	<ul style="list-style-type: none"> • Learn how to search for information on a database. • Contribute to a class database. • Create own database based on a chosen topic. • Know what a database field is and can correctly add field information. 	<ul style="list-style-type: none"> • Review and analyse a computer game. • Describe elements that make a successful game. • Design own computer game. • Create a game environment. • Create a game quest. • Select appropriate options to maximise the playability. • Write informative instructions for a game to enable others to play. • Evaluate their own and a peer's game and improve their design for the future. 	<ul style="list-style-type: none"> • Explore different viewpoints in 2Design. • Explore the effect of moving points when designing. • Alter the shape of an object whilst maintaining its form. • Understand designing for a purpose. • Design, create and print a model • Explore possibilities of 3D printing. 	<ul style="list-style-type: none"> • Understand the need for visual representation when generating and discussion complex ideas. • Use the correct vocabulary when creating a concept map. • Understand what is meant by; 'concept maps', 'stage', 'nodes', 'connections'. • Understand how a concept map can be used to retell stories and information. • Create a collaborative concept map and present to an audience.

E-safety in Key Stage 2 Year 5/6

Knowledge and Understanding	Skills
<ul style="list-style-type: none">• discuss the positive and negative impact of the use of ICT in their own lives and those of their peers and family.• understand the potential risk of providing personal information online.• recognise why people may publish content that is not accurate and understand the need to be critical evaluators of content.• understand that some websites and/or pop-ups have commercial interests that may affect the way the information is presented.• recognise the potential risks of using internet communication tools and understand how to minimise those risks (including scams and phishing).• understand that some material on the internet is copyrighted and may not be copied or downloaded.• understand that some messages may be malicious and know how to deal with this.• understand that online environments have security settings, which can be altered, to protect the user.• understand the benefits of developing a 'nickname' for online use.• understand that some malicious adults may use various techniques to make contact and elicit personal information.• know that it is unsafe to arrange to meet unknown people online.• know how to report any suspicions.• understand they should not publish other people's pictures or tag them on the internet without permission.• know that content put online is extremely difficult to remove.• know what to do if they discover something malicious or inappropriate.	<ul style="list-style-type: none">• follow the school's safer internet rules.• make safe choices about use of technology.• use technology in ways which minimises risk, e.g. responsible use of online discussions, etc.• create strong passwords and manage them so that they remain strong.• independently, and with regard for e-safety, select and use appropriate communication tools to solve problems by collaborating and communicating with others within and beyond school.• competently use the internet as a search tool.• reference information sources.• use appropriate strategies for finding, critically evaluating, validating and verifying information, e.g. using different keywords, skim reading to check relevance of information, cross checking with different websites or other non ICT resources.• use knowledge of the meaning of different domain names and common website extensions (e.g. .co.uk; .com; .ac; .sch; .org; .gov; .net) to support validation of information.

	<i>Autumn Term 1 Coding</i>	<i>Autumn Term 2 Online Safety Spreadsheets</i>	<i>Spring Term 1 Blogging</i>	<i>Spring Term 2 Text Adventures</i>	<i>Summer Term 1 Networks</i>	<i>Summer Term 2 Quizzing</i>
<i>Year 6</i>	<ul style="list-style-type: none"> Design and write a program that accomplishes a specific goal. Explain what functions are and how they can be created and labelled. Move codes to different tabs. Describe codes using the appropriate terms. Include buttons that launch other programs. Include buttons that launch windows to external websites. Follow and adapt code to make it unique. Solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some algorithms work and detect errors. 	<ul style="list-style-type: none"> Review aspects of online safety. Apply computing skills and knowledge to plan a game to teach online safety rules. Understand safety aspects of blogging. Create a spreadsheet to answer a mathematical question relating to probability. Create copy and paste shortcuts. Problem solve using the count tool. Create a computational model. Use formula wizard to create formulae. Make practical use of a spreadsheet to help plan actions. Create a spreadsheet to model a real-life situation. 	<ul style="list-style-type: none"> Identify the purpose of writing a blog. Identify the features of successful blog writing. Plan the theme and content for a blog. Understand how to write a blog. Consider the effect upon the audience of changing the visual properties of a blog. Understand the importance of regularly updating the content of a blog. Contribute to an existing blog. Understand how and why blog posts are approved by a teacher. Understand the importance of commenting on blogs. Demonstrate awareness of cyberbullying. 	<ul style="list-style-type: none"> Describe what a text adventure is. Map out a story-based text adventure. Split adventure=game design into appropriate sections to facilitate coding. Code, test and debug different sections. Use the 'launch' command to bring sections together into a playable adventure game. Map out an existing text adventure based upon a map. Contrast a map-based game with a sequential story-based game. Use coding concepts of functions, two-way selection and repetition in conjunction with one another to code their game. Make logical attempts to debug codes when it does not work correctly. 	<ul style="list-style-type: none"> Know the difference between the World Wide Web and the Internet. Find out what a LAN and a WAN are. Understand how we access the internet in school. Research and find out about the age of the internet. (Tim Berners-Lee) Consider major changes in technology that have happened in their lifetime or the lifetime of an adult. 	<ul style="list-style-type: none"> Learn how to create a quiz using a program. Consider the audience and ability. Use different programs to plan and create a quiz. Make a quiz that require the player to search a database.

E-safety in Key Stage 2 Year 5/6

Knowledge and Understanding	Skills
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