

Woodcroft Primary School - Computing Concept & Knowledge Progression 2022

Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
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Threshold Concept:	Communicate: This concept involves using a range of digital media, applications and computing devices to communicate one's ideas. Ideas to be generated in another curriculum area e.g. English writing, Science, Geography, History, PSHE or Art etc.
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Lessons:	3 lessons	3 lessons	3 lessons	3 lessons	3 lessons	4 lessons
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Software & links:	Google Slides	Google Slide music from icons.	Scratch Google Slides	Scratch Voice Recorders	Video Google Slides	
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Substantive Concepts	Multimedia Design	Work with others and with support to contribute to a digital class resource which includes text, graphic and sound.	Generate their own multimedia document: combining text, digital images (graphics) and sound. Save and retrieve and edit their work.	Record and present information integrating a range of appropriate media combining text and graphics in printable form and sound and video for on-screen presentations which include hyperlinks.	Begin to show an awareness of the intended audience and seek feed-back.	Use advanced tools in word processing / DTP software such as tabs, appropriate text formatting, line spacing etc appropriately to create quality presentations appropriate for a known audience.	Multimedia work shows restrained use of effects that help to convey meaning rather than impress.
	Digital Images (graphics) (photos, paint, animation)	Use a range of simple tools in a paint package / image manipulation software to create / modify a picture.	Use a range of tools in a paint package / image manipulation software to create / modify a picture to communicate an idea.	Create a simple animation to tell a story.	Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea.	Make a short film / animation from images (still and / or moving) that they have sourced, captured or created.	Use images that they have sourced / captured / manipulated as part of a bigger project (eg presentation or document).
	Audio Sound and music (inc sound recorders)	Choose suitable sounds from a bank to express their ideas. Record short speech.	Compose music from icons. Produce a simple presentation incorporating sounds the children have captured, or created.	Create a simple podcast, selecting and importing already existing music and sound effects.	Create a simple podcast, selecting and importing already existing music and sound effects as well as recording their own.	Create compositions that contain a variety of sounds.	Create and share more sophisticated podcasts and consider the effect that their podcasts will have on the audience.
	Devices (Understanding Physical Technologies)	Show an awareness of the range of devices and tools they encounter in everyday life	Show an awareness of a range of inputs to a computer (IWB, mouse touch screen, microphone, camera keyboard, etc)	Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made.	Make choices about the devices and tools they use for specific purposes and explain them in relation to the context. Begin to show an awareness of specific tools used in working life.	Evaluate the tools available to them including any that are unfamiliar or new and use them to solve problems.	Demonstrate an awareness of the appropriateness of outcomes depending on choices regarding tools and devices.

Threshold Concept:	Collect: This concept involves developing an understanding of databases and their uses. Data is to be generated in another curriculum area e.g. Maths, Science, DT etc.
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Lessons:	3 lessons	3 lessons	3 lessons	3 lessons	3 lessons	4 lessons
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Software & links:	Busy Things Statistics	Busy Things Statistics	Google Slides	Google Slides	Google Slides	Google Slides
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Substantive Concepts	Gathering & Handling information (e.g. databases and graphs (via science and maths activities)	As a class or individually with support, children use a simple pictogram or painting program to develop simple graphical awareness / one to one correspondence (Busy Things).	Use a graphing package (Busy Things) to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions. Enter information into a simple branching database, database or word processor and use it to answer questions. They save, retrieve and edit their work.	Children use a simple database (the structure of which has been set up for them) to enter and save and save information on a given subject. Follow straight forward lines of enquiry to search their data for their own purposes. They talk about their experiences of using ICT to process data compared with other methods.	Children work as a class or group to create a data collection sheet and use it to set up a straightforward database to answer questions. Enter information and interrogate it (by searching, sorting, graphing etc). Begin to reflect on how useful the collected data and their interrogation was and whether or not their questions were answered.	Independently solve a problem by planning and carrying out data collection, by organising and analysing data involving complex searches using a database, and by drawing conclusions and presenting findings.	The need for accuracy is demonstrated and strategies for spotting implausible data are evident. Children should be able to talk about issues relating to data protection and the need for data security in the world at large (e.g. health, police databases).
	Data logging (via science and maths activities)				Begin to use a data logger to sense physical data (sound, light, temperature).	Use a data logger confidently, connected to the computer or remotely, to capture continuous or intermittent data readings. Interpret the results and use these in their investigations. Realise the advantages of using ICT to collect data that might otherwise be problematic.	Children are able to identify their own opportunities for data logging and carry out their own experiments. Children can check and question results and are able to spot trends in data and identify when problems may have occurred.

Threshold Concept:

Connect: This concept involves developing an understanding of how to safely connect with others.
Concepts will be covered via Milestone PSHE assembly programme and supported with class-based learning sequences.

Lessons:	4 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 1 Code.org 	4 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 1 Code.org 	4 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 1 Code.org 	4 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 1 Code.org 	6 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 3 Treehouse blog 	9 lessons: <ul style="list-style-type: none"> • 3 termly milestone PSHE assemblies alongside supporting class assemblies + • 6 lessons based on the Be Internet Legends programme.
Software & links:	Google Sites (Treehouse) & Chrome Browser	Google Sites (Treehouse) & Chrome Browser	Google Sites (Treehouse) & Chrome Browser	Google Sites (Treehouse) & Chrome Browser	Google Sites (Treehouse) & Chrome Browser	Be Internet Legends & Chrome Browser

Substantive Concepts

Networks		Show an awareness that what they create on a computer or tablet device can be shown to others via another device (e.g. printer, projector, Apple TV)	Begin to show an awareness that computers can be linked to share resources	Show an understanding that their password is the key to accessing a personalised set of resources and files (e.g. My Documents). Show an awareness of where passwords are critical in everyday use (e.g. parents accessing bank details)	Show an understanding of the school network and how it links computers to resources in school and beyond. Compare this with other networks they may encounter at home or in the wider world (e.g. banks)	Show an understanding of how filtering and monitoring tools affect their use of the school network and Internet and compare this with their experience of access outside school.
Communication	Contribute ideas to a class email to another class / school etc. Begin to understand online risks and the age rules for sites.	Work collaboratively by email to share and request information of another class or story character. Understand online risks and the age rules for sites.	Begin to understand the need to abide by school online safety rules (10 rules). Begin to understand that work published to the internet may be viewed by others at any time or place and from a range of devices.	Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. Understand that work published to the internet may be viewed by others at any time or place and from a range of devices.	Share ICT work they have done electronically by email, VLE, or uploading to authorised sites. Where possible give, seek and respond to feedback. Understand the need to be sensitive to others feelings when communicating online.	Abide by school rules for online safety (10 rules) and have strategies to respond to content which makes them feel uneasy. Understand the need to be sensitive to others feelings when collaborating and communicating online, and how to behave as a responsible 'netizen'.
Research and Safety	As a class exercise children explore information from a variety of sources (electronic, paper based, observations of the world around them, etc.). Show an awareness of different forms of information	Children use a search engine to find specific relevant information to use in a presentation for a topic. They save and retrieve their work.	Children talk about using ICT to find information / resources noting any frustrations and showing an emerging understanding of internet safety.	Using another curriculum area as a starting point, children ask their own questions then use ICT sources to find answers, making use of search engines, an index, menu, hyperlinks as appropriate. Children use the information or resources they have found, whilst acknowledging that some material may be copyrighted.	Make use of copy and paste, beginning to understand the purpose of copyright regulations and the need to repurpose information for a particular audience. Show an understanding that not all information on the internet is accurate. Develop a growing awareness of how to stay safe when using the internet (in school and at home) and that they abide by the school's internet safety policy.	Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic. Use appropriate methods to validate information and check for bias and accuracy. Repurpose and make appropriate use of selected resources for given audiences, acknowledging material used where appropriate.
Internet (Understanding Virtual Technology)		Use websites and demonstrate an awareness of how to manage their journey around them (e.g. using the back/forward button, hyperlinks)	Show an awareness that not all the resources/tools they use are resident on the device they are using. Begin to show an understanding of URLs.	Perform a search using different search engines and check the results against each other, explaining why they might be different.	Show an awareness of the need for accuracy in spelling and syntax to search effectively.	Use collaborative tools and e-mail showing a sensitivity for this type of remote collaboration and communication.

Threshold Concept:

Code: This concept involves developing an understanding of instructions, logic and sequences.
Concepts taught via [Computer Science Fundamentals](#), [the Code.org curriculum](#), courses A - F.

Lessons:

13 lessons

13 lessons

16 lessons

17 lessons

Code: 18 lessons
Control 2 lessons

20 lessons

Software & links:

Chrome browser & [Code.org](#)
Course A

Chrome browser & [Code.org](#)
Course B

Chrome browser & [Code.org](#)
Course C

Chrome browser & [Code.org](#)
Course D

Chrome browser & [Code.org](#)
Course E
[Lego Wedo](#) & [Scratch](#)

Chrome browser & [Code.org](#)
Course F

Substantive Concepts

<p>Models and simulations</p> <p>(e.g. adventure games)</p>	<p>Make simple choices to control a simple simulation program.</p>	<p>Children are able to play an adventure game and use a simple simulation, making choices and observing the results.</p>	<p>Children's conversation shows they understand that computers are good at replicating real life events and allowing them to explore contexts that are otherwise not possible.</p>	<p>Use models and simulations to find things out and solve problems.</p> <p>Recognise that simulations are useful in widening experience beyond the classroom.</p> <p>Make simple use of a spreadsheet to store data and produce graphs.</p>	<p>Set up and use a spreadsheet model to explore patterns and relationships.</p> <p>Make predictions.</p> <p>Know how to enter simple formulae to assist this process.</p>	<p>Set up and use their own spreadsheet, which contains formulae to investigate mathematical models.</p> <p>Ask "what if ..." questions and change variables in their model.</p> <p>Understand the need for accuracy when creating formulae and check regularly for mistakes, by questioning results.</p> <p>Relate their use of spreadsheets to model situations to the wider world.</p>
<p>Control</p>	<p>Control simple everyday devices to make them produce different outcomes.</p>	<p>Control a device, on and off screen, making predictions about the effect their programming will have. Children can plan ahead.</p>	<p>Children are able to type a short sequence of instructions and to plan ahead when programming devices on and off screen.</p>	<p>Engage in Logo based problem solving activities that require children to write procedures etc. and to predict, test and modify. Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.</p>	<p>Use control software to control devices (using output commands) or to simulate this on screen. Predict, test and refine their programming.</p> <p>Independently create sequences of commands to control devices in response to sensing (i.e. use inputs as well as outputs). Design, build, test, evaluate and modify the system; ensuring that it is fit for purpose.</p>	