Oxford Road Community School

Computing Progression of Skills

purple mash
2simple

Computing Progression of Skills

Computing ELGs	Year R		
	• Taking images using a camera or tablet • Searching for information on the internet • Playing games on the interactive whiteboard • Exploring mechanical toys and objects • Programming a Beebot • Watching a video clip • Listening to music • Selecting and using technology for purpose, • Interact with age appropriate programs		
	Year 1	**Year 2**	**Year 3**
Computer Science	• Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand. • Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong Sandwich in Purple Mash and can write their own simple algorithm. • Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code. • When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program.	• Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code. • Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors. Children's program designs display a growing awareness of the need for logical, programmable steps. • Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause and effect sentence of what will happen in a program.	• Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that they are thinking of the desired task and how this translates into code. • Children can identify an error within their program that prevents it following the desired algorithm and then fix it. • Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. • Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. They make good attempts to 'step through' more complex code in order to identify errors in algorithms and can correct this.

Information Technology	• Children can use 2Create to create an interactive story • Children are able to use digital drawing tools to create pictures. • Children can open previously saved work and save changes to overwrite the file • Children can create and add animations • Children an add sound, voice recordings and create music for a page • Children can edit background and change the font style and size • Children can use the copy and paste function to add more pages	• Children are able to edit more complex digital data such as music compositions within 2Sequence. • Children are confident when creating, naming, saving and retrieving content. • Children use a range of media in their digital content including photos, text and sound. • Children can talk about their work and make improvements to solutions based on feedback provided. • Children can use a variety of software to manipulate and present digital content and information. • Children can create digital content to achieve a given goal by combining software packages.	• Children have developed their touch-typing skills and understand how to touch type using the home, bottom and top row keys using both hands. Children can apply these skills in future units. • Children can reflect upon how successful they have been with their typing skills and are able to compare their current progress against precious lessons. • Children can set up a graph with a given number of fields • Children can enter data, produce and share a graph • Children can select the most appropriate style of graph for their data and explain their reasoning • Children can manipulate the presentation of their graph • Children can present information in a range of graphical formats
Digital Literacy	• Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair. • Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.	• Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge. • Children make links between technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs. • Children know the implications of inappropriate online searches. • Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content to a trusted adult.	• Children demonstrate the importance of having a secure password and not sharing this with anyone else. • Children can explain the negative implications of failure to keep passwords safe and secure. They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact. • Children can list a range of ways that the Internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way.

Online Safety (aims of sequence of lessons)	• To log in safely. • To start to understand the idea of 'ownership' of their creative work. • To learn how to find saved work in the Online Work area and find teacher comments. • To learn how to search Purple Mash to find resources. • To become familiar with the types of resources available in the Topics section. • To become more familiar with the icons used in the resources in the Topics section. • To start to add pictures and text to work. • Purple Mash for Save, Print, Open, New. • To explore the Games section on Purple Mash. • To understand the importance of logging out when they have finished.	• To know how to refine searches using the Search tool. • To know how to share work electronically using the display boards. • To use digital technology to share work on Purple Mash to communicate and connect with others locally. • To have some knowledge and understanding about sharing more globally on the Internet. • To introduce Email as a communication tool using 2Respond simulations. • To understand how we talk to others when they are not there in front of us. • To open and send simple online communications in the form of email. • To understand that information put online leaves a digital footprint or trail. • To begin to think critically about the information they leave online. • To identify the steps that can be taken to keep personal data and hardware secure. • To gain a better understanding of searching the Internet.	• To know what makes a safe password, how to keep passwords safe and the consequences of giving your passwords away. • To understand how the Internet can be used to help us to communicate effectively. • To understand how a blog can be used to help us communicate with a wider audience. • For pupils to consider if what they read on websites is true? • To look at a 'spoof' website. • To create a 'spoof' webpage. • To think about why these sites might exist and how to check that the information is accurate. • To learn about the meaning of age restrictions symbols on digital media and devices. • To discuss why PEGI restrictions exist. • To know where to turn for help if they see inappropriate content or have inappropriate contact from others. • To learn how to use email safely.

	Year 4	Year 5	Year 6
Computer Science	• When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their own programs. • Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'IF statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they are able to use and manipulate the value of variables. • Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'IF' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct this.	• Children attempt to turn more complex real-life situations into algorithms for a program by deconstructing it into manageable parts. • Children are able to test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code. • Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures. They are combining sequence, selection and repetition with other coding structures to achieve their algorithm design. • When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables	• Children are able to turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then decomposing them in a logical way using their knowledge of possible coding structures and applying skills from previous programs. • Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem. • Children translate algorithms that include sequence, selection and repetition into code and their own designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, inputs from the user of the program such as button clicks and the value of functions. • Children are able to interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole. • Children understand and can explain in some depth the difference between the internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the Internet in school.
Information Technology	• Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level. • Children can create an animation, demonstrating an understanding of frames. • Children know what the Onion Skin tool is and use it effectively.	• Children can use 2Design and its different functions. They can explore the different viewpoints to create their models effectively. • Children can adapt one pre-made models to alter the shape whilst maintaining its form. • Children can evaluate, refine, edit and adapt models to suit a design brief.	• Children have a good understanding of a variety of purposes for using spreadsheets. They appreciate the advantage of using a spreadsheet for certain tasks over a paper-based method. • Children understand and use the new vocabulary relating to spreadsheets. They can locate the frequently used functions and tools

	• Children can use backgrounds and sounds to make more complex and imaginative animations • Children know what stop-motion animation is and how it is created.	• Children know what a word processing tool is for and they can create a word processing document. They can alter the look of the text and navigate around the document. They know how to find icons for functionality that they wish to use • Children consider the overall structure of the document using paragraph formatting, page breaks, headers and footers to increase the usefulness and visual appeal of a document. • Children can add images, text boxes and shapes to a word document, they can resize and reposition objects using wrapping options • Children understand that they should not simply copy images from the internet and routinely consider copyright and attributions when they use images created by others.	and know how to find the functions that they need. • Children can use a spreadsheet to carry out basic calculations, including their operators using formulae. • Children understand the idea of using a spreadsheet to model a situation. • Children know how to incorporate formulae for percentages, averages, max and min into their spreadsheets. They are beginning to develop a critical eye when it comes to the conclusions that can be made from data. • Children can use graphic functionality within a spreadsheet programme to make the data clearer and use this to answer questions.
Digital Literacy	• Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. • Children know a range of ways of reporting inappropriate content and contact.	• Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. • Children implicitly relate appropriate online behaviour to their right to personal privacy and mental wellbeing of themselves and others.	• Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking. They recognise the value in preserving their privacy when online for their own and other people's safety. • Children can use search tools and routinely try to verify the validity and reliability of their sources. They look for corroborating sources of information and enter keywords that help them to choose the best results. • Children recognize, understand and use the features of a blog. They understand the implications of inappropriate use of the blog.
Online Safety (aims of sequence of lessons)	• To understand how pupils can protect themselves from online identity theft. • Understand that information put online leaves a digital footprint or trail and that this can aid identity theft. • To Identify the risks and benefits of installing software including apps. • To understand that copying the work of	• To gain a greater understanding of the impact that sharing digital content can have. • To review sources of support when using technology. • To review pupils' responsibility to one another in their online behaviour. • To know how to maintain secure passwords.	• Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location. • Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon. • Identify the benefits and risks of giving personal information and device access to different software.

	others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism. • To identify appropriate behaviour when participating or contributing to collaborative online projects for learning. • To identify the positive and negative influences of technology on health and the environment. • To understand the importance of balancing game and screen time with other parts of their lives. • To assess whether an information source is true and reliable.	• To understand the advantages, disadvantages, permissions, and purposes of altering an image digitally and the reasons for this. • To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. • To learn about how to reference sources in their work • To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. • Ensuring reliability through using different methods of communication	• To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user. • To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour. • To begin to understand how information online can persist and give away details of those who share or modify it. • To understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health. • To identify the positive and negative influences of technology on health and the environment. • To understand how to contribute to an existing blog. • To understand how and why blog posts are approved by the teacher. • To understand the importance of commenting on blogs. • To peer-assess blogs against the agreed success criteria.