

Sir John Sherbrooke Computing Knowledge Progression Grid

	Computing Systems and Networks	Programming	Creating Media	Data Handling	Online Safety
Pre KS2	- To know the difference between a desktop and laptop computer. - To know that people control technology. - To know that buttons are a form of input that give a computer an instruction about what to do (output). - To know that computers often work together	- To understand what machine learning is and how that enables computers to make predictions. - To know that abstraction is the removing of unnecessary detail to help solve a problem. - To know that coding is writing in a special language so that the computer understands what to do. - To understand that the character in ScratchJr is controlled by the programming blocks. - To know that you can write a program to create a musical instrument or tell a joke		- To understand that you can enter simple data into a spreadsheet. - To understand what steps you need to take to create an algorithm. - To know what data to use to answer certain questions. - To know that computers can be used to monitor supplies.	- To understand the difference between online and offline. - To understand what information I should not post online. - To know what the techniques are for creating a strong password. - To know that you should ask permission from others before sharing about them online and that they have the right to say 'no.' - To understand that not everything I see or read online is true.

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Year 3	- To know what a tablet is and how it is different from a laptop/desktop computer. - To understand what a network is and how a school network might be organised. - To know how the internet uses networks to share files. - To know what a packet is and why it is important for website data transfer. - To know the roles that inputs and outputs play on computers. - To know what some of the different components inside a computer are e.g. CPU, RAM, hard drive, and how they work together. - To know how to create simple presentations - To know how to use basic collaborative tools. - Learn the basic functions of key computer components (e.g., CPU, RAM, and hard drive	- To know that Scratch is a programming language and some of its basic functions. - To understand how to use loops to improve programming. - To understand how decomposition is used in programming. - To understand that you can remix and adapt existing code.	- To know that different types of camera shots can make my photos or videos look more effective. - To know that I can edit photos and videos using film editing software. - To understand that I can add transitions and text to my video.	- Learn that computers can use basic sensors. - Understand that weather machines collect data. - Learn that weather forecasters use simple scripts	- To understand some of the methods used to encourage people to buy things online. - To know that some technology, like robots or virtual assistants, can copy simple actions. - Learn that spending too much time on technology can cause problems. - To know simple rules for staying safe online. - To know that not everything on the internet is true: people share facts, beliefs and opinions online. - To understand that the internet can affect your moods and feelings. - To know that privacy settings limit who can access your important personal information. Information, such as your name, age, gender etc. - To know what social media is and that age restrictions apply

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Year 4	- Explore the use cases for tablets, laptops, and desktops in different environments (e.g., school, work, entertainment) - Investigate different types of networks (e.g., LAN, WAN, Wi-Fi). - Learn about different methods of file sharing (e.g., cloud storage, FTP, peer-to-peer). - Dive deeper into packet switching and routing. - Analyze advanced input/output devices and peripherals, such as biometric scanners, touchscreens. - Study more advanced computer architecture concepts. - To understand that software can be used collaboratively online to work as a team. - To know that you can use images, text, transitions and animation in presentation slides.	- To understand that a variable is a value that can change (depending on conditions) and know that you can create them in Scratch. - To know what a conditional statement is in programming. - To understand that pattern recognition means identifying patterns to help them work out how the code works. - To understand that algorithms can be used for a number of purposes e.g. animation, games design etc.	- Explore how combining different camera shots (e.g., close-up, wide, pan, tilt) can be used to create a specific mood. - Experiment with advanced editing techniques. - Investigate advanced video production techniques.	- To know that computers can use different forms of input to sense the world around them so that they can record and respond to data. This is called 'sensor data'. - To know that a weather machine is an automated machine that responds to sensor data. - To understand that weather forecasters use specific language, expression and pre-prepared scripts to help create weather forecast films	- To understand methods used to encourage people to buy things online. - To understand that technology can be designed to act like or impersonate living things. - To understand that technology can be a distraction and identify when someone might need to limit the amount of time spent using technology. - To understand what behaviours are appropriate in order to stay safe and be respectful online. - To know how to critically evaluate online information. - To understand the implications of sharing personal data. - Examine the reasons behind age restrictions on social media platforms.

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Year 5	- To know how search engines work. - To understand that anyone can create a website and therefore we should take steps to check the validity of websites. - To understand what copyright is. - To know the difference between ROM and RAM.	- To know that a soundtrack is music for a film/video and that one way of composing these is on programming software. - To understand that using loops can make the process of writing music simpler and more effective.	- To understand that stop motion animation is an animation filmed one frame at a time using models, and with tiny changes between each photograph. - To know that decomposition of an idea is important when creating stop-motion animations. - To know that editing is an important feature of making and improving a stop motion animation	- To know that Mars Rover is a motor vehicle that collects data from space by taking photos and examining samples of rock. - To know what numbers using binary code look like and be able to identify how messages can be sent in this format. - To know what simple operations can be used to calculate bit patterns	- To know different ways we can communicate online. - To understand how online information can be used to form judgements. - To understand some ways to deal with online bullying. - To know that apps require permission to access private information and that you can alter the permissions. - To know where I can go for support if I am being bullied online or feel that my health is being affected by time online.
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Year 6	- To understand the importance of having a secure password and what "brute force hacking" is. - To know that the first computers were created at Bletchley Park to crack the Enigma code to help the war effort in World War 2.	- To know that there are text-based programming languages such as Logo and Python. - To know that nested loops are loops inside of loops.		- To know that data contained within barcodes and QR codes can be used by computers. - To know that Radio Frequency Identification (RFID) is a more private way of transmitting data. - To know that data is often encrypted so that even if it is stolen it is not useful to the thief.	- To know that a 'digital footprint' means the information that exists on the internet as a result of a person's online activity. - To know what steps are required to capture bullying content as evidence. - To understand that it is important to manage personal passwords effectively. - To understand what it means to have a positive online reputation. - To know some common online scams.