

Computing Knowledge Progression Framework

Disciplinary Knowledge

	F2	Year 1	Year 2	Year 3
Algorithms		- Understand what an algorithm is and how they can be used to solve problems/achieve objectives. - Give clear instructions in the correct order when using algorithms.	Use algorithms on digital devices to complete tasks.	Make predictions about what will happen when a command is entered.
Creating Programs	- Complete a simple program on an electronic device (eg: BeeBot/iPad) - Use simple directional language when programming.	Create and test simple programs.	- Create, tests and debug simple programs that achieve a specific purpose. - Give precise unambiguous instructions when programming.	Debug codes knowing that any unexpected outcome is down to their code and not a computer fault
Reasoning		Interpret what will happen at different stages of a program	- Predict what the outcome of a simple program will be. - Identify the parts of a program that respond to specific actions.	- Use logical reasoning to explain how some simple algorithms work. - Predict the outcome of a sequence. - Detect errors in algorithms and programs, using logical reasoning.

Using Technology	• Use vocabulary to name simple equipment. • Operate devices showing an understanding of their remote controls. • Explore and use a range of technology (eg: camera, torch, touch screen, remote control toys). • Retrieve information from technological devices and the internet. • Navigate their way around an ipad and operate a few apps.	• Use letter, number and space keys to enter text into a computer. • Use punctuation and special characters. • Create a digital picture using a range of tools (e.g. fill, line, shape) • Select and use a range of paint colours. • Select text. • Change the appearance of text on a computer. • Use the backspace key to remove text. • Position the text cursor in a given location. • Use the undo button. • Create, edit and store digital content.	• Organise, retrieve and manipulate digital content. • Enter data on a computer. • Use pictograms to answer questions. • Experiment with musical patterns on a computer. • Experiment with different sounds on a computer. • Use a computer to create a musical pattern. • Use a computer to compose a rhythm and a melody. • Use a computer to play the same music in different ways (e.g. tempo) • Evaluate and improve a musical composition created on a computer.	• Change page orientation. • Recognise how different font styles and effects are used for particular purposes. • Consider the benefits of using certain software.
Use of IT beyond school	• Begin to recognise some common uses of technology beyond school.	• Recognise that some technology can be used in different ways. • Identify the main parts of a computer. • Use a mouse in different ways. • Use a keyboard to type and edit text. • Show how to use technology safely.	• Describe some uses of computers. • Recognise the features of information technology. • Identify information technology in school and beyond school. • Show how to use technology safely. • Explain how information technology benefits us.	• Recognise a digital device is made up of different parts. • Identify input and output devices. • Explain that a computer accepts an input and processes it as an output. • Identify network devices around me. • Identify the benefits of computer networks.

Safe Use	• Show care when using technology and electronic devices. • Tell an adult if they see something on a device that upsets them. • Understand some ways to stay and happy online.	• Use technology safely and respectfully. • Understand how and the importance of keeping personal information private. • Save work to a designated folder. • Understand the 'Healthy Habits' as ways of staying safe and happy online.	• Know where to go for help if they are concerned. • Explain what the 'Healthy Habits' mean and how they help us stay safe and happy online. • Say how rules for using information technology help us.	• Know how to report concerns • Recognise and show appropriate behaviour when online
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Substantive Knowledge

	Year 1	Year 2
Technology Around Us	• Know that technology is something that can help us. • Know that a computer is an example of technology. • Know why rules are needed when using technology. • Know that the main parts of a computer are: ○ screen ○ mouse ○ keyboard • Know the benefits of using a computer for creating art. • Know how to log onto a computer using a username and password.	• Know that there are different types of computers used in school. • Know how information technology (IT) can be used and then benefits of it. • Know that a computer can be used to present information. • Know that some personal information should not be shared online. • Know how to use IT safely. • Know how to enter data on a computer. • Know the benefits of using a computer for collecting, comparing and presenting data. • Know the benefits of using technology when shopping.
Programming	• Know that an algorithm is a list of instructions that are followed to get something done/solve a problem. • Know that instructions must be given clearly and in the correct order. • Know how to combine commands to make a sequence. • Know how to create a simple program and test it. • Know how to interpret what will happen at different stages of a program by explaining what a given command will do. • Know how to run a program on a device.	• Know what is meant by debugging and how to do this to fix a problem. • Know that algorithms are used in digital devices. • Know that programs execute by following precise instructions. • Know how to organise code blocks into a sequence to solve a problem. • Know how to create and debug a simple program which achieves a specific purpose. • Know how to predict what the outcome of a simple program will be. • Know how to identify the parts of a program which will respond to specific actions. • Know how to use loops when creating block-based codes.
Creating Media	• Know that a keyboard is used to enter and edit text into a computer. • Know how to change the appearance of text using a keyboard. • Know that the 'shift' key changes the output of a key. • Know that the 'backspace' key removes text.	• Know that computers can be used to play sounds of different instruments. • Know how to use a computer to create musical patterns and compose a rhythm and melody. • Know how to use a computer to play the same music in different ways (eg. changing the tempo).

	• Know that the appearance of text can be changed. • Know that text can be edited.	• Know that the same pattern can be represented in different ways. • Know how to evaluate and improve musical compositions on a computer. • Know the benefits of using a computer for creating music.
Online Safety	• Know how to name my work so that others know it belongs to me. • Know how to save my work under a suitable name/title. • Know that work created by others does not belong to me even if I save a copy. • Know that there may be people online who could make me feel sad or embarrassed. • Know that I can talk to a trusted adult when things online upset me. • Know why it is important to be kind and considerate to others online. • Recognise information that is personal to someone: ○ Name of their school ○ Family names ○ Address • Know the rules I can follow to keep myself safe when using technology at home and beyond. • Know the information I should not share online without asking a trusted adult. • Know that we can encounter a range of things online including things we do and do not like.	• Know that content and information on the internet may belong to other people. • Know that other people may look and act differently online and offline. • Know why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online. • Know what bullying is and how this may look online. • Know how rules/guides help me accessing online technology. • Know who I can talk to if something has been put online without consent or if it is incorrect. • Know the difference between things that are 'made up' and things that are 'true' online.

Key Vocabulary

F2

backwards – (teacher to model)
camera - (teacher to model)
control – a device used to guide/operate technology
instructions – the directions/orders to follow
iPad - (teacher to model)
forwards – (teacher to model)
resilience – finding ways to have another go and not giving up when challenged

Year 1

In addition to F2...

algorithm – a list of instructions to get something done
backspace – a key to delete text
commands - instructions
computer – (teacher to model)
cursor – a visual indicator to see where you are on your screen
double-click – (teacher to model)
edit – to make changes
keyboard – a group of keys that can be used to operate a computer
keys – the buttons on a keyboard
mouse/trackpad – a device used to navigate around a computer and select
program – a set of ordered commands that can be run by a computer to complete a task
route - the way to get one from place to another
screen - the surface on which pictures/word are displayed
technology - something that helps other people.
toolbar - symbols that can be clicked to perform certain jobs
type – pressing keys to produce text
undo/shape/line/fill tools – (teacher to model)
web browser – a program used to navigate and view web pages
word processor – software for creating text documents

Year 2

In addition to F2 and Year 1...

barcode – the black and white bars printed on labels and packaging that can be scanned to read information

scanner – a device which scans printed material to be read by a computer

code – the commands that a computer can run

debugging – the process of finding and fixing mistakes in a program

information technology (IT) - a computer or something that works with a computer

sequence – a list of steps/codes in a specific order

loop – a command which repeats a section of code

movement block – specific codes/instructions which determine how a device moves

light effects, timing, sound – specific codes/instructions which determine the lights and sounds a device makes

Ozoblockly - (teacher to model/show)

Ozobot - (teacher to model/show)

Bluetooth – a way to connect two devices wirelessly to allow communication

programming blocks – commands in block form that can be used to create a program

run – to action the commands in a program