



Disciplinary Knowledge Progression in Computing Working Technologically

This document outlines the disciplinary knowledge which children will develop through computing lessons. Learning disciplinary knowledge gives children the tools to unlock the significance of the carefully mapped substantive knowledge.

	<u>Computer Science</u>	<u>Information Technology</u>	<u>Digital Literacy</u>
<u>Year</u>	<u>Coding and Programming</u>	<u>To manipulate and produce data such as photos, videos, music, word documents and presentations.</u>	<u>E-Safety</u>
<u>EYFS</u>	<u>Procedural Knowledge (methods for performing a task - 'knowing how')</u> - I can show an interest in a variety of technology that can be found at home and school e.g. iPad, car radio, IWB. - I can make different toys work by pressing buttons, turning knobs, pulleys etc. - I can program a programmable toy e.g. Beebot, Codapillar. - I can follow a series of instructions. - I can use a simple computer game.	<u>Declarative Knowledge (knowledge and information - 'knowing what')</u> - I know about technology that is used at home and at school e.g. iPads, phones, microwaves, fridges, traffic lights etc. - I know how I use technology e.g. to play games, to cook food, to make phone calls. <u>Procedural Knowledge (methods for performing a task - 'knowing how')</u> - I can move objects on a screen. - I can interact with age appropriate apps. - I can use the functions in a simple paint program e.g. colour, brushes.	<u>Declarative Knowledge (knowledge and information - 'knowing what')</u> - I know about the devices and websites I use. - I know when to go to an adult when I feel unsure about something online. - I know how to use technology safely. - I know information can be retrieved from the internet.

KSI	<u>Declarative Knowledge (knowledge and information - 'knowing what')</u> • I know algorithms are instructions a device can follow. • I know what will happen after reading a sequence of instructions (prediction). • I know a range of digital devices e.g. iPads, laptops, mobile phones. <u>Procedural Knowledge (methods for performing a task - 'knowing how')</u> • I can follow a series of instructions carefully (a program). • I can create a series of instructions (a program). • I can identify and remove/correct errors in a program (debug). • I can follow instructions to move around a course. • I can use various forms of input devices e.g. keyboard, touchpad and camera.	<u>Declarative Knowledge (knowledge and information - 'knowing what')</u> • I know which functions to pick and use within a simple program e.g. exploring colour in paint, changing text in word, increasing the tempo in digital music. • I know how to use ICT to sort objects according to given criteria e.g. simple branching databases. • I know how to manipulate digital content to present or show data e.g. a pictogram. • I know how to create a rhythm, change the tempo and pick an instrument in my music. <u>Procedural Knowledge (methods for performing a task - 'knowing how')</u> • I can create digital content e.g. a picture in paint, taking a photo, writing in a word document, making music. • I can save and store digit content. • I can retrieve digital content I have saved. • I can use ICT to edit and change the information quickly. • I can amend work and resave. • I can retake and edit a photo ensuring the correct lighting and orientation.	<u>Declarative Knowledge (knowledge and information - 'knowing what')</u> • I know how to use technology safely. • I know how to keep personal information private. • I know common uses of information technology beyond school. • I know how to use technology respectfully. • I know where to go for help and support when I have concerns about content or contact on the internet or other online technologies. • I know how and why some people may change photos to show misinformation. <u>Procedural Knowledge (methods for performing a task - 'knowing how')</u> • I can start to recognise an altered photo.
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Declarative Knowledge (knowledge and information - 'knowing what')

- I know various forms of input devices e.g. keyboard, mouse and camera.
- I know various forms of output devices e.g. LED Micro:Bit screen, speaker.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can design programs that accomplish specific goals.
- I can write programs that accomplish specific goals e.g. on a Micro:Bit.
- I can debug programs to ensure they accomplish specific goals.
- I can use sequences in programs e.g. giving directions around a maze.
- I can use repetition in programs (loops) e.g. a spider moving up, down, up, down, a message flashing on an LED screen.
- I can use logical reasoning to explain how some algorithms work.
- I can use logical reasoning to detect and correct errors in algorithms and programs.
- I can use various forms of input devices e.g. keyboard, mouse and camera.
- I can use various forms of output devices e.g. LED Micro:Bit screen.
- I can solve problems by decomposing them into smaller parts.

Declarative Knowledge (knowledge and information - 'knowing what')

- I know how to use a search engine effectively.
- I know how to use software to create an e-book, brochure or poster on a given subject (Microsoft Word and Publisher).
- I know how to write and deliver a presentation on a given subject (Microsoft PowerPoint).
- I know how to select the correct tool from a variety of software.
- I know how to use onion skinning to help create an effective stop frame animation video.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can recognise and use keywords in my searches.
- I can create a questionnaire to collect data from the class.
- I can answer simple questions in bar charts, or pie charts and interpret data.
- I can discuss how different graphs can be used for different purposes.
- I can create a stop frame animation using a camera to take a series of photos.

Declarative Knowledge (knowledge and information - 'knowing what')

- I know how to use technology safely.
- I know how to use technology respectfully.
- I know how to use technology responsibly.
- I know a range of ways to report concerns about content and contact.
- I know the opportunities computer networks offer for communication and collaboration.
- I know about different jobs within the technological sector e.g. animator.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can recognise acceptable and unacceptable behaviour when using technology.

Declarative Knowledge (knowledge and information - 'knowing what')

- I know how to solve problems by decomposing them into smaller parts
- I know how some algorithms work by using logical reasoning.
- I know how to detect and correct errors in algorithms and programs by using logical reasoning.
- I know what computer networks are and how they provide multiple services.
- I know various forms of input devices e.g. keyboard, mouse and camera.
- I know various forms of output devices e.g. LED Micro:Bit screen, speaker.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can use selection in programs e.g. IF the snake hits the egg it disappears.
- I can work with variables e.g. scoring, time left within a game.
- I can design programs that accomplish specific goals, including controlling or simulating physical systems e.g. a racing car.
- I can write programs that accomplish specific goals, including controlling or simulating physical systems e.g. a racing car.
- I can debug programs to ensure they accomplish specific goals, including controlling or simulating physical systems e.g. a racing car.
- I can use various forms of input devices e.g. keyboard, mouse and camera.
- I can use various forms of output devices e.g. LED Micro:Bit screen.

Declarative Knowledge (knowledge and information - 'knowing what')

- I know how to use a search engine effectively.
- I know how search results are selected and ranked.
- I know how to use software to create an e-book, brochure or poster on a given subject (Microsoft Word and Publisher).
- I know how to write and deliver a presentation on a given subject (Microsoft PowerPoint).
- I know the correct tool to use from a variety of software.
- I know which features to include in a webpage.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can recognise and use keywords in my searches.
- I can create a questionnaire to collect data from the class.
- I can create an Excel spreadsheet using information collected in class.
- I can answer simple questions in bar charts, or pie charts and interpret data.
- I can discuss how different graphs can be used for different purposes.
- I can combine a variety of software to reach a given goal.
- I can justify reasons for my choices and explain why other methods were not appropriate.
- I can use different software types on a range of digital devices.
- I can design, create and evaluate a webpage.

Declarative Knowledge (knowledge and information - 'knowing what')

- I know how to use technology safely.
- I know how to use technology respectfully.
- I know how to use technology responsibly.
- I know a range of ways to report concerns about content and contact.
- I know the opportunities computer networks offer for communication and collaboration.
- I know about copyright and free use photos and using them appropriately in my own work.

Procedural Knowledge (methods for performing a task - 'knowing how')

- I can recognise acceptable and unacceptable behaviour when using technology.
- I can evaluate digital content to discern its usefulness and authenticity.