

KS3 National Curriculum		

Mapping of the Rabbids Coding levels has been completed against the UK National Curricukum for Computing in Key Stages 1, 2 and 3. Further mapping has been carried out against the CAS Progression Pathways to give an indication of the progression of complexity within the levels. Each level is identified as meeting various NC statements at beginner, intermediate, or advanced level. These levels correspond directly to the CAS progression pathways; All key stages have been mapped to pink, yellow and blue strands,

X	General
B	Beginner level
I	Intermediate level
A	Advanced level

	Progression Pathway Colour	Progression Pathway Strand
Digital Literacy		
understand a range of ways to use technology safely	I	Identifies and explains how the use of technology can impact on society
	A	Explains and justifies how the use of technology impacts on society, from the perspective of social, economical, political, legal, ethical and moral issues
understand a range of ways to use technology respectfully	B	Recognises ethical issues surrounding the application of information technology beyond school.
	I	Identifies and explains how the use of technology can impact on society
	A	Explains and justifies how the use of technology impacts on society, from the perspective of social, economical, political, legal, ethical and moral issues
understand a range of ways to use technology responsibly	B	Recognises ethical issues surrounding the application of information technology beyond school.
	I	Identifies and explains how the use of technology can impact on society
	A	Explains and justifies how the use of technology impacts on society, from the perspective of social, economical, political, legal, ethical and moral issues
understand a range of ways to use technology securely	I	Uses technologies and online services securely
Protecting their online identity and privacy	A	Recognises that persistence of data on the internet requires careful protection of online identity and privacy
Recognise inappropriate content	X	
Recognise inappropriate contact	X	

Recognise inappropriate conduct	I	knows how to identify inappropriate conduct.
Know how to report concerns	I	knows how to report inappropriate conduct.
Computer Science		
Design computational abstractions that model the state and behaviour of real-world problems and physical systems	B	Understands that programming bridges the gap between algorithmic solutions and computers
	A	<p>Recognises that the design of an algorithm is distinct from its expression in a programming language (which will depend on the programming constructs available).</p> <p>Recognises where information can be filtered out in generalizing problem solutions (abstraction).</p> <p>Represents algorithms using structured language</p>
Use computational abstractions that model the state and behaviour of real-world problems and physical systems	B	Understands how search engines rank search results.
Evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems	B	Designs criteria to critically evaluate the quality of solutions, uses the criteria to identify improvements and can make appropriate refinements to the solution.
	I	<p>Detects and corrects syntactical errors</p> <p>Designs criteria for users to evaluate the quality of solutions, uses the feedback from the users to identify improvements and can make appropriate refinements to the solution</p>
	A	<p>Evaluates the effectiveness of algorithms and models for similar problems</p> <p>Undertakes creative projects that evaluate data to meet the needs of a known user group.</p> <p>Documents user feedback, the improvements identified and the refinements made to the solution</p> <p>Applies a modular approach to error detection and correction.</p>

Understand several key algorithms that reflect computational thinking	B	Recognises that different algorithms exist for the same problem
Use logical reasoning to compare the utility of alternative algorithms for the same problem	B	Can identify similarities and differences in situations and can use these to solve problems (pattern recognition)
	I	Recognises that some problems share the same characteristics and use the same algorithm to solve both (generalisation). Understands the notion of performance for algorithms and appreciates that some algorithms have different performance characteristics for the same task
	A	Evaluates the effectiveness of algorithms and models for similar problems Uses logical reasoning to explain how an algorithm works.
Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems	B	Has practical experience of a high-level textual language, including using standard libraries when programming
	A	Understands how and why values are data typed in many different languages when manipulated within programs.
Make appropriate use of data structures	B	Selects the appropriate data types. Defines data types: real numbers and Boolean.
	I	Distinguishes between data used in a simple program (a variable) and the storage structure for that data. Uses and manipulates one dimensional data structures
Design modular programs that use procedures or functions	B	Represents solutions using a structured notation
	I	Knows the difference between, and uses appropriately, procedures and functions.
	A	Appreciates the effect of the scope of a variable e.g. a local variable can't be accessed from outside its function

Develop modular programs that use procedures or functions	I	Appreciates the need for, and writes, custom functions including use of parameters
	A	Understands and applies parameter passing.
Understand simple Boolean logic and some of its uses in circuits and programming	B	Uses a range of operators and expressions e.g. Boolean, and applies them in the context of program control
	I	Understands and uses negation with operators
	A	Understands the relationship between binary and electrical circuits, including Boolean logic
Understand how numbers can be represented in binary	B	Understands how bit patterns represent numbers
Be able to carry out simple operations on binary numbers	I	Performs simple operations using bit patterns e.g. binary addition
Understand the hardware and software components that make up computer systems	B	Recognises and understands the function of the main internal parts of basic computer architecture Knows that there is a range of operating systems and application software for the same hardware
	I	Understands the von Neumann architecture
Understand how hardware and software communicate with one another and with other systems	B	Knows that computers transfer data in binary. Understands data transmission between digital computers over networks, including the internet i.e. IP addresses and packet switching
	I	Knows the names of hardware e.g. hubs, routers, switches, and the names of protocols e.g. SMTP, iMAP, POP, FTP, TCP/IP, associated with networking computer systems
	A	Knows the purpose of the hardware and protocols associated with networking computer systems
Understand how instructions are stored within a computer system	B	Knows that digital computers use binary to represent all data
	I	Understands the basic function and operation of location addressable memory.
Understand how instructions are executed within a computer system	B	Understands the concepts behind the fetch-execute cycle
	I	Understands the von Neumann architecture in relation to the fetch-execute cycle, including how data is stored in memory.

	A	Knows that processors have instruction sets and that these relate to low-level instructions carried out by a computer.
Understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits	B	Understands how bit patterns represent numbers and images Understands the relationship between binary and file size (uncompressed).
	I	Understands how numbers, images, sounds and character sets use the same bit patterns. Understands the relationship between resolution and colour depth, including the effect on file size.
	A	Knows the relationship between data representation and data quality.
Information Technology		
undertake creative projects that involve selecting multiple applications to achieve challenging goals	B	Evaluates the appropriateness of internet services and application software to achieve given goals.
	I	Justifies the choice of internet services and application software to achieve given goals.
undertake creative projects that involve using multiple applications to achieve challenging goals	I	Independently uses multiple internet services and application software to achieve given goals.
undertake creative projects that involve combining multiple applications to achieve challenging goals	I	Independently combines multiple internet services and application software to achieve given goals.
Undertake creative projects across a range of devices	B	Evaluates the appropriateness of digital devices to achieve given goals.
	I	Independently combines and uses multiple digital devices to achieve given goals.
collecting data	B	Queries data on one table using a typical query language
	A	Undertakes creative projects that collect data to meet the needs of a known user group.

analysing data	A	Undertakes creative projects that analyse data to meet the needs of a known user group.
meeting the needs of known users	I	Designs criteria for users to evaluate the quality of solutions
	A	Undertakes creative projects that meet the needs of a known user group.
Create digital artefacts for a given audience	B	Understands how to construct static web pages using HTML and CSS
	I	Designs and creates digital artifacts for a known audience
	A	Effectively creates digital artefacts for a wider or remote audience Understands the client-server model including how dynamic web pages use server-side scripting and that web servers process and store data entered by users
Re-use digital artefacts for a given audience	A	Considers the properties of media when importing them into digital artefacts
Revise digital artefacts for a given audience		
Re-purpose digital artefacts for a given audience	A	Considers the properties of media when importing them into digital artefacts
Attention to trustworthiness	I	Evaluates the trustworthiness of digital content when designing and creating digital artifacts for a known audience.
Attention to design	A	Effectively designs digital artefacts for a wider or remote audience
Attention to usability	I	Considers the usability of visual design features when designing and creating digital artifacts for a known audience.
	B	Understands that iteration is the repetition of a process such as a loop. (
	I	Understands a recursive solution to a problem repeatedly applies the same solution to smaller instances of the problem
	A	Understands the difference between, and uses, both pre-tested e.g. 'while', and post-tested e.g. 'until' loops.
	I	Uses nested selection statements.