

Computer Science: Programming			
Unit	Declarative Knowledge	Procedural Knowledge	Vocabulary
Yr 1 Programming A – Moving A Robot	I understand that a program is a set of commands that a computer can run. I know that a command produces an outcome. I understand that a series of instructions can be issued before they can be enacted.	I can predict and then run my command on a floor robot. I can choose a series of commands that can be run as a program. I can build a sequence of commands that can be run as a program on a device	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.
Yr 1 Programming B – Programming Animations	I understand that a program is a set of commands that a computer can run. I know that a command produces an outcome. I understand that a series of instructions can be issued before they can be enacted. I know a list of step-by-step commands is a sequence.	I can choose a series of commands that can be run as a program. I can build a sequence of commands that can be run as a program on a device	ScratchJr, command, sprite, compare, programming, area, block, joining run, program, background, delete, reset, algorithm, predict, value, instructions
Yr 2 Programming B – Programming Animations	I know that a sequence is a series of instructions (commands). I know that a program is a sequence that can be run (executed). I understand that there is a different outcome when the order of the instructions is changed. I know that outcomes can be predicted before running (executing) a program.	I can predict and run a command on a given device. I can list commands, giving commands for a given purpose. I can choose a series of commands that can be run as a program, building a sequence of commands in steps. I can run and debug a program on a device	sequence, command, program, run, predict, blocks, design, sprite, project, modify, algorithm, build, debug, evaluate, decomposition, code.

Yr 3 An introduction to sequencing Code.org – Course C (Sequence into repetition) Lessons 3, 4, 5, 6, 7, 8, 9, 10	I understand that programs use numbers, symbols, and commands to represent and manipulate information. I know that algorithms are step-by-step instructions used to solve problems. I understand how sequences and simple loops help programs repeat actions efficiently. I know that debugging helps identify and fix errors in programs. I understand that complex problems can be broken into smaller, manageable steps. I know the importance of giving credit when using the ideas or creations of others.	I can create programs using sequences and simple loops. I can break down problems into clear, step-by-step instructions. I can use code to create games, art, and interactive projects. I can test and debug programs to fix errors and improve outcomes. I can explain the steps and choices I made while creating a program. I can use and credit the ideas or work of others appropriately in my projects.	Algorithm, Bug, Debugging, Sequencing, Persistence, Program, Programming, Angle, Loop, Repeat
Yr 4 Events and Repetition in games Code.org – Course D (Events) Lessons 6, 7, 8 (Repetition) Lessons 11, 12, 13	I understand that programs use sequences, events, loops, and conditionals to control actions. I know that complex programming tasks can be broken into smaller, manageable steps. I understand that loops, including nested loops, repeat instructions efficiently. I know that programs can be modified, remixed, and improved to create new projects.	I can create programs that use sequences, events, loops, and conditionals. I can use loops and nested loops to repeat actions and create patterns or designs. I can break down programming problems into smaller parts to solve them step by step. I can test, debug, and troubleshoot programs to improve performance.	Event, Hardware, Software, Loop, Repeat, Command

	I understand the importance of testing, debugging, and troubleshooting hardware and software problems. I know that collaboration and user feedback help improve program design and development.	I can modify and remix programs to add new features or improve designs. I can collaborate with others and explain my programming choices through comments, presentations, or demonstrations.	
Yr 5 Selection and conditions in programming Code.org – Year 4 Course D (Selection – conditional) Lessons 14, 15, 16, 17, 18, 19	I understand that conditionals help programs make decisions based on different situations. I know that loops repeat instructions until a task is completed. I understand how sequences, loops, and conditionals work together in programs. I know that large programming tasks can be broken into smaller, manageable steps. I understand the importance of testing and debugging programs to fix errors. I know that programmers should collaborate, give credit to others' work, and explain their coding choices.	I can create programs that use conditionals, loops, and events. I can use while loops and until loops to repeat actions in a program. I can break down programming problems into smaller steps to solve them more easily. I can test and debug programs to make sure they work correctly. I can modify and remix existing programs to create new projects. I can explain my programming decisions using comments, presentations, or demonstrations while giving proper credit to sources.	Conditionals, Pseudocode, Condition, Loop, Repeat, While Loop, Until, Algorithm
Yr 6 Variables in Games Code.org – Course F (Variables) Lessons 7, 8, 9, 10, 11, 12	I understand that variables store and change information in a program. I know that algorithms are step-by-step instructions used to solve problems. I understand how sequences, loops, events, and conditionals control programs.	I can create programs that use variables to store and update data. I can design programs using sequences, loops, events, and conditionals. I can use prompts and user input to make interactive stories and games.	Variable, Prompt, Input

	I know that user input makes programs interactive and responsive. I understand that programs can be tested, debugged, and improved. I know that programmers can remix, modify, and collaborate to create new projects.	I can break down complex programming problems into smaller steps. I can test and debug programs to fix errors and improve performance. I can modify, remix, and explain my programs through comments and demonstrations.	
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Computer Science: Computing Systems and Networks			
Unit	Declarative Knowledge	Procedural Knowledge	Vocabulary
Yr 1 – Technology around us	I know how technology helps us. I know that a computer is an example of technology. I understand that choices are made with technology, and this is why rules are important.	I can choose a piece of technology to do a job, recognising that technology can be used in different ways. I can identify and use parts (including a mouse and keyboard) of a computer. I can show how to use technology safely and responsibly.	technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.
Yr 2 – Information Technology around Us	I know the different types of computers used in school. I know that a computer is part of Information Technology. I understand the term Information Technology and know different forms of IT. I know the uses and rules of different forms of IT. I know the benefits of using IT	I can describe uses of IT I can identify IT in school and beyond. I can show others how to use IT safely and responsibly	Information technology (IT), computer, barcode, scanner/scan
Yr 3 – Connecting Computers	I understand the terms 'input and output' linked to computers and how they are linked to the process. I understand how devices in a network are connected to one another. I understand how information is passed through multiple connections on a network. I know the benefits of computer networks.	I can identify input and output devices and explain the processes they do. I can identify network devices around me and how they connect to one another. I can explain how switches, servers and wireless access points can be used in a network to share information.	Network, data, server, wireless access points (WAPs), network switch, router, input, process, output, Wi-Fi, Bluetooth.
Yr 4 – The Internet	I understand how networks connect and communicate with each other and that together, the global interconnection of networks make up the Internet. I know that the World Wide Web (WWW) is a collection of websites and web pages, and that the Internet enables us to view these. I understand that WWW content can be created by	I can describe what the Internet is, and how devices physically connect. I can explain what the World Wide Web is, and the difference between it and the Internet. I can explain the different types of content that can be created for the WWW and evaluate its reliability, the	Network, data, World Wide Web, Internet, web page, website, content, media, copywrite.

	anyone and shared with everyone. I understand the limitations, reliability and benefit of the World Wide Web and its content.	usefulness of content created, and the consequences of unreliable content	
Yr 5- Systems and Searching	I understand that a computer system is a collection of inputs, processes and outputs, and how they play a role in our lives. I understand that there are a number of search engines (a type of system) and I know how search results are found, ordered and 'ranked.' I understand why the order of results is important, and to whom, and understand some of the limitations of search engines.	I can compare different search engines and explain why search results might be different, when searching for the same thing. I can evaluate the results of search terms and identify that results from search engines can include adverts, and that the adverts can be targeted at specific audiences.	Address bar, search box, World Wide Web, search engine, web crawler, page rank, ranking, communication, search terms.
Yr 6 – Communication and Collaboration	I understand that computers have protocols and rules to follow, so that information can be shared over the internet, using 'packets' of information. I can understand the benefits of computer systems in our lives and how they enable collaborative projects. I can define 'communication' and discuss the opportunities that technology offers for communication.	I can identify different ways to communicate using technology and evaluate different methods of online communication effectively. I can identify what you should and should not share online.	communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, oneway, two-way, one-to-one, one-to-many.

Unit	Declarative Knowledge	Procedural Knowledge	Vocabulary
Yr 2 – Pictograms	I know a tally chart is used to collect data I know that data can be grouped by their attributes and then compared. I know that tally charts and pictograms need headings which relate to the data. I know that information can be presented in different ways using a computer. I understand why some data (or information when in context) should not be shared.	I can enter and view data on a computer. I recognise that people, animals and objects can be described by attributes. I can use a computer to answer single-attribute and comparison questions.	more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing
Yr 3 – Branching databases	I understand that a branching database is an identification tool and know how it works. I know attributes can be identified by asking yes/no questions. I know that a well-structured branching database will enable you to identify objects using fewer questions. I know real-world applications for branching databases.	I can create questions with yes/no answers. I can choose questions that will divide objects into evenly-sized smaller groups. I can identify an object using a branching database and retrieve information from different levels of the database.	Branching database, Attribute / property, Yes/no questions, data, information.
Yr 5 – Spreadsheets	I can explain what data is, and that it needs a context. I know a range of the different types of software tools that deal with and organise data. I know that formulas can be used to produce calculated data. I know why data should be organised in a spreadsheet I know that cells can be linked and understand that a cell's value automatically updates when the value in a linked cell is changed.	I can give examples of data types and contexts in which they may be used. I can identify and use data handling software and input, present and evaluate data. I can apply formulas to data and functions to create new data. I can explain how my data presentation represents the answer to a specific question.	data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools.

Information Technology: Creating Media			
Unit	Declarative Knowledge	Procedural Knowledge	Vocabulary
Yr 1 Digital Painting	I know that computer can be used to create art. I know what the different freehand tools do on the chosen application. I understand how to adjust a tool to suit my needs, deciding on the appropriate tool for use and considering the impact of my choices. I understand the differences between painting on a computer to using brushes.	I can create a picture using freehand tools, shape and line. I can use a range of paint colours and use the fill tool when needed. I can use the undo button to correct a mistake.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size
Yr 1 Digital Writing	I understand that a keyboard enters text and changes the output of a key. I know that text can be edited and changed. I can consider the impact of choices made.	I can use a keyboard to enter or remove text, including letters, numbers or special characters. I can select and change the position of text in a document. I can choose options to achieve a desired effect including changing the appearance of text.	word processor, keyboard, keys, type, space, backspace, text cursor, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing
Yr 2 Digital Photography	I know that some digital devices can capture images using a camera. I know how to take and save/store a photograph for future viewing. I know the features of a good photograph and how one could be improved.	I can capture a digital image, in either landscape or portrait mode. I can use the zoom on the camera to change the composition of the photos and consider the use of light before taking my photo. I can use filters to edit the appearance of the photo.	quiet, loud, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, beat, instrument, open, edit.

	I understand how light can affect a photograph. I know that some photos are not accurate.		
Yr 2 Digital Music	I know that computers can be used to create sounds of different instruments that may be represented as patterns.	I can experiment with musical sounds and patterns on a computer. I can use a computer to create a pattern, rhythm, and a melody on a theme. I can evaluate and improve music composed on a computer	quiet, loud, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, beat, instrument, open, edit.
Year 3 Desktop Publishing	I understand how text and images can be structured, using placeholders, to convey information. I know how different document layouts can suit different purposes. I understand the benefits and reasons why I might use a DTP application.	I can add, delete, resize and rotate images to and from placeholders in a document. I can add, edit and change text, applying appropriate fonts, sizing and styles to suit the purpose of the document. I can reorientate a page, organising placeholders to suit the purpose, and review my document, making changes where necessary.	Layout, landscape, portrait, placeholders, font, style, edit, right click, left click, group/ungroup.
Yr 4 Audio Production	I know that sound can be recorded digitally and stored as a file, and can demonstrate ways to do this. I know that digital audio can be edited and altered, and can demonstrate some ways to do this. I know the range of editing choices available, and understand their effects on finished media and its intended audience.	I can use Audacity to record sound digitally, using a device with a microphone and save it as an audio file, and locate the file again. I can use Audacity to play back, select, edit and alter an audio file, and understand what layering sound means. I can explain how my audio file is different and explain why I have changed it in that way.	Audio file, digitally, microphone, select, input, output, volume, Audacity, podcast
Yr 4 Photo Editing	I understand that images can be changed for different purposes. I know that not all images are real, and that they can be manipulated. I understand the impact of the changes made on the quality of the image.	I can change the composition of images, including arranging images, cropping images and editing out a part of an image. I can apply changes to the whole image or part of it, including adjusting colours, adding filters, adding effects, retouching.	Image, filters, cropping, editing, composition, select, group, clone

	I know the range of tools available for editing and understand their purpose.	I can add to an image, including drawing, add text, add an element (e.g.: borders, etc.)	
Yr 5 Video Production	I know the key concepts of video composition. I understand why I need to plan and create a video storyboard, capture video according to my plan, and edit my finished product. I know the options of improvements to my video, and understand the effect of editing choices made.	I can use a video recording device to carry out the following functions: recording, panning, focussing, zooming and editing specific recording effects (e.g. filters). I can locate, playback and transfer/export video I have recorded. I can edit video using the following functions, justifying my choices: selecting specific sections, applying effects, deleting sections, splitting sections, cropping sections of video.	Storyboard, panning, zooming, editing, filters, cropping, exporting.
Yr 6 3D Modelling	I can recognise that a 3D environment can be viewed from different perspectives. I can show how placeholders can create holes in 3D objects. I can recognise that artefacts can be broken down into a collection of 3D objects.	I can position 3D shapes and use digital tools to modify 3D objects. I can use digital tools to accurately size 3D objects and combine them to create a 3D digital artefact. I can construct a 3D model which reflects a real world object.	TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, placeholder, hollow, construct
Yr 6 Webpage Creation	I understand that a website is a set of hyperlinked web pages and understand the relationship between HTML and what appears on the webpage. I know that web pages can contain different media types. I understand that web pages are written by people I can consider the ownership and use of images (copyright) on a website. I understand the need for a navigation pathway in webpage design.	I can review an existing website (navigation bars, header) I can create a new blank web page and add further web pages I can change the appearance a web page by adding text, media and selecting styles. I can preview a web page on different screen sizes. I can insert hyperlinks between pages and other sites.	website, web page, browser, media, Hypertext Markup Language (HTML), layout, header, media, purpose, copyright, fair use, home page, preview, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, implication, external link, embed.