

Christ Church CE Primary School



S.T.E.M

Computing Progression of Skills

At Christ Church CE Primary pupils:

- Children develop skills using a wide range of technology
- Children use computing skills throughout their curriculum during many lessons, not just computing.
- Children will develop the fundamental skills, knowledge and understanding that will equip them for the rest of their life whilst remembering appropriate conduct online and how to report this if it ever goes wrong.

Intent

At Christ Church, the core of computing is Computer Science in which pupils are introduced to a wide range of technology, including laptops, iPads and interactive whiteboards, allowing them to continually practise and improve the skills they learn. We believe that Computing is an essential part of the curriculum; a subject that not only stands alone but is woven within our curriculum and should be an integral part of all learning ensuring pupils become digitally literate so that they are able to express themselves and develop their ideas through information and computer technology– at a level suitable for the future workplace and as active participants in a digital world. The skills learnt through the online platform Purple Mash are transferable with real life situations, for example spreadsheets, databases, data handling and online security. Staff regularly receive CPD within Computing and Purple Mash to improve confidence within teaching and keep abreast of an ever-evolving subject. Computers and technology are such a part of everyday life that our children would be at a disadvantage should they not be exposed to a thorough and robust Computing curriculum. Children must be taught in the art form of 'Computational Thinking' in order to provide them essential knowledge that will enable them to participate effectively and safely in the digital world beyond our gates. Enjoyment, safety and independence is at the forefront of our intentions when children are becoming computer literate.

There are a number of key documents that support our planning and delivery of Computing:

- National Curriculum mapping document
- Teacher and Child-friendly Knowledge Organisers for each unit
- The journey of a Christ Church Child in Computing
- Vocabulary Progression document
- Intent, Implementation and Impact document
- Enrichment opportunities



	Y1	Y2	Y3	Y4	Y5	Y6
Computer Science	<u>Skills</u> To use algorithms as programs on digital devices. To create simple programs. To debug simple programs. To predict the behaviour of simple programs by using logical reasoning. To read code one line at a time. To work out what is wrong when steps are out of order in instructions. To make good guesses on what is going to happen in a program.	<u>Skills</u> To plan algorithms carefully for them to work when turned into code. To design and create a simple program. To find and correct errors in programs. To identify something in a program that has an action or effect. To debug simple programs.	<u>Skills</u> To make real-life situations into an algorithm. To design an algorithm carefully. To identify errors in programs. To experiment with timers in programs. To identify the different in using a timer or repeated command. To read programs with several steps. To predict what a program will do.	<u>Skills</u> To turn a real-life situation into an algorithm, using a design that shows how this is done. To use repetition in coding. To use timers in programs to create repetition effects. To use selection in programming. To use variables in programming. To use user inputs and outputs. To recognise the main components of hardware which allow computers to join and form a network. To read programs that contain several steps and predict the outcomes.	<u>Skills</u> To make more complex real-life problems into algorithms. To test and debug programs. To convert algorithms that contain sequence, selection, and repetition into code. To use sequence, selection, repetition, and other coding structures. To organise code carefully. To use appropriate online communication according to digital content.	<u>Skills</u> To turn a complex programming task into an algorithm. To identify the important aspects of a programming task. To decompose important aspects of a programming task. To identify appropriate coding structures. To test and debug programs to identify a bug cause. To identify a specific line of code that is causing a problem. To translate algorithms that include sequence, selection, and repetition into code. To use inputs and outputs. To put separate parts of a program together in an algorithm.
	<u>Knowledge</u> To know that an algorithms is a set of instructions. To know computer programs turn algorithms into codes. To know that programs follow precise and unambiguous instructions. To know if something does not work it is because the code is incorrect.	<u>Knowledge</u> To explain what an algorithm is. To explain what will happen in a program. To understand that algorithms follow a sequence. To understand how to debug a program.	<u>Knowledge</u> To know how to turn an algorithm into a code. To know a variable stores information while a program is running. To know 'if' statements, repetition and variables. To know how the internet can be used for communication. To know how to use email to respond to others.	<u>Knowledge</u> To know how to change variables in programming. To identify errors in code. To understand that network and communication components are in many devices.	<u>Knowledge</u> To know that organising code supports debugging. To know the importance of computer networks and how they solve problems and enhance communication. To recognise the main dangers through computer networks. To explain what personal information is and know how to keep it safe.	<u>Knowledge</u> To understand and interpret a program in parts. To explain what a program is. To explain the difference between the internet and the World Wide Web. To explain what WAN and LAN is and describe the process of how access to the internet in school is possible.

Computer Science	<u>Vocabulary</u> Instruction, algorithm, computer, program, debug Action, algorithm, background, code, command, debug-debugging, event, execute, input, instructions, object, properties, output, run, scale, sound, scene, when clicked <u>Purple Mash Units</u> 1.4 – Lego Builders 1.7 – Coding (1.5 – Maze Explorers)	<u>Vocabulary</u> action, algorithm, background, button, design mode, collision detection, event, debug, debugging, nesting, key pressed, object, run, test, predict, scale, text, properties, scene, timer, sequence, when clicked, when swiped, sound <u>Purple Mash Units</u> 2.1 – Coding	<u>Vocabulary</u> Action, blocks of command, develop, alert, button, event, algorithm, collision detection, execute, command, flowchart, background, debug, debugging, nesting, object, properties, sound, output, repeat, test, timer, plan, sequence, values, predict, procedure, scene, communication Password, email, attachment, CC, compose, address book, formatting, send, save to draft <u>Purple Mash Units</u> 3.1 – Coding 3.5 – Email	<u>Vocabulary</u> Action, alert, background, button, code block, command, debug, debugging, execute, co-ordinates, flowchart, if, else, nesting, objects types, predict, number variable, predict, prompt, repeat, prompt for input, selection, properties, repeat until, timer, variable, variable value LOGO, BK, FD, RT, LT, REPEAT, SETPC, SETPS, PU, PD Motherboard, CPU, RAM, graphics card, network card, monitor, speakers, keyboard and mouse <u>Purple Mash Units</u> 4.1 – Coding 4.5 – Logo 4.8 – Hardware Investigators (4.2 – Online Safety) (4.7 – Effective Searching)	<u>Vocabulary</u> Action, abstraction, algorithm, button, called, co-ordinates, decomposition, event, if, function, nesting, object, repeat, physical system, properties, run, score, sequence, simplify/simplified, simulation, tab, timer, variable Online safety, smart rules, password, reputable, encryption, identity theft, shared, image, plagiarism, citations, reference, bibliography Animation, computer game, customise, evaluation, image, instructions, interactive, screenshot, texture, perspective, playability <u>Purple Mash Units</u> 5.1 – Coding 5.2 – Online Safety 5.5 – Game Creator	<u>Vocabulary</u> Action, background, debug, debugging, get input, number variable, predict, alert, button, command, developer, flowchart, if, else, nesting, algorithm, called, co-ordinates, event, function, launch command, object, procedure, prompt, properties, repeat, run, scene, selection, simulation, string, tab, timer, user input, variable Digital footprint, password, PEGI rating, phishing, screen time, spoof website <u>Purple Mash Units</u> 6.1 – Coding 6.2 – Online Safety (6.4 – Blogging) (6.6 – Networks) (6.8 – Binary)

Information Technology	<u>Skills</u> To sort sound, pictures and text. To add sound, pictures and text to a program. To name a file. To save a file. To find a file.	<u>Skills</u> To organise data using a database. To find data using specific searches. To use several programs to organise information. To edit digital data. To name, save and find files. To use media.	<u>Skills</u> To carry out searches to find digital content on online systems. To collect data and input into software. To analyse data using software features. To present data and information using different software. To consider what the most appropriate software is for a task. To create appropriate content and attach this to emails.	<u>Skills</u> To look at information on a webpage and make predictions about the accuracy of information within it. To create and improve solutions to a problem. To review solutions using a checklist. To work collaboratively to create content and solutions. To share digital content using a variety of applications.	<u>Skills</u> To search precisely when using a search engine, using key words. To make appropriate improvements to digital work. To comment on how successful a digital solution is. To work collaboratively with others to create solutions to problems using appropriate software. To use collaborative modes to work with others and share it.	<u>Skills</u> To use filters when searching for digital content. To compare a range of digital content sources and rate them in terms of content quality and accuracy. To design and create online blogs. To evaluate the quality of digital solutions and suggest refinements.
	<u>Knowledge</u> To know how to change content on a file.	<u>Knowledge</u> To know how to organise data. To know what different searches will find.	<u>Knowledge</u> To understand how to carry out searches. To know that searches require the internet and a search engine. To know how to use different software for different tasks.	<u>Knowledge</u> To understand the purpose of a search engine and the main features of it. To understand the function, features, and layout of a search engine. To know what makes a webpage credible.	<u>Knowledge</u> To explain in detail how accurate, safe and reliable the content of a webpage is. To know what type of improvements to use on digital work. To understand what makes a digital salutation successful. To know what makes a webpage	<u>Knowledge</u> To know what search filters are and how to use them. To explain in detail how accurate and reliable a webpage and its content is. To consider the intended audience when making digital content. To use critical thinking skills in everyday use of online communication.

Information Technology	<u>Vocabulary</u> Sort, criteria Animation, e-book, font, file, sound effect, display board Action, algorithm, background, code, command, debug-debugging, event, execute, input, instructions, object, properties, output, run, scale, sound, scene, when clicked <u>Purple Mash Units</u> 1.2 – Grouping and Sorting 1.6 – Animated Stories 1.7 – Coding (1.3 – Pictograms) (1.8 – Spreadsheets)	<u>Vocabulary</u> Pictogram, question, data, collate, binary tree, avatar, database Impressionism, palette, pointillism, share, surrealism, template Concept map (mind map), quiz, presentation, node, animated, non-fiction, narrative, audience <u>Purple Mash Units</u> 2.4 – Questioning 2.6 – Creating Pictures 2.8 – Presenting Ideas (2.3 – Spreadsheet) (2.5 – Effective Searching) (2.7 – Making Music)	<u>Vocabulary</u> < > =, advance mode, copy and paste, columns, cells, delete key, equals tool, spin tool, move cell tool, rows, spreadsheet Posture, top row keys, home row keys, bottom row keys, space bar Animation, audio, design templates, entrance animation, font, media, presentation, presentation program, slide, slideshow, stock image, text box, text formatting, transition <u>Purple Mash Units</u> 3.3 – Spreadsheets 3.4 – Typing 3.9 – Presenting (3.5 – Email) (3.6 – Branching Data) (3.7 – Simulations) (3.8 – Graphing)	<u>Vocabulary</u> Action, alert, background, button, code block, command, debug, debugging, execute, co-ordinates, flowchart, if, else, nesting, objects types, predict, number variable, predict, prompt, repeat, prompt for input, selection, properties, repeat until, timer, variable, variable value Average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer Easter egg, internet, internet browser, search, search engine, spoof website, website <u>Purple Mash Units</u> 4.1 – Coding 4.3 – Spreadsheets 4.7 – Effective Searching (4.4 – Writing for Different Audiences) (4.6 – Animation) (4.8 – Making Music)	<u>Vocabulary</u> Online safety, smart rules, password, reputable, encryption, identity theft, shared, image, plagiarism, citations, reference, bibliography Average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer Audience, collaboratively, concept, concept map, connection, idea, node, thought, visual Copyright, cursor, document, font, in-built styles, merge cells, paragraph formatting, readability, template, text formatting, text wrapping, word art, word processing tool <u>Purple Mash Units</u> 5.2 – Online Safety 5.3 – Spreadsheets 5.7 – Concept Maps 5.8 – Word Processing (5.1 – Coding) (5.4 – Databases) (5.5 – Game Creator) (5.6 – 3D Modelling)	<u>Vocabulary</u> Action, background, debug, debugging, get input, number variable, predict, alert, button, command, developer, flowchart, if, else, nesting, algorithm, called, co-ordinates, event, function, launch command, object, procedure, prompt, properties, repeat, run, scene, selection, simulation, string, tab, timer, user input, variable Digital footprint, password, PEGI rating, phishing, screen time, spoof website Audience, blog page, collaborative, blog, blog post, icon <u>Purple Mash Units</u> 6.1 – Coding 6.2 – Online Safety 6.4 – Blogging (6.5 – Text Adventures) (6.7 – Quizzing) (6.9 – Microsoft Spreadsheets)
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Digital Literacy

Skills

To say what technology is.
To give examples of technology in the world.
To keep login information safe.
To save work in a safe place.
To compare objects with and without modern technology.

Knowledge

To know what technology is.
To know what uses old or new technology.
To understand the importance of keeping information safe.

Skills

To find information in a search engine.
To share work and communicate electronically.
To report unkind behaviour and things that are upsetting online.
To see where technology is used in the world.
To recognise links between technology, coding and multimedia.
To know how things are shared electronically.

Knowledge

To know what a search engine is.
To know the consequences of not searching online in a safe way.
To know how to report online.
To understand that skills built in programs can be used in adult life.
To share effective searching knowledge.

Skills

To create a secure password.
To behave respectfully online.
To use communication tools respectfully.
To report unacceptable content and contact online.

Knowledge

To know what a secure, strong password is.
To explain the importance of having a secure password.
To know not to share passwords with others.
To explain the negative consequences of not keeping passwords safe.
To understand the importance of keeping safe online.
To know how to report online.

Skills

To demonstrate how to use different online technologies safely.
To demonstrate how to use a few different online services safely.
To recognise that personal wellbeing can be affected by technology.
To report concerns about content and contact online.

Knowledge

To have a good understanding of online safety rules.
To know what online technologies are.
To know what online services are.
To know about the right to privacy on and offline.
To know immediate strategies to keep safe online.

Skills

To demonstrate the safe and respectful use of different online technologies and online services.
To relate appropriate online behaviour to the right to have personal privacy.

Knowledge

To have secure knowledge of online safety rules.
To know how to not let personal wellbeing or others' be affected by the use of online technologies and services.

Skills

To demonstrate safe and respectful use of a range of different technologies and online services.
To identify more discrete inappropriate behaviours online.

Knowledge

To use critical thinking to help stay safe online.
To know the value of protecting own and others' privacy and online.

The Language of Computing

Vocabulary

Technology

Log in, username, password,
log out, my work, avatar,
notification, topics, tools save

Purple Mash Units

1.9 – Technology Outside
School
1.1 – Online Safety

Vocabulary

action, algorithm, background,
button, design mode, collision
detection, event, debug,
debugging, nesting, key
pressed, object, run, test,
predict, scale, text, properties,
scene, timer, sequence, when
clicked, when swiped, sound

search, display board, internet,
sharing, email, attachment,
digital footprint

internet, search, search engine

Purple Mash Units

2.1 – Coding
2.2 – Online Safety
2.5 – Effective Searching

Vocabulary

Password, internet, blog,
concept map, username,
website, webpage, spoof
website, PEGI rating

Purple Mash Units

3.2 – Online Safety

(3.5 – Email)

Vocabulary

Computer virus, cookies,
copyright, digital footprint,
email, identity theft, malware,
phishing, plagiarism, spam

Purple Mash Units

4.2 – Online Safety

Vocabulary

Online safety, smart rules,
password, reputable,
encryption, identity theft,
shared, image, plagiarism,
citations, reference,
bibliography

Purple Mash Units

5.2 – Online Safety

Vocabulary

Digital footprint, password,
PEGI rating, phishing, screen
time, spoof website

Purple Mash Units

6.2 – Online Safety

(6.4 – Blogging)

National Curriculum	<u>Computer Science</u> To understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. To create and debug simple programs. To use logical reasoning to predict the behaviour of simple programs. <u>Information Technology</u> To use technology purposefully to create, organise, store, manipulate and retrieve digital content. <u>Digital Literacy</u> To recognise common uses of information technology beyond school. To use technology safely and respectfully, keeping personal information private; identify where to go for help and support when there is a concern about content or contact on the internet or other online technologies.	<u>Computer Science</u> To design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. To use sequence, selection, and repetition in programs, work with variables and various forms of input and output. To use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. <u>Information Technology</u> To understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration. To use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. To select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information. <u>Digital Literacy</u> use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
EYFS Links	Early years children are exposed to computing and technology through the use of iPads and BeeBots. Computing and giving directions are used across the curriculum in lessons such as PE and geography. iPads are used for children to access programmes such as; Reading Eggs, Maths Seeds, Purple Mash and Barefoot Computing. We also have a range of apps installed and used by the children to aid their learning and progression.	

Enrichment Opportunities	Enrichment Opportunities	Enrichment Opportunities	Enrichment Opportunities
Curriculum Links	Curriculum Links	Curriculum Links	Curriculum Links