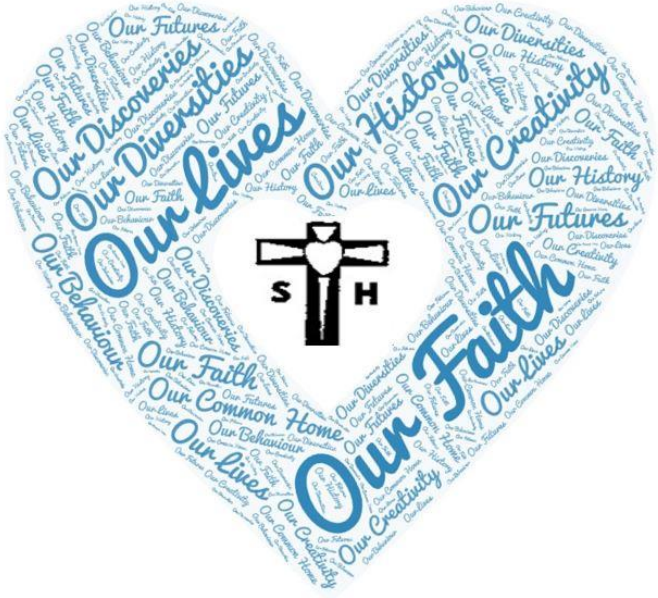
OUR LADY OF LOURDES
CATHOLIC MULTI-ACADEMY TRUST



Our Computing Intent

EYFS			
	Personal, Social and Emotional Development	Physical Development	Understanding the World
Three- and Four-Year Olds	increasingly follow rules, understanding why they are important.	match my developing physical skills to tasks and activities in the setting.	explore how things work.
Reception	show resilience and perseverance in the face ofa challenge.	develop my small motor skills so that use arange of tools competently, safely and confidently. I know and talk about the different factors that support my overall health and well-being, i.e. sensible amounts of screen-time.	
ELG	I am confident to try new activities and show independence, resilience and perseverance in the face of challenge. explain the reasons for rules, know right from wrong and try to behave accordingly.		

Units					
Exploring Hardware	Using a Computer	All about Instructions	Introduction to Data	Supporting a Child-Led Project	Programming: Bee Bots
• I am learning how to explore and tinker with hardware to develop familiarity. • I am learning the relevant vocabulary for different hardware. • I recognise that a range of technology is used in places such as homes and schools. • play on a touch-screen game and use computers/keyboards and mouse in role-play. • scan a QR code using the iPad. • take a photograph	• I know what a keyboard is and how to locate relevant keys. • type letters with increasing confidence. • I am learning how to log in and out of a computer or program. • I understand why we need to log in and out. • I am learning what a mouse is. • I am developing my basic mouse skills such as moving and clicking. • use a simple online paint	• follow instructions as part of practical activities and games. • I am learning to give simple instructions. • learn to debug instructions, with the help of an adult, when things go wrong. • I am learning that an algorithm is a set of instructions to carry out a task, in a specific order.	• I understand how to sort and categorise objects. • explain how itemshave been sorted and categorised. • explore and understand the concept of branch databases. • I understand how to represent data in a pictogram. • I understand how to read a simple pictogram.	• dictate short, clear sentences into a digital device. • record my voice overa picture. • I know the difference between a photo and a video. • record a short film using the iPad. • play and watch myfilm back.	• I understand the meaning of directional arrows. • I follow a simple sequence of instructions. • experiment with programming a Bee Bot. • I am learning how to explore and tinker with hardware to develop familiarity. • I am learning the relevant vocabulary for different hardware. • learn to debug instructions, with the help of an adult, when things go wrong.

on the iPad. • move and resize images.	tool to create digital art. • use a painting app/program and use the paint and brush tools.				• I am learning that an algorithm is a set of

• create a simple digital collage.					instructions to carry out a task, in a specific order. • follow an algorithmas part of an unplugged game.
Technology, computer, scan, iPad, laptop, mouse pad, mouse, photograph	Digital, create, keyboard, keys, login	Instructions, repair de- bug	Sort, pictogram	Photograph, video, record	Instructions, program, set/sequence

Year 1

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *I use technology purposefully to create, organise, store, manipulate and retrieve digital content.*	• *I understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.* • *create and debug simple programs.* • *use logical reasoning to predict the behaviour of simple programs.*	• *recognise common uses of information technology beyond school.* • *use technology safely and respectfully, keeping personal information private.* • *identify where to go for help and support when I have concerns about content or contact on the internet or other online technologies.*

Units

Computing Systemsand Networks – Technology Around Us	Creating Media – Digital Painting	Creating Media – Digital Writing	Data and Information – Grouping Data	Programming A – Moving a Robot	Programming B – Introduction to Animation
Children will know: • Different types of technology • a computers main parts • To use a mouse in different ways • a keyboard to type can type • To use the keyboard to edit text • That we need rules for usingtechnology responsibly	*Children will know:* • what different freehand toolsdo • to the use the shape tool andthe line tools • To make careful choices when painting a digital picture • why they chosethe tools they used • To use a computer to paint a picture • That its is different painting apicture on a computer than on paper	*Children will know* • How to use a computer towrite • How to add and remove texton a computer • How to identify that the look of text can be changed ona computer • How to make careful choiceswhen changing text • How to explain why I used thetools that I chose • How to compare writing on a computer with writing onpaper	*Children will know how to:* • To label objects • To identify that objects can be counted • To describe objects in different ways • To count objects with the same properties • To compare groups of objects • To answer questions about groups of objects	*Children will know how to:* • To explain what a given command will do • To act out a given word • To combine forwards and backwards commands to make a sequence • To combine four direction commands to make sequences • To plan a simple program • To find more than one solution to a problem	*Children will know how to:* • To choose a command for a given purpose • To show that a series of commands can be joined together • To identify the effect of changing a value • To explain that each sprite has its own instructions • To design the parts of a project • To use my algorithm to create a program

Education for a Connected World

Computing Systems and Networks – Technology Around Us	Creating Media – Digital Painting	Creating Media – Digital Writing	Data and Information – Grouping Data	Programming A – Moving a Robot	Programming B – Introduction toAnimation
• give examples ofwhen I should ask permission to do something online andexplain why this is important. • identify rules thathelp keep us safe and healthy in and beyond the home when using technology • give some simple examples • use the internet with adult support to communicate with people I know (e.g. videocall apps). • I know that the work I create belongs to me • name my work sothat others know it belongs to me • save my work sothat others know it belongs to me. • I understand that work created by others does not belong to me even if I save a copy.	• recognise that theremay be people online who could make someone feel sad, embarrassed or upset. • If something happens that makes me feel sad, worried, uncomfortable or frightened give examples of when and how to speak to an adult trust and how they can help.	• give reasons why I should only share information with people Ichoose to and can trust. • recognise that information can stay online and could be copied. • describe what information I should not put online without askinga trusted adult first. • explain why I shouldalways ask a trusted adultbefore I share my information about myselfonline belonging to myself or others. •	• I know that work I create belongs to me • name my work sothat others know it belongs to me • save my work sothat others know it belongs to me. • I understand that work created by others does not belong to me even if Isave a copy. •	• explain why it is important to be considerate and kind to people online and to respect their choices. • explain why things one person finds funny orsad online may not always be seen in the same way as others. • describe how to behave online in ways that do not upset othersand can give examples.	• give simple examples of how to findinformation using digitaltechnologies, e.g. search dnfines, voice activated searching. • I know/understand that we can encounter a range of things online including things we likeand don't like as well asthings which are real ormake believe/ a joke. • I know how to get help from a trusted adult if wesee content that makes us feel sad, uncomfortable, worried or frightened. • explain how passwords can be used toprotect information and devices.

Online Safety					
Health, well-being and lifestyle. Copyright and ownership.	Children begin to understand what personalinformation is and who you can share it with, including the need to keep passwords private. They begin to recognise the need to know who they are sharing their	Children know who to tell when they see something that makes them uncomfortable and make sure an adult knows what they are doing.	Children recognise the Internet as an exciting place to be but understand the need for abalance in how they spend their time and make good choices about age appropriate activities.	Managing Online Information I understand that when I am working on an online platform, I may have access to the rest of the	Managing Online Information I understand that when I am working on an online platform, I may have access to the rest of the

	learning with online and recognise the difference between real and imaginary online experiences. Digiduck's Big Decision http://kidsmart.org.uk/teachers/ks1/digiduck.aspx		I know that work I create belongs to me name my work sothat others know it belongs to me	internet. I know who to tell when I see something that makesme uncomfortable.	internet. I know who to tell when I see something that makesme uncomfortable. I know that work I create belongs to me name my work sothat others know it belongs to me
Vocabulary					
technology, computer, laptop, desktop, keyboard, screen, click, drag, mouse, program, type, save, edit, file, cursor, delete, text, Log in, username, password, log out, notification, save	tools, line, shape, fill, undo, erase, brush	keys	Sort, criteria, data, collate, object	Instruction, algorithm, program, debug, direction, arrow, undo, forward, backwards, rightturn, left turn	Animation, sound effect
Concept links					
Connect Digital Literacy Information Technology	Communicate Connect Digital Literacy	Communicate Connect	Collect Information Technology	Computer ScienceCode	Computer ScienceCode
Suggested Resources					
Computer Online paint app e.g. Paintz.app NCCE resources	Computer or Tablet Paint app e.g. Paintz.app NCCE resources	Microsoft Word NCCE resources	NCCE resources	Floor robots (e.g. Beebots) NCCE resources	Scratch Jr App NCCE resources
Interdisciplinary link:History, PSHE Linked prior learning:	Interdisciplinary link: Art Linked prior learning:	Interdisciplinary link:English Linked prior learning:	Interdisciplinary link:Maths Science Linked prior learning:	Interdisciplinary link:Maths Linked prior learning:	Interdisciplinary link:Art Maths Linked prior learning:

Linked future learning: knowledge of parts of a computer and skills needed to effectively use a computer keyboard and mouse.	Linked future learning: Digital content can be manipulated Y1, T3	Linked future learning: Ability to use keyboard and different functions crosses over all units (T4,5 and 6) and into Year 2	Linked future learning:Year 2, term 4 - pictograms	Linked future learning:Year 2, term 5 on algorithms	Linked future learning: Year 3, term 2 animation

Year 2

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *I use technology purposefully to create, organise, store, manipulate and retrieve digital content.*	• *I understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions.* • *create and debug simple programs.* • *use logical reasoning to predict the behaviour of simple programs.*	• *recognise common uses of information technology beyond school.* • *use technology safely and respectfully, keeping personal information private.* • *identify where to go for help and support when I have concerns about content or contact on the internet or other online technologies.*

Units

Computing Systems and Networks – IT Around Us	Creating Media – Digital Photography	Creating Media – Making Music	Data and Information – Pictograms	Programming A – Robot Algorithms	Programming B – An Introduction to Quizzes
Children will know how to: • To recognise the uses and features of information technology • To identify information technology in the home • To identify information technology beyond school • To explain how information technology benefits us • To show how to use information technology safely • To recognise that choices are made when using information technology	*Children will know how to:* • To use a digital device to take a photograph • To make choices when taking a photograph • To describe what makes a good photograph • To decide how photographs can be improved • To use tools to change an image • To recognise that photos can be changed	*Children will know how to:* • To say how music can make us feel • To identify that there are patterns in music • To describe how music can be used in different ways • To show how music is made from a series of notes • To create music for a purpose • To review and refine our computer work	*Children will know how to:* • To recognise that we can count and compare objects using tally charts • To recognise that objects can be represented as pictures • To create a pictogram • To select objects by attribute and make comparisons • To recognise that people can be described by attributes • To explain that we can present information using a computer	*Children will know how to:* • To describe a series of instructions as a sequence • To explain what happens when we change the order of instructions • To use logical reasoning to predict the outcome of a program (series of commands) • To explain that programming projects can have code and artwork • To design an algorithm	*Children will know how to:* • To explain that a sequence of commands has a start • To explain that a sequence of commands has an outcome • To create a program using a given design • To change a given design • To create a program using my own design • To decide how my project can be improved

				• To create and debug a program that I have written	
Education for a Connected World					
Computing Systemsand Networks – IT Around Us	**Creating Media – Digital Photography**	**Creating Media – Making Music**	**Data and Information – Pictograms**	**Programming A – Robot Algorithms**	**Programming B – An Introduction to Quizzes**
• explain how passwords can be used toprotect information, accounts and devices. • explain and give examples of what is meant by 'private' and 'keeping things private'. • describe and explain some rules for keeping personal information private (e.g. creating and protecting passwords).	• To identify that some images are not real (fake) • describe different ways to ask for, give or deny my permission online and can identify who can help me if I am not sure. • explain who can help me if I feel under pressure to agree to something I am unsure about or don't want to do. • identify who can help me if something happens online without my consent. • explain how it might make others feel if I do not ask permission or ignore their answers before sharing something about them online. • I know who to talk to if something has been put online without consent or if it is incorrect.	• I know that work I create belongs to me. • describe why other people's work belongs to them. • recognise that content on the internetmay belong to other people.	• recognise that say 'no'/'please stop'/'I'll tell'/'I'll ask' to somebody who asks me to do something that makes me feel sad, embarrassed or upset • identify rules thathelp keep us safe and healthy in and beyond the home when using technology • identify some simple examples of my personal information (e.g. name, address, birthday, age, location) • describe the people trust and can share this with; explain why trust them • recognise more detailed examples of information that is personal to me (e.g. where I live, my family's names, where I go to school)	• explain how information put online about someone can last for a long time. • describe how anyone's online information could be seen by others. • explain why I should always ask a trusted adult before clicking 'yes', 'agree' or 'accept' online.	• use simple keywords in a search engine. • demonstrate how to navigate a simple webpage to get information I need (e.g. home, forward, back buttons, links, tabs and sections). • explain what voice activated searching is and how it might be used. I know it is not a real person (e.g. Alexa, Google Now, Siri) • explain the difference between things that are imaginaryor made up and things that are true or real. • explain why some information I find online may not be real or true.

			• explain who I shouldask before sharing things about myself online.		
Online Safety					
Children understand what personal information is and who you can share it with, including the need to keep passwords private. Children begin to recognise the need to know who they are sharing their learning with online and recognise the difference between real and imaginary online experiences. I can identify rules that help keep us safe and healthy in and beyond the home when using technology. I can give some simple examples.	Recognising that images can be changed. Development an awareness that not all pictures they see are 'real'	Children know who to tell when they see something that makes them uncomfortable and make sure an adult knows what they are doing. I know that work I create belongs to me.	Children recognise the Internet as an exciting place to be but understand the need for a balance in how they spend their time and make good choices about age appropriate activities.		Managing Online Information I understand that when I am working on an online platform, I may have access to the rest of the internet. I know who to tell when I see something that makes me uncomfortable. I know that work I create belongs to me I can name my work so that others know it belongs to me
Vocabulary					
technology	tools, line, shape, fill, undo, erase, brush	sound effects, digitally	pictogram, data, collate	action, algorithm, bug, character, code block,command, debug/ debugging, input, object, properties, repeat	
Concept Links					

Connect Digital Literacy Information Technology	Communicate Connect Digital Literacy	Communicate Connect	Collect Information Technology	Computer Science Code	Computer Science Code
Suggested Resources					
NCCE Different technological devices to show children.	Digital cameras/ iPads https://pixlr.com/x/ Pixlr app NCCE	Chrome music lab Untuned percussion Instruments NCCE	J2e pictogram NCCE	Floor robot Beebot NCCE	Scratch Jr NCCE
Links					
Interdisciplinary link: PSHE	Interdisciplinary link: Art	Interdisciplinary link: Music	Interdisciplinary link: Maths, Science	Interdisciplinary link: Maths, Science	Interdisciplinary link: English
Linked prior learning: Year 1, term 1 Linked future learning: Year 3, term 1 connecting computers	Linked prior learning: Year 1, term 2 using technology Linked future learning: Year 4, term 3	Linked prior learning: First time children will have looked at making music Linked future learning: Year 2, term 5	Linked prior learning: Year 1, term 4 – grouping data Linked future learning: Year 3, term 4 branching databases	Linked prior learning: Year 1, term 5 programming a robot Linked future learning: Year 3, term 6	Linked prior learning: First time children will have used a programme to create a quiz Linked future learning: Year 4, term 6

Year 3

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *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.* • *use search technologies effectively.*	• *design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.* • *solve problems by decomposing them into smaller parts.* • *use sequence, selection and repetition in programs.* • *work with variables and various forms of inputand output.* • *use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* • *I understand computer networks including the internet.* • *I understand how the internet can provide multiple services such as the world wide web.* • *appreciate how search results are selected and ranked.*	• *use technology safely, respectfully and responsibly.* • *recognise acceptable and unacceptable behaviour.* • *identify a range of ways to report concerns about content and contact.* • *be discerning in evaluating digital content.* • *I understand the opportunities networks offer for communication and collaboration.* •

Units

Computing Systemsand Networks – Connecting Computers	Creating Media – Animation	Creating Media – Desktop Publishing	Data and Information – Branching databases	Programming A – Sequencing sounds	Programming B – Events and actions in programs
Children will know how to: • To explain how digitaldevices function • To identify input andoutput devices • To recognise how digitaldevices can change the way we work	*Children will know how to:* • To explain that animation is a sequence of drawings or photographs • To relate animated movement with a sequence of images • To plan an animation	*Children will know how to:* • To recognise how textand images convey information • To recognise that textand layout can be edited • To choose appropriatepage settings	*Children will know how to:* • To create questions with yes/no answers • To identify the object attributes needed to collect relevant data • To create a branchingdatabase	*Children will know how to:* • To explore a programming environment • To identify that commands have anoutcome • To explain that a program has a start	*Children will know how to:* • To explain how a spritemoves in an existing project • To create a program tomove a sprite in four directions • To adapt a program to anew context

• To explain how a computer network can beused to share information • To explore how digital devices can be connected • To recognise the physical components of a network	• To identify the need to work consistently and carefully • To review and improvean animation • To evaluate the impact of adding other media to an animation	• To add content to a desktop publishing publication • To consider how different layouts can suit different purposes • To consider the benefitsof desktop publishing	• To explain why it is helpful for a databaseto be well structured • To identify objects using a branching database • To compare the information shown in a pictogram with a branching database	• To recognise that a sequence of commands can have an order • To change the appearance of my project • To create a project froma task description	• To develop my programby adding features • To identify and fix bugsin a program • To design and create a maze-based challenge •
Education for a Connected World					
Computing Systems and Networks – Connecting Computers	Creating Media – Animation	Creating Media – Desktop Publishing	Data and Information – Branching databases	Programming A – Sequencing sounds	Programming B – Events and actions inprograms

• describe how connected devices cancollect and share my information with others. • explain how to search for informationabout others online. •	• use key phrases insearch engines. • use search technologies effectively. • explain why copying someone else's work from the internet without permission can cause problems. • give examples of what those problems might be. • When searching on the internet for content to use, explain why Ineed to consider who owns it and whether I have the right to reuseit.	• use key phrases insearch engines • use search technologies effectively • When searching on the internet for content to use, explain why Ineed to consider who owns it and whether I have the right to reuseit • demonstrate theuse of search tools to find and access online content which can be reused by others • demonstrate howto use key phrases in search engines to gather accurate information online.	• explain the difference between a 'belief', an 'opinion' anda 'fact' and can give examples of how and where they might be shared online, e.g. in videos, memes, posts, news stories, etc. • explain that not all opinions shared may be accepted as true or fair by others (e.g. monsters under the bed). • describe and demonstrate how we can get help from a trusted adult if we see content that makes us feel sad,	• explain why spending too much time using technology can sometimes have a negative impact on me; give some examples of activities where it is easy to spend a lot of time engaged e.g. games, films, videos. • explain why some online activities have age restrictions, why it is important to follow them and know who talk to if others pressure me to watch or do something online that makes me feel uncomfortable (e.g. age	• give reasons why someone should only share information with people they choose to and can trust. explain that if they arenot sure or feel pressured then they should tell a trusted adult.

	• give some simpleexamples. • give examples of content that is permitted to be reused. • demonstrate the use of search tools to find and access onlinecontent which can be reused by others.	• explain what autocomplete is and how to choose the bestsuggestion. • explain how the internet can be used tosell and buy things.	uncomfortable, worriedor frightened. •	restricted gaming orweb sites).	
Online Safety					
Children recognise the need to keep personal information and passwords private. They recognise the need for a secure password.	Copyright and ownership Managing online information	Children understand thatan adult needs to know what they are doing online and understand how to report concerns, including cyberbullying.	Children understand that any personal information they put online can be seenand used by others.	Copyright and ownership Managing onlineinformation	Safety features of different apps and games
Vocabulary					
password, internet, blog, username, website, webpage, spoof website,PEGI rating	animation, audio, design templates, entrance animation, font, media, presentation, presentation programme, slide, slideshow, stock image, text box,text formatting, transition		questioning, database, construct, contribute, recording, data, data logger, present data data	Action, algorithm, bug, code block, code design, command, debug/ debugging, design mode, event, If,input, output, repeat, object, properties, timer, computer simulation, selection, variable	

Concepts					
Connect Digital Literacy Information Technology	Communicate Connect Digital Literacy	Communicate Connect	Collect Information Technology	Computer ScienceCode	Computer ScienceCode
Resources					
Paint programme NCCE	Stop-frame animation Lego figure animation Pivot Animator NCCE	Microsoft Publisher Adobe Spark App Canva NCCE	J2data NCCE	Scratch NCCE	Scratch NCCE
Links					
Interdisciplinary link: Maths – number and place value Art Linked prior learning:Year 2, term 1 Linked future Learners will explore the internet as a network of networks. Year 4, term 1	Interdisciplinary link:Art Writing Linked prior learning:Year 1, term 6 Linked future learning: Learners will further develop their video editing skills in Year 5.Year 5, term 3	Interdisciplinary link:Art, English Linked prior learning: It builds on their knowledge of data andinformation from key stage 1 Year 1 and 2, term 2 Linked future learning:Year 4, term 3	Interdisciplinary link: Science, Maths Linked prior learning: Year 1 and 2, term 4 Linked future learning: Year 4, term 4	Interdisciplinary link:Maths and Music Linked prior learning: Year 2, term 3 and Year 2, term 5 Linked future learning:Year 4, term 5	Interdisciplinary link: Maths and Design andTechnology Linked prior learning:Year 3, term 5 Linked future learning:Year 4, term 6

Year 4

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *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.* • *use search technologies effectively.*	• *design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.* • *solve problems by decomposing them into smaller parts.* • *use sequence, selection and repetition in programs.* • *work with variables and various forms of inputand output.* • *use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* • *I understand computer networks including the internet.* • *I understand how the internet can provide multiple services such as the world wide web.* • *appreciate how search results are selected and ranked.*	• *use technology safely, respectfully and responsibly.* • *recognise acceptable and unacceptable behaviour.* • *identify a range of ways to report concerns about content and contact.* • *be discerning in evaluating digital content.* • *I understand the opportunities networks offer for communication and collaboration.* •

Units

Computing Systems and Networks – The Internet	Creating Media – Audio editing	Creating Media – Photo editing	Data and Information – Data logging	Programming A – Repetition in shapes	Programming B – Repetition in games
Children will know how to: • describe how networks physically connectto other networks • recognise how networked devices make upthe internet	*Children will know how to:* • identify that soundcan be digitally recorded. • use a digital device to record sound. • explain that a digital recording is stored as a file • explain that audio canbe changed through editing	*Children will know how to:* • explain that digital images can be changed • change the composition of an image • describe how images can be changed for differentuses	*Children will know how to:* • explain that data gathered over time can be used to answer questions • use a digital device to collect data automatically • explain that a data logger collects 'data points' from sensors over time	*Children will know how to:* • identify that accuracyin programming is important • create a program in atext-based language • explain what 'repeat' means	*Children will know how to:* • develop the use of count-controlled loops in adifferent programming environment • explain that in programming there are infinite loops and count-controlled loops

• outline how websites can be shared via the WorldWide Web • describe how content can be added and accessedon the World Wide Web • recognise how the content of the WWW is created by people • evaluate the consequences of unreliable content	• show that different types of audio can be combined and played together • evaluate editing choices made	• make good choiceswhen selecting different tools • recognise that not all images are real • evaluate how changescan improve an image	• use data collected over a long duration to find information • identify the data needed to answer questions • use collected data to answer questions	• modify a count- controlled loop to produce agiven outcome • decompose a task intosmall steps • create a program thatuses count-controlled loops to produce a given outcome	• develop a design that includes two or more loops which run at the same time • modify an infinite loop in a given program • design a project that includes repetition • create a project that includes repetition
Education for a Connected World					
Computing Systems and Networks – The Internet	**Creating Media – Audio editing**	**Creating Media – Photo editing**	**Data and Information – Data logging**	**Programming A – Repetition in shapes**	**Programming B – Repetition in games**
• explain how my online identity can bedifferent to my offlineidentity. • explain that othersonline can pretend to be someone else, including my friends, and can suggest reasons why they mightdo this. • describe positive ways for someone to interact with others online and understandhow this will positivelyimpact on how others perceive them.	• explain why copying someone else's work from the internet without permission can cause problems • give examples of what those problems might be • When searching on the internet for content to use, explain why Ineed to consider who owns it and whether I have the right to reuseit • give some simple examples of content which I must not use without permission	• describe ways inwhich people might make themselves look different online. • When searching on the internet for content to use, explain why Ineed to consider who owns it and whether I have the right to reuseit.	• give examples of how to be respectful toothers online and describe how to recognise healthy and unhealthy online behaviours. • explain how content shared online may feel unimportant to one person but maybe important to other people's thoughts feelings and beliefs. • explain how using technology can be a distraction from other things, in both a	• explain what is meant by fake news e.g.why some people will create stories or alter photographs and put them online to pretend something is true when it isn't. • analyse information to make a judgement about probable accuracy and I understand why it is important to make my own decisions regarding content and that my decisions are respected by others.	• describe some ofthe methods used to encourage people to buy things online (e.g. advertising offers; in-app purchases, pop- ups) and can recognisesome of these when they appear online. • explain why lots ofpeople sharing the same opinions or beliefs online do not make those opinions or beliefs true. • explain that technology can be designed to act like or impersonate living

• describe strategiesfor safe and fun experiences in a range of online social environments (e.g. livestreaming, gaming platforms).	from the owner, e.g. videos, music, images.		positive and negative way. • identify times or situations when I might need to limit the amount of time I use technology, e.g. suggest strategies to help with limiting this time.	• describe how to search for information within a wide group of technologies and makea judgement about the probable accuracy (e.g. social media, image sites, video sites).	things (e.g. bots) and describe what the benefits and the risks might be.
Online Safety					
Children understand the need for rules to keep them safe when exchanging ideas online. They understand that an adult needs to know whatthey are doing online andunderstand how to reportconcerns, including cyberbullying. Children recognise the need to choose age appropriate games to playon their devices, and when to limit use. They recognise the need to protect their devices from viruses.	Copyright and ownership	Self-image and identity Children understand that any personal informationthey put online can be seen and used by others. They recognise that they can use online tools to collaborate and communicate with othersand the importance of doing this responsibly, choosing age-appropriate websites. Children recognise the effect their writing or images might have on others.	Keeping data safe Confidentiality	Copyright and ownership Managing online information	Staying safe when gaming online
Vocabulary					

computer virus, cookies, copyright, digital footprint, email, identity theft, malware, phishing,plagiarism, spam, motherboard, CPU, RAM, Graphics Card, Network, Card, monitor, speakers keyboard and mouse	Pitch, rhythm, pulse, tempo, dynamics, melody,rippler, texture	Animation, background, frame, flipbook, onion skinning, stop motion, play, sound, video clip	Average, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move celltool, random tool, rows, spin tool, spreadsheet, timer	Logo, BK, FD, RT, LT, REPEAT, SETPC, SETPS,PU, PD	Action, alert, algorithm, code design, control, command, debug/ debugging, design mode,event, flowchart bug, getinput, If, If/Else, input, object, repeat, selection, computer simulation, simulation, timer, variable
Concepts					
Connect Digital Literacy Information Technology	Communicate Connect Digital Literacy	Communicate Connect	Collect Information Technology	Computer Science Code	Computer Science Code
Suggested Resources					
The Internet NCCE	Audacity NCCE	Paint Sketchbook (touch screen app) NCCE	App – Google science journal NCCE	Logo (turtle) Purple NCCE	Scratch Kodu NCCE
Links					

Interdisciplinary link: PSHE Linked prior learning: Year 3, term 1 Linked future learning:Year 5, term 1	Interdisciplinary link: Music Linked prior learning: Year 3, term 5 Linked future learning:Year 5, term 3	Interdisciplinary link:Art, PSHE Linked prior learning: Year 2, term 2 Linked future learning:Year 5, term 2 and 3	Interdisciplinary link: Science, Maths Linked prior learning: Year 3, term 4 Linked future learning:Year 5 ,term 4	Interdisciplinary links: Maths and Science Linked prior learning: Year 3, term 5 Linked future learning: Year 5, term 6 and Year 4, term 6	Interdisciplinary links: Maths, Science and Design Technology Linked prior learning: Year 3, term 6 and Year 4, term 5 Linked future learning:Year 5, term 5

Year 5

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *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.* • *use search technologies effectively.*	• *design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.* • *solve problems by decomposing them into smaller parts.* • *use sequence, selection and repetition in programs.* • *work with variables and various forms of inputand output.* • *use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* • *I understand computer networks including the internet.* • *I understand how the internet can provide multiple services such as the world wide web.* • *appreciate how search results are selected and ranked.*	• *use technology safely, respectfully and responsibly.* • *recognise acceptable and unacceptable behaviour.* • *identify a range of ways to report concerns about content and contact.* • *be discerning in evaluating digital content.* • *I understand the opportunities networks offer for communication and collaboration.*

Units

Computing Systemsand Networks – Sharing information	Creating Media – Vector drawing	Creating Media – Video editing	Data and Information – Flat-file databases	Programming A – Selection in physical computing	Programming B – Selection in quizzes
Children will know how to: • To explain that computers can be connected together to form systems • To recognise the role of computer systems in our lives	*Children will know how to:* • To identify that drawing tools can be used to produce different outcomes • To create a vector drawing by combining shapes • To use tools to achieve a desired effect	*Children will know how to:* • To recognise video as moving pictures, which can include audio • To identify digital devices that can record video • To capture video using a digital device • To recognise the features	*Children will know how to:* • To use a form to record information • To compare paper and computer-based databases • To outline how grouping and then sorting data allows us to answer questions • To explain that tools can	*Children will know how to:* • To control a simple circuit connected to a computer • To write a program that includes count-controlled loops	*Children will know how to:* • To explain how selection is used in computer programs • To relate that a conditional statement connects a condition to an outcome

• To recognise how information is transferred over the internet • To explain how sharing information online lets people in different places work together • To contribute to a shared project online • To evaluate different ways of working together online	• To recognise that vector drawings consist of layers • To group objects to make them easier to work with • To evaluate my vector drawing	of an effective video • To identify that video can be improved through reshooting and editing • To consider the impact of the choices made when making and sharing a video	be used to select specific data • To explain that computer programs can be used to compare data visually • To apply my knowledge of a database to ask and answer real-world questions	• To explain that a loop can stop when a condition is met, eg number of times • To conclude that a loop can be used to repeatedly check whether a condition has been met • To design a physical project that includes selection • To create a controllable system that includes selection	• To explain how selection directs the flow of a program • To design a program which uses selection • To create a program which uses selection • To evaluate my program
Education for a Connected World					
Computing Systemsand Networks – Sharing information	**Creating Media – Vector drawing**	**Creating Media – Video editing**	**Data and Information – Flat-file databases**	**Programming A – Selection in physical computing**	**Programming B – Selection in quizzes**
• assess and justify when it is acceptable to use the work of others • give examples of content that is permitted to be reused • give examples of technology specific forms of communication (e.g. emojis, memes and GIFs). • I explain what a strong password is and demonstrate how to create one. • explain that thereare some people I communicate with online	• explain why copying someone else's work from the internet without permission can cause problems. • describe the helpline services which can help people experiencing bullying and how to access them (e.g. Childline or The Mix). • recognise online bullying can be different to bullying in the physical world and can describe some of those differences.	• explain how represent myself in different ways online • Knowing this, describe the right decisionsabout how I interact with others and how others perceive me • recognise some ways in which the internet can be used to communicate • give examples of how to be respectful to others online • search for information about an	• demonstrate how to make responsible choices about having online identity, depending on context. • evaluate digital content and can explain how to make choices about what is trustworthy e.g. differentiating between adverts and search results. • explain key concepts including: information, reviews, fact, opinion, belief, validity, reliability and evidence. • identify ways the internet can draw us to	• describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with others and make positive contributions (e.g. gaming communities or social media groups). • describe ways technology can affect health and well-being both positively (e.g. mindfulness apps) and negatively. • describe some strategies, tips or advice to	• explain how and why some apps and games may request to take payment for additional content (e.g. in-app purchases, lootboxes) and explain the importance of seeking permission from a trusted adult before purchasing. • explain how manyfree apps or services may read and share private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others.

who may want to do me or my friends harm. recognise that this is not my/our fault. • explain how someone can get help if they are having problems and identify when to tell a trusted adult. • demonstrate how to support others (including those who are having difficulties) online. • explain how to block abusive users. •	• describe how what one person perceives as playful joking and teasing (including 'banter') might be experienced by others as bullying. • explain how anyonecan get help if they are being bullied online and identify when to tell a trusted adult. • identify a range of ways to report concerns and access support both in school and at home about online bullying.	individual online and create a summary report of the information I find • describe ways that information about anyone online can be used by others to make judgements about an individual and why these may be incorrect. • explain ways that some of the information about me online could havebeen created, copied, or shared by others • evaluate digital content (and can explain how I make choices from search results)	information for different agendas, e.g. website notifications, pop-ups, targeted ads. • explain the benefitsand limitations of using different types of search technologies e.g. voice activation search engine. explain how some technology can limit the information I am presented with e.g. voice activated searching giving one result. • I explain what is meant by 'being sceptical'; give examples of when andwhy it is important to be 'sceptical'.	promote health and wellbeing with regards to technology. • I recognise the benefits and risks of accessing information about health and wellbeing online and how we should balance this with talking to trusted adults and professionals.	• explain what app permissions are and can give some examples.
Online Safety					
Copyright and ownership	Using social media apps safely	Managing online information Online relationships Online reputation Self-image and identity	Trusted sources of data	Copyright and ownership	Staying safe when on different apps
Vocabulary					
system, hub, information, device, component, collaboration	Vector, shape, drawing, image, rotate, resize, colour, layer, effect, pixel	Video, moving images, sound / audio, camera, lens, record, zoom, angle / movement / pan, effects, transitions, edit	Spreadsheet, graph, chart, record, data, order, sort, field	Logic, command, input, output, variable, control, algorithm, program	Condition, outcome, flow, control, If..., else...

Suggested Resources					
Powerpoint (teaching and for students to create work) Online videos of Systems NCCE Lesson resources	(docs.google.com/drawings/) Microsoft Publisher, or Microsoft PowerPoint Sketchbook (tablet/touchscreen app) Other paint tools	S IPad camera (files may need converting) Digital camera Movie Maker	: Excel Google sheets NCCE Lesson resources	Crumble controller (hardware) Kodu or Scratch.mit (not physical – virtual alternative) NCCE Lesson resources	https://teachcomputing.org/curriculum/key-stage-2/programming-b-selection-in-quizzes Scratch.mit NCCE Lesson resources
Links					
Interdisciplinary links: DT, Science Linked prior learning: Year 4, term 1	Interdisciplinary links: Art and Maths Linked prior learning: Year 4, term 3 and 5	Interdisciplinary links: Music, PSHE and Art Linked prior learning: Year 4, term 2 and 3	Interdisciplinary links: Maths Linked prior learning: Year 3 and 4, term 4	Interdisciplinary links: Art, Science and Maths Linked prior learning: Year 4, term 6 and Year 4, term 6	Interdisciplinary links: DT, Writing, History, Geography Linked prior learning: Year 5, term 5

Year 6

	Information Technology	Computer Science	Digital Literacy
Purpose	Using computers for functional purposes, e.g. collecting and presenting information, or using search technology.	Understanding how computers and networks work and basic computer programming.	The safe and responsible use of technology, including recognising its advantages for collaboration or communication.
National Curriculum Aims	• *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.* • *use search technologies effectively.*	• *design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.* • *solve problems by decomposing them into smaller parts.* • *use sequence, selection and repetition in programs.* • *work with variables and various forms of inputand output.* • *use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.* • *I understand computer networks including the internet.* • *I understand how the internet can provide multiple services such as the world wide web.* • *appreciate how search results are selected and ranked.*	• *use technology safely, respectfully and responsibly.* • *recognise acceptable and unacceptable behaviour.* • *identify a range of ways to report concerns about content and contact.* • *be discerning in evaluating digital content.* • *I understand the opportunities networks offer for communication and collaboration.*

Units

Computing Systemsand Networks – Communication	Creating Media – 3D Modelling	Creating Media – Web page creation	Data and Information – Spreadsheets	Programming A – Variables in games	Programming B – Sensing
Children will know how to: • To identify how to use a search engine • To describe how search engines select results • To explain how search results are ranked	*Children will know how to:* • To use a computer to create and manipulate three-dimensional (3D) digital objects • To compare working digitally with 2D and 3D graphics	*Children will know how to:* • To review an existing website and consider its structure • To plan the features of a web page • To consider the ownership and use of images (copyright)	*Children will know how to:* • To identify questions which can be answered using data • To explain that objects can be described using data • To explain that formulas can be used to produce calculated data	*Children will know how to:* • To define a 'variable' as something that is changeable • To explain why a variable is used in a program • To choose how to improve a game by using variables	*Children will know how to:* • To create a program to run on a controllable device • To explain that selection can control the flow of a program • To update a variable with a user input

• To recognise why the order of results is important, and to whom • To recognise how we communicate using technology • To evaluate different methods of online communication	• To construct a digital 3D model of a physical object • To identify that physical objects can be broken down into a collection of 3D shapes • To design a digital model by combining 3D objects • To develop and improve a digital 3D model	• To recognise the need to preview pages • To outline the need for a navigation path • To recognise the implications of linking to content owned by other people	• To apply formulas to data, including duplicating • To create a spreadsheet to plan an event • To choose suitable ways to present data	• To design a project that builds on a given example • To use my design to create a project • To evaluate my project	• To use an conditional statement to compare a variable to a value • To design a project that uses inputs and outputs on a controllable device • To develop a program to use inputs and outputs on a controllable device
Education for a Connected World					
Computing Systems and Networks – Communication	Creating Media – 3D Modelling	Creating Media – Web page creation	Data and Information – Spreadsheets	Programming A – Variables in games	Programming B – Sensing
• describe and assess the benefits and the potential risks of sharing information online. • use various additional tools to refine mysearches (e.g. search filters: size, type, usage rights etc.). • explain how to usesearch effectively and use examples from my own practice to illustrate this. • explain how searchengine rankings are returned and can explain how they can be influenced (e.g. commerce, sponsored results). • demonstrate the use of search tools to find	• describe strategies for keeping my personal information private, depending on context • describe effectiveways people can manage passwords (e.g. storing them securely or saving them in the browser). • explain what to do if a password is shared, lost or stolen. • describe how andwhy people should keep their software and apps up to date, e.g. auto updates. • describe simple ways to increase privacy onapps and services that provide privacy settings.	• use the internet with adult support to communicate with people I know. (EY-7) • navigate online content, websites, or socialmedia feeds using more sophisticated tools to get to the information I want (e.g. menus, sitemaps, breadcrumb-trails, site search functions). (11-14) • explain why copying someone else's work from the internet without permission can cause problems. • give examples of what those problems might be.	• describe how search for information within a wide group of technologies (e.g. social media, image sites, video sites) • explain how to use search technologies effectively. • evaluate digital content and can explain how I make choices from search results • explain how search engines work and how results are selected and ranked. • describe how someonline information can be	• describe how things shared privately online can have unintended consequences for others, e.g. screen-grabs. • explain that takingor sharing inappropriate images of someone (e.g. embarrassing images), evenif they say it is okay, may have an impact for the sharer and others; and who can help if someone is worried about this. • describe how to capture bullying content as evidence (e.g. screen-grab, URL, profile) to share with others who can help me.	• explain the ways in which anyone can develop a positive online reputation. • explain strategiesanyone can use to protecttheir 'digital personality' and online reputation, including degrees of anonymity. • describe issues online that could make anyone feel sad, worried, uncomfortable or frightened. I know and giveexamples of how to get help, both on and offline. • explain the importance of asking until Iget the help needed.

and access online content which can be reused by others. • demonstrate how to make references to and acknowledge sources I have used from the internet. •	• describe ways in which some online contenttargets people to gain money or information illegally; describe strategies to help me identify such content (e.g. scams, phishing). • I know that online services have terms and conditions that govern theiruse.	• When searching on the internet for content to use, explain why I need to consider who owns it and whether I have the right to reuse it. • give some simple examples. • assess and justify when it is acceptable to usethe work of others. • give examples of content that is permitted tobe reused. • demonstrate the use of search tools to findand access online contentwhich can be reused by others. • demonstrate how to make references to and acknowledge sources I have used from the internet. • explain the principles of fair use and apply this to case studies. (11-14)	opinion and can offer examples. • explain how andwhy some people may present 'opinions' as 'facts'; why the popularity of an opinion or the personalities or those promoting it does not necessarily make it true,fair or perhaps even legal. • define the terms 'influence', 'manipulation' and 'persuasion' and explainhow someone might encounter these online (e.g.advertising and 'ad targeting' and targeting for fake news). • I understand the conceptof persuasive design and how it can be used to influence peoples' choices.		• explain how sharing something online may have an impact either positively or negatively. • describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them onlineand how to support them ifothers do not.
Online Safety					
Managing online information Online reputation	Privacy and security	Privacy Copyright	Trusted source of data	Time spent online / gaming	Staying safe when making friends online (thinking about transition to secondary)
Vocabulary					
Search, search engine, address bar, ranking, privacy, security	Physical, virtual, 2D / 3D, view / angle, manipulate, model	Website, web pages, page address, link, HTML, fair use / copyright, home	Spreadsheet, data set, row, column, format, calculation, formula, cell,	Game, variable, control, input, score, algorithm	Input, process, sense, variable, data flow, device

		page	chart / graph		
Concepts					
Communicate Connect Information Technology Digital Literacy	Computer Science Information Technology Digital Literacy	Communicate Computer Science Code Information Technology Digital Literacy	Collect Information Technology Digital Literacy	Computer Science Information Technology Digital Literacy Code	Code Information Technology Digital Literacy Computer Science
Links					
Interdisciplinary link: PSHE, Oracy, Writing Linked prior learning: Year 5, term 1 Linked future learning: Year 8, term 5	Interdisciplinary link: Art, Design Technology Linked prior learning: Year 5, term 2 Linked future learning: Year 7, term 2	Interdisciplinary link: Writing, Art, History, Geography Linked prior learning:Year 5, term 3 Linked future learning:Year 9, term 3	Interdisciplinary link: Maths Linked prior learning: Year 5, term 4 Linked future learning: Year 7, term 6	Interdisciplinary link: Science, Maths Linked prior learning: Year 5, term 5 Linked future learning: Year 7, term 4	Interdisciplinary link: Science, Maths, DT Linked prior learning: Year 6, term 5 Linked future learning: Year 7, term 5