Computing Progression Map

AREAS OF STUDY	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing Systems and Networks	To identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type on a computer To use the keyboard to edit text To create rules for using technology responsibly			To describe how networks physically connect to other networks To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web (WWW) To describe how content can be added and accessed on the World Wide Web (WWW) To recognise how the content of the WWW is created by people To evaluate the consequences of unreliable content		To explain the importance of internet addresses. To recognise how data is transferred across the internet To explain how sharing information online can help people work together To evaluate different ways of working online together To recognise how we communicate using technology To evaluate different methods of online communication

Creating Media	To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture To compare painting a picture on a computer and on paper	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	To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation To identify the need to work consistently and carefully To review and improve an animation To evaluate the impact of adding other media to an animation To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different purposes To consider the benefits of desktop publishing To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different purposes To consider the benefits of desktop publishing		To explain what makes a video effective To identify digital devices that can record video To capture video using a range of techniques To create a storyboard 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	To use a computer to create and manipulate three-dimensional (3D) digital objects To compare working digitally with 2D and 3D graphics 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

Data and Information		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		To explain that data gathered over time can be used to answer questions To use a digital device to collect data automatically To explain that a data logger collects 'data points' from sensors over time To use data collected over a long duration to find information To identify the data needed to answer questions To use collected data to answer questions		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 To apply formulas to data, including duplicating To create a spreadsheet to plan an event To choose suitable ways to present data
Programming	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 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	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 explore a new programming environment To identify that commands have an outcome To explain that a program has a start To recognise that a sequence of commands can have an order To change the appearance of my project To create a project from a task description To explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To identify and fix bugs in a program To design and create a maze-based challenge	To identify that accuracy in programming is important To create a program in a text-based language To explain what 'repeat' means To modify a count-controlled loop to produce a given outcome To decompose a task into small steps To create a program that uses count-controlled loops to produce a given outcome To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count controlled loops To develop a design that includes two or more loops which run at the same time To modify an infinite loop in a given program To design a project that includes repetition To create a project that includes repetition	To control a simple circuit connected to a computer To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met To explain 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 program that controls a physical computing project To explain how selection is used in computer programs To relate that a conditional statement connects a condition to an outcome 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	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 To design a project that builds on a given example To use my design to create a project To evaluate my project 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 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

Digital Literacy (Online Safety) **Self-image and Identity** **Online Relationships** **Online Reputation** **Online Bullying** **Managing Online Information** **Health, Well-being and Lifestyle** **Privacy and Security** **Copyright and Ownership**	To recognise that there may be people online who could make someone feel sad, embarrassed or upset and give examples of when and how to speak to a trusted adult and how they can help. To give examples of when I should ask permission to do something online and explain why this is important. To explain why it is important to be considerate and kind to people online. To explain why things one person finds funny or sad online may not always be seen in the same way by others. To describe what information should not be put online without asking a trusted adult first. Describe how to behave online in ways that do not upset others. Understand that we encounter a range of things online including things we don't like. To get help from a trusted adult if we see content that makes us feel sad, uncomfortable, worried or frightened. To explain rules to keep myself safe when using technology both in and beyond the home. Explain how passwords are used to	To explain how other people may look and act differently online and offline. To give examples of issues online that might make someone sad or worried and give an example of how they may get help. To explain who I should ask before sharing things about myself or others online. To explain why I have the right to say 'no' or 'I will have to ask someone'. To identify who can help me if something happens online. To explain why I should always ask a trusted adult before clicking 'yes' 'agree' and 'accept' online. To explain how anyone's online information could be seen by others. To know who to talk to if something has been put online without consent. To explain what online bullying is and how bullying can make someone feel. To explain how someone being bullied can get help. To explain the difference between things that are imaginary and things that are real. To explain why some information online may not be real or true. To explain simple guidance for using technologies in different environments. To explain how passwords protect information and accounts. To explain and give examples of what is meant by keeping things private.	To explain what is meant by the word identity. To explain how people can represent themselves in different ways online To explain why someone may use an avatar. To explain what it means to 'know someone' online and how this might be different to offline. To explain how 'trusting online' and 'liking online' is different. To explain how someone's feelings can be hurt by what is said or written online. To understand the importance of gaining permission to share online content. To give examples of what anyone may or may not be willing to share about themselves online. To explain who someone can ask if they are unsure about putting something online. To describe appropriate ways to behave towards other people online and why it is important. To give examples of how bullying behaviour could appear online and how someone can get support. To explain how the internet can be used to sell and buy things. To explain that not all opinions shared may be accepted as true or fair by others. To describe how to get help from a trusted adult is we see content that makes us feel sad, uncomfortable, worried or frightened. To explain why spending too much time using technology can have a negative impact on someone. To explain why some online activities have age restrictions and why. I can create and keep passwords private. Ito give reasons why someone should only share information with people that they trust.	To explain how my online identify can be different to my offline identify. To describe positive ways for someone to interact with others online. To explain that others online can pretend to be someone else. To describe strategies for safe and fun experiences in a range of online social environments. To give examples of how to be respectful to others online. To explain how content shared online may feel unimportant to one person but important to others. To describe how to find out information about others by searching online. To explain ways that some of the information about anyone online could have been created, copied or shared by others. To recognise when someone is upset, hurt or angry online. To describe ways people can be bullied through a range of media. To explain why people need to think carefully about how content they post might affect others. To describe how to search for information and make a judgement about probable accuracy. To describe some of the methods used to encourage people to buy things online. To explain why lots of people sharing the same beliefs or opinions online do not make those opinions or beliefs true. To explain how technologies can be a distraction from other things, in both a negative and positive way. To identify times or situations when someone may need to limit the amount of time they use technology.	To explain how identify online can be copied, modified or altered. To demonstrate how to make responsible choices about having an online identify. To give examples of technology-specific forms on communication. To describe some of the ways people may be involved in online communities and describe how they might collaborate constructively with one another. To explain how someone can get help if they are having problems and identify when to tell a trusted adult. To search for information about an individual online and summarise the information found. To describe ways that information about anyone online can be used by others to make judgements about an individual and why these may be incorrect. To recognise online bullying can be different to bullying in the physical world. To describe how what one person perceives as playful joking and teasing might be experienced by others as bullying. To explain how anyone can get help if they are being bullied online. To identify a range of ways to report concerns and access support online. To explain how to block abusive users. To explain what is meant by being sceptical and give examples why this can be important. To evaluate digital content and explain how to make choices about what is trustworthy. To describe ways of identifying when online content has been commercially sponsored or boosted. To explain what is meant by the term 'stereotype' To describe how fake news may be harmful. To describe ways technology can affect health and wellbeing both positively and negatively.	To identify and critically evaluate online content relating to gender, race, religion, disability, culture and other groups, and explain why it is important to challenge and reject inappropriate representations online. To explain the importance of asking until I get the help needed. To describe how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them inline and how to support them if others do not. To describe how things shared privately online can have unintended consequences for others. To explain that taking or sharing inappropriate images of someone may have an impact for the sharer and others. To explain ways in which anyone can develop a positive online reputation. To explain strategies anyone can use to protect their 'digital personality'. To describe how to capture bullying content as evidence to share with others who can help me. To explain how someone would report online bullying in different contexts. To define the words 'influence' 'manipulations' and 'persuasion' and explain how someone might encounter these online. To demonstrate how to analyse and evaluate the validity of 'facts' and information and explain why these strategies are important. To understand why information on a large number of sites may still be inaccurate or untrue. To identify, flag and report inappropriate content. To describe the common systems that regulate age related content. To recognise and discuss the pressures that technology can place one someone.

	protect information, accounts and devices. Explain why work that I created using technology belongs to me.	To describe and explain ways of keeping personal information private. To recognise that content on the internet may belong to other people.	To describe how connected devices collect and share anyone's information with others. I can explain why copying someone else's work from the internet without permission isn't fair.	To describe strategies for keeping personal information private, depending on the context. To describe how some online services may seek consent to store information about me. To know what the digital age of consent is. When searching for content to use on the internet, I can explain why I need to consider who owns it and whether I have the right to reuse it. To give some examples of content which I must not reuse without permission.	To recognise the benefits and the risks of accessing information about health and well-being online. To explain how and why some apps and games may request or take payment for additional content and explain the importance of seeking permission from a trusted adult before purchasing. To explain what a strong password is and how to create one. To explain how many free apps or services may read and share private information with others. To explain what app permissions are and can give some examples. To be able to justify when it is acceptable to use others work. To give examples of content that is permitted to be reused and know how this content can be found online.	To recognise features of a persuasive design and how they are used to keep users engaged. To access and action different strategies to limit the impact of technology on health. To explain what to do if a password is shared, lost or stolen. To describe simple ways to increase privacy on apps. To describe ways that some online content targets people to gain money or information illegally and describe strategies to help identify such content. To know that online services have terms and conditions that govern their use. To demonstrate the use of search tools to find and access online content which can be reused by others. To demonstrate how to make references to and acknowledge sources I have used from the internet.

Key Vocabulary	Technology Computer, mouse/trackpad, keyboard, screen, click, drag, draw, click, double-click, click and drag Input device, Shift, space bar, capital letter, full stop Safely, responsibly, computer, technology paint program, tool, paintbrush, erase, fill, undo Piet Mondrian, primary colours, shape tools, line tool, fill tool, Henri Matisse, Wassily Kandinsky, feelings, colour, brush style Georges Seurat, Pointillism, brush size Pictures, computers, like, prefer, dislike Forwards, backwards, turn, clear, go, commands Instructions, directions Forwards, backwards, commands Left, right, turn, commands Plan, algorithm, program Route, plan, program ScratchJr, Bee-Bot, command, sprite, compare, programming, programming area Block, joining, start block, run, program, programming area, background, delete, reset, algorithm, predict Effect, change, value, block	Device, camera, photograph, capture, image, digital Landscape, portrait, horizontal, vertical, field of view, narrow, wide, format Framing, focal point, subject matter, field of view, format, compose Natural lighting, artificial lighting, flash, focus, background, foreground Editing, tools, colour, filter, images, Pixlr Format, framing, lighting, focus, filter, changed, real More than, less than, most, least, organise, data, object, tally chart, votes, total Pictogram, enter, data, most, least, more common, least common Attribute, group, same, different, compare, pictogram, more than, less than, most popular, least popular, conclusion sharing, data Sequence, command, program, run, program, start outcome, predict, , blocks Sprite, algorithm, blocks, design, Actions, , blocks, sequence, modify, change Compare, design, debug, program, features, evaluate	Animation, flip book Stop frame animation, frame, sequence, image, photograph Setting, character, events, onion skinning consistency Evaluation, delete, frame, media, import, transition Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop motion, turn, point in direction, go to, glide Sequence, event, task, design, code, run the code, note, chord Design, algorithm, bug, debug Text, images, advantages, disadvantages, communicate Font, font style, communicate, template Landscape, portrait, orientation, placeholder, template Desktop publishing, copy, paste Layout, purpose Desktop publishing, benefits Motion, event, sprite, algorithm, logic Move, resize, algorithm Extension block, pen up, set up Pen, design, event, action, algorithm Debugging, errors, setup Design, code, setup, test, debug, actions, events	Internet, network, router, network security Network switch, server, wireless access point (WAP), router Website, web page, web address, router, routing, route tracing, browser World Wide Web, internet, content, website, web page, links, files content, download, sharing, ownership, permission Information, accurate, honest, content, adverts Data, table (layout) Input device, sensor, data logger Data logger, logging, data point, interval Analyse, data set, import, export Data, data logger, logged, collection Analyse, review, conclusion Program, turtle, commands, code snippet Algorithm, design, debug, Logo commands (see Glossary handout) Pattern, repeat, repetition, count-controlled loop, algorithm, value trace, value decompose, procedure Scratch, programming, sprite, blocks, code, loop, repeat, value Block, repeat, forever, infinite loop, count-controlled loop, costume Repetition, forever, animate, costume, event block, duplicate modify, design algorithm debug, refine, evaluate	Microcontroller, components, connection, infinite loop output motor, repetition, count-controlled loop Crumble controller, switch, motor, LED, Sparkle, crocodile clips, connect, battery box, program, Selection, condition, action, repetition Video, audio, camera, talking head, panning, close up Video camera, microphone, lens, close up, mid range, long shot, moving subject, side by side, high angle, low angle, normal angle Storyboard, filming, review Selection, condition, true, false, count-controlled loop, outcomes, conditional statement (the linking together of a condition and outcomes), algorithm, program, debug Task, design, input, algorithm, input, program	Search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine Index, crawler, bot, Ranking, optimisation, links, web crawlers, content creator, selection, Communication, public, private, one-way, two-way, one-to-one, one-to-many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround 2D, 3D, 3D object, 3D space, view resize, colour, lift, rotate, position, select, duplicate, dimensions, placeholder, hole, group, ungroup, resize, design, modify, evaluate, improve Spreadsheet, data, data heading, data set, cells, columns and rows, format, common attribute formula, calculation, input, output, calculate, operation, formula, cell, range, duplicate, sigma Graph, chart, evaluate, results, comparison, questions, software, tools. Variable, change, name, value, set, design, event, task, algorithm, design, artwork, program, project, code, test, debug, improve, evaluate, share. Micro:bit, MakeCode, input, process, output, flashing, USB, selection, condition, if then else, variable, random, sensing, accelerometer, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug.

	Instructions, sprite, delete, program, algorithm Sprite, background, appropriate, algorithm programming blocks					
Cross curricular	PSHE – Health Week and Safer Internet Day Art – digital painting	PSHE – Health Week and Safer Internet Day Art – digital photography Maths - pictograms	PSHE – Health Week and Safer Internet Day Maths – position and direction	PSHE – Health Week and Safer Internet Day Maths/science – data logging Maths – 2D shapes and angles	PSHE – Health Week and Safer Internet Day Science - electricity	PSHE – Health Week and Safer Internet Day Science – electricity Maths – spreadsheets Maths – 3D shapes