Computing Overview

Blue = computing lessons/activities/ideas in cornerstones projects

Orange = NCCE units mapped to make links to the cornerstones projects

Sticky Bits based on the NCCE units

THINKING THREADS

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y1 | Memory BoxHist, Sci | Enchanted WoodlandSci, Art**-Research The Woodland Trust****-Send class email** | Rio De VidaMusic**-research flags of the world****- animation, record voice over e.g. puppet pals app** | Bright lights, Big cityGeog, Art**-Bee bots****- research / images****-Scratch Jr****-programming routes****-plan a trip****-skype/facetime****-email****-class digital information page/book** | Paws, claws and whiskersArt, Sci**-zoo animal images** | Moon Zoom Sci, DT**-use drawing software to create aliens, add background, speech bubble etc.****-emails****-beebot route on alien terrain** | Splendid SkiesSci, Geog | Dinosaur PlanetHist, DT**-bee-bot on prehistoric landscape****-Search engine – dinosaur names** | SuperheroesDT, HistWilly the Wimp**-Research / images of superheroes****- create own superhero pictures – use photo and add features using drawing app****-research real heroes e.g. RNLI****-online safety** |
| NCCE Y1 unit 1: Computer Systems & Networks – technology around usTechnology is something that has been made by people to help us.Computers are a type of digital technology.CHANGE | NCCE Y1 unit 5: Creating Media – digital writingWe can use digital devices to help us write using programs called word processorsWriting digitally means we can change the look of the text (font/size) and easily edit.CREATIVITY | NCCE Y1 unit 3: Programming A – moving a robotProgramming is when we make a set of instructions (an algorithm) for computers to follow.We can use algorithms to program floor robots along routes.PROCESSES | NCCE Y1 unit 2: Creating Media – digital paintingWe can use digital devices to help us create pictures.When we use paint programs, we can use tools to draw in different ways and create different effects.CREATIVITY | NCCE Y1 unit 4: Data & Information – grouping dataData can be numbers or words. Information is what we can understand from looking at data.Labels can be used to place objects into groups.PROCESSES | NCCE Y1 unit 6: Programming B – programming animationsScratch is a program we can use to code our own stories using sprites.We use algorithms to program the sprite to do different things.PROCESSES |

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y2 | Street DetectivesHist, Geog**-photographs of local walk****-beebot (around a street)** | BounceSci, Art(Hist) | Beat Band BoogieMusic, Sci(Hist)**-voice recording, altering/distorting voices** | Land AhoyGeog, Sci (Hist)**-beebot (ship)** | Muck, mess and mixturesArt, Sci(Hist)**-stop motion animation using play dough models****-research – artists** | BeachcombersSci, DT (Hist)**-research crustaceans****-research seabirds** | Towers, tunnels and turretsGeog, DT (Hist)**-drawing castles using drawing software, annotate** | Wriggle and Crawl Sci, Art (Hist)**-unplugged –directions****-hungry caterpillar algorithms****-program bee-bot** **-debugging life cycles****-bee webcam****-stop motion animation – ants****-life cycle animation** | Scented GardenSci, DT |
| NCCE Y2 unit 2: Creating Media – digital photographyWe can use digital devices to take and edit photos.Not all photographs that we see are real – they might have been edited.CREATIVITY | NCCE Y2 unit 5: Creating Media – digital musicWe can use digital devices to help us create, edit and listen to music.We can use apps to change the pitch and tempo of music.CREATIVITY | NCCE Y2 unit 3: Programming A – moving a robotWe use algorithms (a set of instructions) to help robots to do things we want them to.Debugging can help to correct algorithms and programs.PROCESSES | NCCE Y2 unit 1: Computer Systems & Networks – IT around usTechnology is ‘man-made’ and not ‘natural’.Information Technology (IT) includes computers and things that work with computers.CHANGE | NCCE Y2 unit 4: Data & Information – pictogramsData about different things can be recorded and presented using pictograms, tally charts and bar charts.This data can then be used to answer questions and solve problems.PROCESSES | NCCE Y2 unit 6: Programming B – programming quizzesScratch is a program we can use to code programs using a series of command blocks. This can be used to design quizzes.PROCESSES |

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y3 | Tribal TalesHist, Sci, Art | PredatorSci, Art**-Beebots x 2 lessons****-Food chains – drawing programme****-web search predators****-poster****-digital drawing****-edit photos** | Heroes and VillainsMusic**-web search historical heroes** | TremorsGeog, Sci | Urban PioneersArt, Hist, Sci**-digital maps****-email****-make a webpage****-Algorithms -Traffic lights****-Traffic barrier – sensory activated** | Scrumiddlyum ptiousDT, Sci**-design food label, photo, email** | FlowGeog, Sci-**web research of river features****-research and present about river dolphins****-word processing** | Gods and mortalsHist, Geog**-powerpoint presentation** | Mighty MetalsSci, DT**-record data in spreadsheets****- powerpoint presentation** |
| NCCE Y3 unit 3: Programming A – sequencing soundsAn algorithm is a set of instructions to perform a task.We can use algorithms to sequence movements, actions and sounds in order to program effective animations.PROCESSES | NCCE Y3 unit 4: Data & Information – branching databasesData is raw numbers and figures. Information is what we can understand from looking at data.Branching databases can help us to identify objects within sets of data. They are useful when we want to classify objects.PROCESSES | NCCE Y3 unit 6: Programming A – events and actions in programsIn Scratch we can use event and action command blocks to make sprites carry out acts when certain prompts take place.In Scratch, blocks can stack vertically on top of one another to create sequences.PROCESSES | NCCE Y3 unit 1: Computer Systems & Networks – Connecting computersDigital devices have an input, process and output.Information and data can be shared across networks. Many devices are used to create networks.CHANGE | NCCE Y3 unit 5: Creating Media – desktop publishingDesktop publishing is when we create documents, such as newsletters and posters, using page layout software.When using desktop publishers, we carefully consider how text and images are laid out on the page.**CREATIVITY** | NCCE Y3 unit 2: Creating media – stop-frame animationAnimation is a technique used to make objects and drawings appear as if they are moving.Stop-frame animation is a technique in which many photographs are taken of objects with small movements in between. When the images are quickly shown together, the objected appear to move (they are animated).**CREATIVITY** |

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y4 | I am Warrior!Hist, DT | Misty Mountain SierraGeog, Sci, Art**-research, images, presentation****-GPS****-video/ animation of water cycle** | PlaylistMusic, Sci**-sound recording** | Traders and RaidersHist, Geog, Sci**-Images, research, presentation****-animation?** | Blue AbyssArt, Sci**-programming a submarine – scratch****-video about the Great Barrier Reef****-Web search/images****-look at GPS data of sea creatures****-powerpoint presentations** | Burps, bottoms and bileSci, DT**-digital drawing and manipulating images****-flow diagram (algorithm) of digestion process****-record a video about the digestive system** | Road Trip USAGeog, Sci**-Spreadsheet / database about NY****-digital maps****-beebots****-research****-holiday budget spreadsheet****-presentations****-scratch aeroplane flight** | 1066Hist, Art**-checking information found online**-digital **maps****-research****-presentations** | PotionsDT, Sci |
| NCCE Y4 unit 3: Programming A – repetition in shapesLogo is a text-based program that we can use in order to create shapes and patterns.We use algorithms (a set of instructions to perform a task) which we can plan, model and test, to create accurate and imaginative shapes and patterns.PROCESSES | NCCE Y4 unit 2: Creating media – audio productionThe process of recording and listening to sound requires input devices (e.g. microphone) and output devices (e.g. a speaker).Podcasts are a type of spoken word audio file, that can be downloaded by listeners. People can have ownership over audio files.**CREATIVITY** | NCCE Y4 unit 4: Data & Information – data loggingData loggers and logging software can be used to automatically capture data. We can then use the data to answer research questions.Data loggers have sensors built into them to detect and record data e.g. heat sensor, light sensor, sound sensor.PROCESSES | NCCE Y4 unit 5: Creating media – photo editingThere are lots of different ways to edit photographs for example cropping, rotating, flipping and changing colours and styles.We should edit photos for positive reasons (e.g. to highlight important things or avoid embarrassment) not for negative reasons (e.g. to try to deceive people or spread false news).**CREATIVITY** | NCCE Y4 unit 6: Programming **B** – repetition in gamesIn scratch we can use repeat and loop operator blocks in order to make our programs more logical and efficient.Loop and operator blocks help to run code continuously or for a set number of times.PROCESSES | NCCE Y4 unit 1: Computer Systems & Networks – the internetThe internet is a network of networks that is used around the world.The world wide web is a system on the internet that has websites and webpages. Not all information on the internet is accurate.CHANGE |

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y5 | PharaohsHist, DT**-research** | StargazersSci, Music**-beebots****-scratch** | Alchemy IslandMusic, Hist**-digital photos****- Create music – Garageband / Audacity****-coding / scratch** | Peasants, Princes and PestilenceHist, Sci, Geog**-research****-presentation - powerpoint** | Time TravellerArt, Sci**-digital photos / image manipulation, digital aging app****-data, line graph** | Scream MachineDT, Sci**-image manipulation/ green screen** **-drawing programme to create maps****-posters - adverts****-spreadsheets****-precise search for images****-coding / scratch** | AllotmentGeog, Sci, Art**-calculate food miles****-spreadsheets****-research****-word processing** | Off with her HeadHist**-data recording, spreadsheet, bar chart****-presentation – powerpoint****-research** | Beast CreatorSci, DT**-research****-presentation****-digital drawing****-research****-word processing** |
| NCCE Y5 unit 1: Computer systems & networks – systems and searchingComputer systems are built using a number of parts. Computer systems can communicate with other devices.There are many different kids of computer systems around the world, ranging from small scale to large scale.CHANGE | NCCE Y5 unit 3: Programming A – selection in physical computingMicrocontrollers are devices that can be programmed to control output devices that are connected to them.We use algorithms which we can plan, model, trial and debug in order to create accurate command sequences involving multiple output devices.PROCESSES | NCCE Y5 unit 2: Creating Media – video productionVideo means the recording, reproducing and broadcasting of visual images (often accompanied by audio).Many different devices can be used to record, edit and playback video and sound.**CREATIVITY** | NCCE Y5 unit 4: Data & Information – flat-file databasesDatabases organize data so that it can be easily added to, amended, stored and accessed.Computer databases can allow large amounts of data to be sorted, filtered and edited more easily.PROCESSES | NCCE Y5 unit 6: Programming B – selection in quizzesIn scratch we can input questions using the ‘ask’ command blocks.In scratch, we can use selections and conditions in order to ensure that there are different outcomes depending upon a user’s response.PROCESSES | NCCE Y5 unit 5: Creating media – introduction to vector graphicsVector drawings are computer graphic images that are made using 2-D shapes.Vector drawings use layers to create bigger and more detailed images.**CREATIVITY** |

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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Y6 | RevolutionHist, ArtOliver Twist**-photography** | Darwin’s DelightsSci, Art**-research****-animation – digital manipulation - morphing software** | Hola MexicoGeog, Music**-research****-digital maps****-specific searches** | Frozen KingdomGeog, Art**-research****-presentation** | Gallery RebelsArt, Sci**-research****-presentation****-create surrealist films** | Bloodheart DT, Sci**-research****-presentation - flow diagram** | A Child’s WarMusic, Hist, Geog**-research****-presentation** | Tomorrow’s WorldSci, DT, Hist?**-download copyright free music****-research****-design a webpage - weebly****-beebots****-scratch** | IDSci, DT**-create an avatar****-digital photos**-online safety |
| NCCE Y6 unit 3: Programming A – variables in gamesVariables are changeable elements of a program. Scratch is one app in which we can explore variables.We use algorithms which we can plan, model, trial and debug, in order to create accurate command sequences, that enable variables to be enacted in games.PROCESSES | NCCE Y6 unit 4: Data & Information – introduction to spreadsheetsSpreadsheets organize and store data in meaningful ways so that it can be easily accessed and analysed.Computer spreadsheets are particularly useful for powerful calculations, graphs and charts.PROCESSES | NCCE Y6 unit 6: Programming B – sensing movementMicro:Bits are small computers that perform different actions based on programs written on computer software and then downloaded to the micro:bit.Micro:bits have a range of inout sensors that can be used as input triggers for different codes to run. Output devices on Micro:bits can be programmed to display words, pictures and numbers.PROCESSES | NCCE Y6 unit 1: Computing systems & networks – communication & collaborationThe World Wide Web is the part of the internet where we can visit websites and webpages. We can find information using search engines.The internet is also a useful communication tool – with a number of different communication mediums for a range of different purposes.CHANGE | NCCE Y6 unit 5: Creating media – 3D modelling3D modelling involves using computer software to create 3D shapes, in order to produce models of real-world objects.3D modelling allows us to view designs from different angles and experiment with designs. 3D modelling is used in many industries.**CREATIVITY** | NCCE Y6 unit 2: Creating Media – web page creationA webpage is a hypertext document that is part of the World Wide Web. Websites are a collection of webpages about the same topic. They can be found using browsers. Websites are created for a chosen purpose, and with a particular audience in mind. They include navigation paths, and must adhere to copyright and fair use of media rules.**CREATIVITY** |