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 Box  Hist, Sci | Enchanted Woodland  Sci, Art  **-Research The Woodland Trust**  **-Send class email** | Rio De Vida  Music  **-research flags of the world**  **- animation, record voice over e.g. puppet pals app** | Bright lights, Big city  Geog, Art  **-Bee bots**  **- research / images**  **-Scratch Jr**  **-programming routes**  **-plan a trip**  **-skype/facetime**  **-email**  **-class digital information page/book** | Paws, claws and whiskers  Art, 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 Skies  Sci, Geog | Dinosaur Planet  Hist, DT  **-bee-bot on prehistoric landscape**  **-Search engine – dinosaur names** | Superheroes  DT, Hist  Willy 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 us  Technology 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 writing  We can use digital devices to help us write using programs called word processors  Writing digitally means we can change the look of the text (font/size) and easily edit.  CREATIVITY | | NCCE Y1 unit 3: Programming A – moving a robot  Programming 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 painting  We 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 data  Data 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 animations  Scratch 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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| Y2 | Street Detectives  Hist, Geog  **-photographs of local walk**  **-beebot (around a street)** | Bounce  Sci, Art  (Hist) | Beat Band Boogie  Music, Sci  (Hist)  **-voice recording, altering/distorting voices** | Land Ahoy  Geog, Sci (Hist)  **-beebot (ship)** | Muck, mess and mixtures  Art, Sci  (Hist)  **-stop motion animation using play dough models**  **-research – artists** | Beachcombers  Sci, DT (Hist)  **-research crustaceans**  **-research seabirds** | Towers, tunnels and turrets  Geog, 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 Garden  Sci, DT |
| NCCE Y2 unit 2: Creating Media – digital photography  We 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 music  We 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 robot  We 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 us  Technology is ‘man-made’ and not ‘natural’.  Information Technology (IT) includes computers and things that work with computers.  CHANGE | | NCCE Y2 unit 4: Data & Information – pictograms  Data 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 quizzes  Scratch 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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| Y3 | Tribal Tales  Hist, Sci, Art | Predator  Sci, Art  **-Beebots x 2 lessons**  **-Food chains – drawing programme**  **-web search predators**  **-poster**  **-digital drawing**  **-edit photos** | Heroes and Villains  Music  **-web search historical heroes** | Tremors  Geog, Sci | Urban Pioneers  Art, Hist, Sci  **-digital maps**  **-email**  **-make a webpage**  **-Algorithms -Traffic lights**  **-Traffic barrier – sensory activated** | Scrumiddlyum ptious  DT, Sci  **-design food label, photo, email** | Flow  Geog, Sci  -**web research of river features**  **-research and present about river dolphins**  **-word processing** | Gods and mortals  Hist, Geog  **-powerpoint presentation** | Mighty Metals  Sci, DT  **-record data in spreadsheets**  **- powerpoint presentation** |
| NCCE Y3 unit 3: Programming A – sequencing sounds  An 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 databases  Data 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 programs  In 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 computers  Digital 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 publishing  Desktop 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 animation  Animation 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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| Y4 | I am Warrior!  Hist, DT | Misty Mountain Sierra  Geog, Sci, Art  **-research, images, presentation**  **-GPS**  **-video/ animation of water cycle** | Playlist  Music, Sci  **-sound recording** | Traders and Raiders  Hist, Geog, Sci  **-Images, research, presentation**  **-animation?** | Blue Abyss  Art, 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 bile  Sci, DT  **-digital drawing and manipulating images**  **-flow diagram (algorithm) of digestion process**  **-record a video about the digestive system** | Road Trip USA  Geog, Sci  **-Spreadsheet / database about NY**  **-digital maps**  **-beebots**  **-research**  **-holiday budget spreadsheet**  **-presentations**  **-scratch aeroplane flight** | 1066  Hist, Art  **-checking information found online**  -digital **maps**  **-research**  **-presentations** | Potions  DT, Sci |
| NCCE Y4 unit 3: Programming A – repetition in shapes  Logo 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 production  The 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 logging  Data 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 editing  There 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 games  In 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 internet  The 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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| Y5 | Pharaohs  Hist, DT  **-research** | Stargazers  Sci, Music  **-beebots**  **-scratch** | Alchemy Island  Music, Hist  **-digital photos**  **- Create music – Garageband / Audacity**  **-coding / scratch** | Peasants, Princes and Pestilence  Hist, Sci, Geog  **-research**  **-presentation - powerpoint** | Time Traveller  Art, Sci  **-digital photos / image manipulation, digital aging app**  **-data, line graph** | Scream Machine  DT, Sci  **-image manipulation/ green screen**  **-drawing programme to create maps**  **-posters - adverts**  **-spreadsheets**  **-precise search for images**  **-coding / scratch** | Allotment  Geog, Sci, Art  **-calculate food miles**  **-spreadsheets**  **-research**  **-word processing** | Off with her Head  Hist  **-data recording, spreadsheet, bar chart**  **-presentation – powerpoint**  **-research** | Beast Creator  Sci, DT  **-research**  **-presentation**  **-digital drawing**  **-research**  **-word processing** |
| NCCE Y5 unit 1: Computer systems & networks – systems and searching  Computer 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 computing  Microcontrollers 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 production  Video 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 databases  Databases 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 quizzes  In 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 graphics  Vector 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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| Y6 | Revolution  Hist, Art  Oliver Twist  **-photography** | Darwin’s Delights  Sci, Art  **-research**  **-animation – digital manipulation - morphing software** | Hola Mexico  Geog, Music  **-research**  **-digital maps**  **-specific searches** | Frozen Kingdom  Geog, Art  **-research**  **-presentation** | Gallery Rebels  Art, Sci  **-research**  **-presentation**  **-create surrealist films** | Bloodheart  DT, Sci  **-research**  **-presentation - flow diagram** | A Child’s War  Music, Hist, Geog  **-research**  **-presentation** | Tomorrow’s World  Sci, DT, Hist?  **-download copyright free music**  **-research**  **-design a webpage - weebly**  **-beebots**  **-scratch** | ID  Sci, DT  **-create an avatar**  **-digital photos**  -online safety |
| NCCE Y6 unit 3: Programming A – variables in games  Variables 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 spreadsheets  Spreadsheets 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 movement  Micro: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 & collaboration  The 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 modelling  3D 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 creation  A 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** | |