Our scheme of work has been colour coded in to: Computer Science, Information Technology and Digital Literacy.

Enrichment/Personal development – Confidence in using a range of equipment, preseting information and considering improvements in own learning.
SMSC/ Cultural Capital – Showing an awareness of how technology has influenced society and an appreciation of technology from different time periods and cultures
Careers – Careers in Computing and Technology
British Values – To understand and abide by rules and laws relating to the use of technology
Equality – To have access to a range of technology and have the opportunity to develop skills in a range of areas
Independence – Individual skills developed through a range of opportunities to use digital media, presentations and technology
Community – Safety in our community (electrical pylons etc.) and safety in the home
Outdoor learning –Forest School, Use of technology and systems

Ongoing Y2: As Y1 plus
- Ipads – Take photos, Basic internet searches, Use pic collage
- Laptop – Switch on, basic word processing

Ongoing Y3: As Y1 and 2 plus
- Ipads – Internet searches, Pic collage with text
- Laptops – Log on and shut down correctly, word processing (font, colour, size), basic Desktop publishing

Ongoing Y4: As Y1,2 and 3 plus
- Ipads – Internet searches for a specific purpose
- Laptops - word processing (**B,** *i,* U), Desktop publishing, retrieve and save documents

As Year 2 will repeat this unit in Year 4 the Year 2 key skills and knowledge are underlined

Year 2/3/4 – Computer Systems and Networks **Autumn Term Year A**
Unit: Connecting Computers
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8
Prior Learning: Early Years/KS1
Key Essential Skills and sticky knowledge: **Unit 3 Connecting Computers** I can classify input and output devices; design a digital device and model a simple process. I can recognise similarities and differences between using digital devices and non-digital tools. I can explain how a computer network can be used to share information and that messages pass through multiple connections. I can explain how digital devices can be connected and what the role of a switch, server and wireless access point is. I can recognise the physical components of a network and how they are connected. I know digital devices change the way we work I know what a computer network is and how it works in the school setting. I know what a switch, server and wireless access point are.

Vocabulary: Digital device, input, output, process, program, connection, network, network switch, network switch, server, wireless access point (WAP), non-digital, cables, sockets Information Technology (IT), computer, USB (memory stick), device, permission, appropriate
Sequence: **See planning unit**
Thinking Deeper: Think about networks and their use in the wider world
Hardware/Software: Laptop, Ipads; Microsoft Paint

Year 2/3/4 – Data and Information **Autumn Term Year A**
Unit: Data Logging
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8
Prior Learning: Early Years/KS1
Key Essential Skills and sticky knowledge: **Unit 4 Data Logging** I can explain that data gathered can be used to answer a given question and I can suggest questions to be a asked of the data. I can use a data logger to collect data and that the data logger collects 'data points' from sensors over a given time. I can use collected data to answer questions and draw conclusions. I know how to use a data logger to collect data. I know that sensors are the input devices and that the data is recorded.
Vocabulary: data, table, input device, sensor, data logger, data point, interval, analyse, data set, import, export, logged, collection, review, conclusion, layout. More than, less than, most, least, organise, data, object, tally chart, enter, compare, objects, count, explain, more, less, more common, least common, most/least popular, data, conclusion,
Sequence: **See planning unit**
Thinking Deeper: Independently collect data using a data logger for different purposes
Hardware/Software: Laptops, Ipads; Data logger (Arduino Science Journal App)

Year 2 - Computing **Spring Term Year A and B**
Unit: Y1 unit - Programming Animations
National Curriculum Link: See TEACH COMPUTING Teacher Guide p7
Prior Learning: Early Years, Year 1
Key Essential Skills and knowledge: **Unit 1** I can compare different programming tools and find and use commands to move a sprite. I can use a start block in a program and I can join blocks together. I can explain what happens when I change a value. I can add blocks to my sprite and delete a sprite.

I can create an algorithm for each sprite to control movement. I can test the programs I have created and alter my designs. I know that an algorithm is a set of instructions used to achieve an objective. I know that an algorithm written for a computer is called a program and finding errors in an algorithm is called debugging.
Topic Vocabulary: Scratch Jnr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start block, run, background, delete, reset, algorithm, predict, effect, change, value, instructions, delete, algorithm, appropriate, sprite, design
Sequence: **See planning unit**
Thinking Deeper: Explain the possible actions of objects including moving, responding to being clicked on and collision with other objects. Use prior coding experience to recognise whole blocks of familiar code.
Hardware/Software: Laptops; Scratch Jnr

Year 3/4 - Programming	**Spring Term Year A**
Unit: Sequencing sounds	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **Unit 3 Sequencing sounds** I can explore a new programming environment, including attributes, projects, blocks, commands, codes, staging and backdrops. I can identify that each sprite is controlled by the commands I choose I can create a sequence of connected commands and decide where and how my program will start. I can combine sound commands and order notes into a sequence to create a musical instrument. I can change the appearance of my project I can create a project from a task description I know how to write a program, run and debug it. I know how to create a sequence of music within my program.	
Vocabulary: Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, Sequence, event, task, design, run the code, order, note, chord, stage, costume, backdrop, design, algorithm, bug, debug Sequence, command, program, run, program, start, outcome, predict, sprite, algorithm, design, actions, project, blocks, modify, change, build, match, compare, debug, evaluate	
Sequence: **See planning unit**	
Thinking Deeper: Independently create own sequence of music for different purposes	
Hardware/Software: Laptops, Ipads; Scratch	

Year 2/3/4 - Programming	**Spring Term Year A**

Unit: Repetition in shapes
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8
Prior Learning: Early Years/KS1
Key Essential Skills and sticky knowledge: **Unit 4 – Repetition in shapes** I can create a code snippet for a given purpose, for example controlling a turtle. I can write an algorithm for a given outcome, including repetition. I can design a program that has a count-controlled loop. I can debug a program I know how to create a program with an object that repeats actions.
Vocabulary: program, turtle, commands, code, snippet, algorithm, design, debug, logo, command, pattern, repeat, repetition, count controlled loop, value, count-controlled, loop, trace, decompose, procedure, debug, program instruction, sequence, clear, unambiguous, algorithm, program, sequence, order, commands, prediction, design, route, debugging, decomposition
Sequence: **See planning unit**
Thinking Deeper: show that they are absorbing new knowledge of coding structures such as 'if' statements, repetition and variables to think of their programs in logical, achievable steps.
Hardware/Software: Laptops, Ipads; Turtle Academy Online

Year 2/3/4 – Creative Media	**Summer Term Year A**
Unit: Desktop publishing	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **Unit 3 Desktop publishing** I can recognise how text and images convey information clearly and that there are some advantages and disadvantages to using them. I can change the text layout, including font style, size and colour. I can choose appropriate page settings: generating a template to meet my needs with placeholders. I can add Sequence to a desktop publishing publication, including adding text and pasting pictures. I can change the layout to suit different purposes. To consider the benefits of desktop publishing and identify its use in the real world. I know how to create a template, add text and images. I Know how to change text layout, including font size and colour. I know how to alter the layout to suit my purpose.	
Vocabulary: Text, images, advantages, disadvantages, communicate, font, font style, template, landscape, portrait, orientation, placeholder, desktop publishing, copy, paste, layout, purpose, benefits, Sequence	

text, layout, font, images, copy, paste, delete
Sequence: **See planning unit**
Thinking Deeper: Independently apply knowledge and skills to use desktop publishing for different purposes
Hardware/Software: Laptops; Microsoft Publisher

Year 2/3/4 – Creative Media **Summer Term Year A**
Unit: Photo editing
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8
Prior Learning: Early Years/KS1
Key Essential Skills and sticky knowledge: **If Unit 2 Digital Photography is not completed in Key Stage 1 then merge with this unit: Unit 4 Photo editing** I can explain the effect that editing can have on an image. I can change the composition of an image by selecting parts of it. I can use editing tools on a photograph and can explain the effect these have. I can evaluate how changing can improve an image. I can save and retrieve an image. I know how to edit an image. I know how to adjust, sharpen, brighten, alter and image. I know how to change hue, saturation, change colour or use settings such as sepia.
Vocabulary: image, edit, arrange, select, crop, undo, save, copyright, pixels, rotate, flip, adjustment, effects, colours, hue/ saturation, sepia, save, version, illustrator, vignette, retouch, edit, clone, recolour, image, fake, real, composite, cut, copy, paste, background, foreground, combine, alter, zoom 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, subject background, foreground Editing, tools, colour, filter, images, Pixlr, light source, focus, filter, changed, real
Sequence: **See planning unit**
Thinking Deeper: Independently apply knowledge and skills to edit images for different purposes
Hardware/Software: Laptops, Ipads; Pixlr image editing software

Year 2/3/4 – Computer systems and Networks **Autumn Term Year B**
Unit: The Internet
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8

Prior Learning: Early Years/KS1
Key Essential Skills and sticky knowledge: **Unit 4 The Internet** I can explain how the internet is made up of connected networks. I can explain how websites are stored on the www, what types of media can be shared and how to access websites on the WWW. I can explain that that Sequence of the www is created by people. I can evaluate the consequences of unreliable Sequence. I can name the different parts of a desktop computer and know what the function of the different parts of a computer is. I reflect on my own digital footprint and behaviour online I can identify what is appropriate and inappropriate behaviour on the internet, recognising the term cyberbullying I can follow sensible online safety rules, e.g. taking pictures, sharing information, storing passwords I can begin to demonstrate understanding of age-appropriate websites and adverts I know computers are made from hardware, software and components. I know that websites and their Sequences are created by people and that some information that I find online may not be honest, accurate or legal. I know how to seek help from an adult when I see something that is unexpected or worrying
Vocabulary: internet, network, router, network, security, switch, server, wireless, access point (WAP), web page, web address, links, files, Sequence, download, sharing, ownership, permission, information, accurate, honest, adverts, legal. adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet. world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public. safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet. world wide web, communicate, message, social media, email, password, cyberbullying/bullying, plagiarism, profiles, account, private, public.
Sequence: **See planning unit**
Thinking Deeper: Make a leaflet labelling a computer or write an explanation text.
Hardware/Software: Laptops, Ipads

Year 2/3/4 – Data and information	**Autumn Term Year B**
Unit: Branching Databases	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge:	

Unit 3 Branching Databases I can create a simple branching database by grouping groups of objects separated by one attribute. I can make up yes/no questions about these groups. To identify the object attributes needed to collect relevant data I can explain why it is helpful for a database to be well structured I can compare the information shown in a pictogram with a branching database I know how to carefully structure a branching database, identifying attributes for grouping and yes/no questions.
Vocabulary: Attribute, value, questions, table, objects, branching database, database, , equal, even, separate, order, organise, value, question, j2data, selecting, pictogram, compare, information, decision tree organise, data, object, compare, attribute, group, same, different, more than/less than, most/least popular, sharing
Sequence: **See planning unit**
Thinking Deeper: Independently apply knowledge and skills to create database for different purposes
Hardware/Software: Laptops, Ipads; Just 2 Easy:Branch

Year 2 - Computing	**Spring Term Year A and B**
Unit: Y1 unit Programming Animations	
National Curriculum Link: See TEACH COMPUTING Teacher Guide p7	
Prior Learning: Early Years, Year 1	
Key Essential Skills and knowledge: **Unit 1** I can compare different programming tools and find and use commands to move a sprite. I can use a start block in a program and I can join blocks together. I can explain what happens when I change a value. I can add blocks to my sprite and delete a sprite. I can create an algorithm for each sprite to control movement. I can test the programs I have created and alter my designs. I know that an algorithm is a set of instructions used to achieve an objective. I know that an algorithm written for a computer is called a program and finding errors in an algorithm is called debugging.	
Topic Vocabulary: Scratch Jnr, Bee-Bot, command, sprite, compare, programming, programming area, block, joining, start block, run, background, delete, reset, algorithm, predict, effect, change, value, instructions, delete, algorithm, appropriate, sprite, design	
Sequence: **See planning unit**	
Thinking Deeper: Explain the possible actions of objects including moving, responding to being clicked on and collision with other objects. Use prior coding experience to recognise whole blocks of familiar code.	
Hardware/Software: Laptops; Scratch Jnr	

Year 3/4 – Programming	**Spring Term Year B**
Unit: Events and actions in programs	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **Unit 3 Events and actions in programs** I can explain how a sprite moves in an existing project I can create a program to move a sprite in four directions I can adapt a program to a new context I can develop my program by adding features I can identify and fix bugs in a program I can design and create a maze-based challenge I know how to make my sprite move and I can select keys to do this (up, down, left, right) I know how to add blocks and use function such as pen down.	
Vocabulary: Motion, event, sprite, algorithm, logic, move, resize, algorithm Extension block, pen up, set up, pen, design, actions, debugging, errors, setup instruction, sequence, algorithm, program, sequence, order, commands, prediction, debug	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply knowledge and skills to create program for different purposes	
Hardware/Software: Laptops, Ipads; Scratch	

Year 2/3/4 – Programming	**Spring Term Year B**
Unit: Repetition in games	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **If Unit 2 Programming Quizzes is not completed in Key Stage 1 then merge with this unit:** **Unit 4 Repetition in games** I develop the use of count-controlled loops in a different programming environment, for example scratch. I can explain that in programming there are infinite loops and count controlled loops. I can develop a program which includes two or more loops which run at the same time. I can modify an infinite loop. I know how to add loops to a program.	
Vocabulary: scratch, programming, sprite, blocks, code, loop, repeat, value, forever, count controlled loop, costume, animate Sequence, command, program, run, program, start, outcome, predict, blocks, sprite, algorithm, design, actions, project, blocks, design, modify, change, design, build, match, compare, debug, features, evaluate	
Sequence: **See planning unit**	

Thinking Deeper: Pupils' designs for their programs, show that they are absorbing new knowledge of coding structures such as 'if' statements, repetition and variables to think of their programs in logical, achievable steps.
Hardware/Software: Laptops, Ipads; Scratch

Year 2 - Computing	**Summer Term Year B**
Unit: Unit 2 Making Music	
National Curriculum Link: See TEACH COMPUTING Teacher Guide p7	
Prior Learning: Early Years/Y1	
Key Essential Skills and knowledge: **<u>Unit 2</u>** I can listen to music, for longer periods of time, identifying differences in pieces and say how it makes me feel. I can create a rhythm pattern and follow a rhythm pattern on a percussion instrument. I can use a computer to experiment with pitch and duration.: I can use a computer to create a musical pattern using three notes, refining my pattern I can create and save a musical pattern to describe an animal. I can evaluate my work stating how I could improve it. I can reopen it. I know how to edit more complex digital data such as music compositions. I know how to use a range of media in their digital content including photos, text and sound and present ideas. I know notes in music are arranged in a sequence. Changing the order changes the sound.	
Topic Vocabulary: music, planets, Mars, Venus, war, peace, quiet, loud, feelings, emotions, pattern, rhythm, pulse, Neptune, pitch, tempo, rhythm, notes, instrument, create, emotion, pitch, pulse/beat, open, edit	
Sequence: **See planning unit**	
Thinking Deeper: Import their own images and drumbeats, seamlessly using different aspects of Music Lab.	
Hardware/Software: Laptops; Chrome Music Lab	

Year 2 - Computing	**Summer Term Year B**
Unit: Unit 2 Digital photography	
National Curriculum Link: See TEACH COMPUTING Teacher Guide p7	
Prior Learning: Early Years/Y1	
Key Essential Skills and knowledge: **<u>Unit 1</u>** I can capture a digital photograph and talk about how to take a photograph.	

I can take a photograph in landscape or portrait and explain why one or other might look better. I can identify what is wrong with a photograph and reframe it. To decide how photographs can be improved by using light. I can use editing to change my photograph, experimenting with colour and filters. I can identify if an image is real or if it has been changed. I know how to take a photograph, thinking about light and composition I know how to edit my photograph
Topic Vocabulary: 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, light sources, subject, focus, filter, changed, real,
Sequence: **See planning unit**
Thinking Deeper: Apply skills to independently edit photographs for different purposes
Hardware/Software: Ipad/Digital camera; Pixlr image editing software

Year 2/3/4 – Creative Media	**Summer Term Year B**
Unit: Stop frame animation	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **Unit 3 Stop frame animation** I can explain that animation is a sequence of drawings or photographs I can create a stop frame animation and predict what it will look like. I can break down a story into setting, characters and events to create a storyboard. I can evaluate the quality of my animation and review a series of frames to check my work. To review and improve an animation explaining how I will improve it. I can evaluate the impact of adding other media to my animation I know how to create a stop frame animation. I know how to add media to my animation. I know how to use 'onion skinning.'	
Vocabulary: Animation, flip book, stop frame animation, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency evaluation, animation, delete, frame, media, import, transition animation, evaluation, frame, image, sequence	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply knowledge and skills to create own animation	
Hardware/Software: Ipads; iMotion	

Year 2/3/4 – Creative Media	Summer Term Year B
Unit: Audio editing	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p8	
Prior Learning: Early Years/KS1	
Key Essential Skills and sticky knowledge: **Unit 4 Audio editing** I can identify digital devices that can record sound and play it back and that a range of sounds can be recorded. I can plan and record a podcast, saving it as a file. I can discuss how to improve my podcast and edit sections of an audio recording. I can reopen my recording and add sound, using editing tools to rearrange sections of audio. I know what a podcast is. I can record a podcast, editing to make improvements and add sound.	
Vocabulary: audio, record, playback, microphone, speaker, headphones, input, output, sound, start, stop, pause, save, file, edit, section, mixing, time shift. audio, record, microphone, speaker, stop, playback	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply skills and knowledge to create own podcast	
Hardware/Software: Laptops; Audacity	