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 Y5: As Y1,2,3 and 4 plus

- Ipads – Internet searches for specific purposes, Powerpoint, printing documents
- Laptops - word processing (layout and inserting pictures), Desktop publishing, Powerpoint for specific purposes, Basic Excel, Printing documents

Ongoing Y6: As Y1,2,3,4 and 5 plus

- Ipads – Confident in using for a range of purposes, Air drop
- Laptops – word processing (formatting), Desktop publishing, Powerpoint, Excel

Year 5/6 - Computer Systems **Autumn Term Year A**
Unit: Sharing information
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9
Prior Learning: Early Years/KS1/Lower KS2
Key Essential Skills and sticky knowledge: **<u>Unit 5 Sharing Information</u>** I can explain how computers are connected together to form systems. I can explain the role that computers have in our lives and how information is transferred over the internet. I can work collectively on a shared project online. I can evaluate different ways of working together online. I know that connect devices can allow is to access shared files stored online. I know that sharing information online lets people in different places work together. I know how to protect my own information online (passwords and personal information)
Topic Vocabulary: system, connection, digital, input, process, output, protocol, address, packet, chat, explore, slide deck, reuse, remix, collaboration spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal

Sequence: **See planning unit**
Thinking Deeper: Independently apply skills and knowledge
Hardware/Software: Laptops; Microsoft Powerpoint

Year 5/6 - Data	**Autumn Term Year A**
Unit: Introduction to spreadsheets	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 6 Introduction to spreadsheets</u>** I can create a formula in a spreadsheet for simple conversions e.g. cm to m and use formulas to calculate the perimeter of a rectangle. I can work collaboratively to solve a problem using spreadsheets. I can use simple formulae to solve calculations including =sum and other statistical functions. I can present data visually using graphs in2calculate and/or Excel. I can decide which keys are more suitable to perform a task. E.g. Numerical keys when typing long numbers. I know how to format cells to perform a function and that spreadsheets can be used to present data visually. I know to credit sources when inserting media from websites and to check their validity. I know data can be presented numerically or visually, each for different purposes.	
Topic Vocabulary: Spreadsheet, data, data heading, data set, cells, columns and rows, object, spreadsheet application, format, common attribute, formula, calculation, cell reference, operation, range, duplicate, sigma Propose, question, organised, graph, chart, evaluate, results, comparison, questions, software, tools, data	
Sequence: **See planning unit**	
Thinking Deeper: Create a database with a greater number of fields and create complex search questions about their database for their classmates to answer (Questions using and/or statements).	
Hardware/Software: Laptops; Microsoft Excel	

Year 5/6 - Programming	**Spring Term Year A**
Unit: Selection in physical computing	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 5 Selection in physical computing</u>** I can control a simple circuit connected to a computer; including a microcontroller (crumble), an infinity loop and an LED light. I can connect more than one output device to a microcontroller, deciding which output device I control with a count-controlled loop. I can experiment with a 'do until' loop.	

I can use selection (an 'if ...then' statement) to direct the flow of a program. I can make a physical drawing/model of a physical computing project. I can create an algorithm to control my robot/simulation using repetition, sequencing, co-ordinates and text inputs. Using crumble or 2code a game linked to our topics. I know how to create algorithms for physical computing using loops and sequences. I know the importance of planning and designing a project in order to follow a plan and make adjustments where necessary.
Topic Vocabulary: Microcontroller, Crumble controller, components, switch, motor, LED, Sparkle, crocodile clips, connect, battery box, program, condition, true, false, input, output devices, selection, condition, action, task, design, selection, repetition, condition, action, microcontroller, Crumble controller, switch, crocodile clips, battery box, task, design, selection, repetition, algorithm, debug, evaluate
Sequence: **See planning unit**
Thinking Deeper: Test and debug their program as they go and can use logical methods to identify the approximate cause of any bugs then test systematically to identify the specific line of code that is causing the problem.
Hardware/Software: Laptops, Crumble starter kits; Crumble software

Year 5/6 - Programming	**Spring Term Year A**
Unit: Variables in games	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 6 Variables in games</u>** I can define a 'variable' as something that is changeable, variables can hold numbers or letters. I can explain why a variable is used in a program; it is a place holder in memory for a single value. I can choose how to improve a game by using variables. I can design a project that builds on a given example: choosing artwork and creating the algorithm. To use my design to create a project, testing the code that I have written. To evaluate my project I know how to design my game, write the algorithms, create the artwork, test and debug.	
Topic Vocabulary: variable, change, name, value, set, change, event, design, algorithm, code, task, artwork, program, debug, improve, evaluate, share.	
Sequence: **See planning unit**	
Thinking Deeper: Translate coding knowledge to Python and create more complex scenarios.	
Hardware/Software: Laptops, Ipads; Scratch	

Year 5/6 - Creative Media	**Summer Term Year A**

Unit: Video editing
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9
Prior Learning: Early Years/KS1/Lower KS2
Key Essential Skills and sticky knowledge: **<u>Unit 5 Video editing</u>** I can explain that a video can hold visual and audio media. I can plan a video using a storyboard. I can make a recording taking into account light and angles. I can reshot, edit and improve my video and include special effects, title screen and end credits I know how to use Windows Movie Maker and I can edit my video to improve it. I know how to add audio, set my video to music, add a title and credits and change the transition method and length between sections or stills.
Topic Vocabulary: Video, audio, AV, recording, capture, zoom, storage, digital, tape, save, videographer, technique, pan, tilt, Sequence, light, camera, angles, export, lighting, setting, computer, split, edit, timeline, transition, special effects, title screen, end credits, export, constructive, feedback.
Sequence: **See planning unit**
Thinking Deeper: Independently apply skills and knowledge
Hardware/Software: Ipads; IMovie or Laptops; Windows Movie Maker

Year 5/6 – Creative Media	**Summer Term Year A**
Unit: Webpage creation	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 6 Webpage creation</u>** I can explore a webpage and identify the different types of media that are used in its construction and its common features. I can plan a design for a webpage that suits my purpose. I can find suitable images and consider the ownership of these images. I can add Sequence to my page, make edits and preview it on a different device. I can make multiple pages and link them using hyperlinks. I can evaluate my the users experience of a website. I know how to plan and create a web page, adding Sequence and hyperlinks. I know that some images have copyright.	
Topic Vocabulary: Website, web page, browser, media, Hypertext Markup Language (HTML), Website, web page, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implications, external link, embed, copyright, fair use.	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply skills and knowledge	
Hardware/Software: Laptops, Ipads; Google Sites, Microsoft Powerpoint	

Year 5/6 – Computer systems	Autumn Term Year B
Unit: Internet Communication	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower Key Stage 2	
Key Essential Skills and sticky knowledge: **Unit 6 Internet Communication** I can search the web for specific information and identify and compare results from different search engines. I can explain that web crawlers are the digital bots that search the internet for index pages for web address. I can explain web pages are ranked and how search engines make money. I can identify that there are different ways to communicate over the internet I know how to search the internet and that I will get different results from different search engines. I know that web crawlers are digital bots that find what I am looking for. I know how to keep myself safe online and that I should not be sharing personal information. I know that if I am communicating online, that my conversations may not be private. I know how to judge what sort of settings might be relevant to reducing risks and discuss scenarios involving risk I know how to be a good online citizen and friend I know what to do /where to go to seek help if I see something worrying or unexpected.	
Topic Vocabulary: Search, search engine, Google, Bing, Yahoo!, Swisscows, DuckDuckGo, refine Index, crawler, bot, search engine, ranking, search engine, search engine optimisation, links, web crawlers, selection, ranking, communication, internet, public, private, one- way, two-way, one to one, one to many, SMS, email, WhatsApp, blog, YouTube, Twitter, BBC Newsround spam, link, privacy, virus, scam, phishing, inbox, junk, sender, subject, secure, safe, account, online, private, social media, adverts, cyberbullying, reporting, anonymous, victim, fraud/fraudulent, policy, private/personal	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply skills and knowledge	
Hardware/Software: Laptops, iPad	

Year 5/6 - Data and information	**Autumn Term Year B**
Unit: Flat-file Databases	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 5 Flat-file databases</u>** I can create a database, using fields which hold and record the data. I can search a database using 'and' and 'or.' I can apply filters and select an appropriate chart or graph to visually compare data. I can apply my knowledge of a database to ask questions that will need more than one field to answer. I know how to create a database. I know that a databases is a program that is used to store information (attributes) and that you can ask questions (search) a database for answers. I know that you can create graphs and charts to represent your answers.	
Topic Vocabulary: Database, data, information, record, field, sort, order, group, search, criteria, graph, chart, axis, compare, filter, presentation.	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply skills and knowledge for different purposes	
Hardware/Software: Laptops; Just2Easy Database	

Year 5/6 - Programming	**Spring Term Year B**
Unit: Selection in quizzes	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 5 Selection in quizzes</u>** I can explain how selection is used in a program and identify conditions and how to modify them. I can create a program with different outcomes using selection and identify the condition and outcome is an if... then... else statement. I can explain how selection directs the flow of a program I can design and create a program which uses selection: creating the algorithms, running the program and debugging. know how to use scratch to create a quiz. I know how to add a loop.	
Topic Vocabulary: Selection, condition, true, false, outcomes, conditional statement - the linking together of a condition and outcomes-algorithm, program, debug, Task, design, algorithm, input, program, selection, condition, outcomes, test, run, implement, share, evaluate, constructive	
Sequence: **See planning unit**	
Thinking Deeper: Independently apply skills and knowledge for different purposes	
Hardware/Software: Laptop, Ipads; Scratch	

Year 5/6 - Programming	**Spring Term Year B**
Unit: Sensing	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 6 Sensing</u>** I can create a program to run on a controllable device I can explain that selection can control the flow of a program I can update a variable with a user input I can use a conditional statement to compare a variable to a value I can design a project that uses inputs and outputs on a controllable device I can develop a program to use inputs and outputs on a controllable device I know how to control multiple variables on a physical computing device.	
Topic Vocabulary: micro:bit, makecode, input, process, output, flashing, USB, selection, condition, if... then.... Else, variable, random, sensing, accelerometer, compass, direction, design, task, algorithm, step counter, plan, code, test, debug	
Sequence: **See planning unit**	
Thinking Deeper: Begin to translate coding knowledge to Python and create more complex scenarios.	
Hardware/Software: Laptops, Micro:bits; Micro:bits emulator	

Year 5/6 - Creative Media	**Summer Term Year B**
Unit: Vector Drawing	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 5 Vector Drawing</u>** I can use drawing tools to produce different outcomes and for different purposes. I can create a vector drawing by combining shapes and I can move, resize, rotate and duplicate them. I can use tools to achieve a desired effect, for example using the zoom tool to add detail to my drawing. I can create layers bring objects to the front or the back. I can evaluate my vector drawing and say how I might improve it. I know how to create an image using vector drawing. I know how to use a range of tools with in the program.	
Topic Vocabulary: vector, drawing tool, shapes, object, icon, toolbar, move, resize, colour, rotate, duplicate/ copy, organise, zoom, select, alignment grid, handles, consistency, modify, layers, front, back, order, copy, paste, group, ungroup, improvement, evaluate, alternatives, vector drawing.	
Sequence: **See planning unit**	

Thinking Deeper: Independently apply skills and knowledge
Hardware/Software: Laptops; Microsoft Powerpoint/Publisher

Year 5/6 – Creative Media	**Summer Term Year B**
Unit: 3D Modelling	
National Curriculum Link: See TEACH COMPUTING KS2 Teacher Guide p9	
Prior Learning: Early Years/KS1/Lower KS2	
Key Essential Skills and sticky knowledge: **<u>Unit 6 3D Modelling</u>** I can use a computer to create and manipulate three-dimensional (3D) digital objects I can compare working digitally with 2D and 3D graphics I can construct a digital 3D model of a physical object I can identify that physical objects can be broken down into a collection of 3D shapes I can design a digital model by combining 3D objects I can develop and improve a digital 3D model I know how to create a 3D object using a computer program.	
Topic Vocabulary: 2D, 3D, 3D object, 3D space, view, resize, colour, lift, rotate, position, select, duplicate, dimension, placeholder, hole, group, ungroup, design, modify, evaluate, improve	
Sequence: **See planning unit**	
Thinking Deeper: Manipulate the program to create more complex 3D objects.	
Hardware/Software: Laptops; Tinkercad	