COMPUTING CURRICULUM PROGRESSION MAP

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Belthorn Academy Primary School **Computing Curriculum**

Computing intent

Our Computing curriculum at Belthorn Academy aims to:
Our pupils will be provided with a range of fundamental skills and knowledge that will equip them for the rest of their life. They will be exposed to the essential, robust computing curriculum that will enable them to embrace new technology in a safe way. We believe that computing is an essential part of the curriculum and that it is an integral part of learning and should be woven throughout other subjects. We aim for our children to be digitally literate and able to join in to the world's digital platform. One of the biggest impacts we want to have on our children is that they understand how to stay safe online and understand the consequences of using the internet. We want to encourage their confidence and independence in using key life skills within computing whilst introducing careers and life opportunities.

Character Education

Our school values seek to ensure that through our curriculum we teach our children to be ambitious, passionate, kind, confident, happy, safe, valued, resilient and accepting. These values permeate through everything we do as a school.
We promote Character Education through the following:

- Respect: for each other and other viewpoints both off line and when on-line at home and at school
- Ambition: where can technology take us? Learning about the importance of technology in modern society.
- Communication and curiosity: work will enable pupils to question and explore, nurturing their innate curiosity and fuelling a lifelong love for learning.
- Resilience: By embracing challenges, learning from failures, and adopting a growth mindset, students will develop resilience and perseverance, preparing them for future success.
- Self-confidence: knowing how to use technology safely and appropriately.

In addition, we develop character education through the use of visitors, visits and discussions including:
Computing extra-curricular clubs
Entering competitions
Online safety visitors
Safer internet day
Hands on experiences

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Pre- School	Looking at stories on screen and paper	Looking at moving toys	Looking at the internet	Bee-bots and Ipads introduced	Bee-bots Used in CP	Ipads used in CP
Reception	Intro to algorithms – unplugged lessons	Online safety – Project Evolve	JIT – Paint	Bee-bots	JIT – Paint and write	Laptops – turning on, typing etc
Year 1	Computing systems and networks – Technology around us	Creating media – digital painting	Hour of Code A	Data and Information – Grouping Data	Creating media – Digital writing	Hour of Code A
Year 2	Computing systems and networks – IT around us	Creating media – digital photography	Hour of Code B	Data and information – Pictograms	Creating media – Digital music	Hour of Code B
Year 3	Computing systems and networks – Connecting computers	Creating media – stop-frame animation	Hour of Code C	Data and information – branching databases	Creating media – Desktop Publishing	Hour of Code C
Year 4	Computing systems and networks – The Internet	Creating media – Audio Production	Hour of Code D	Data and Information – Data logging	Creating Media – Photo Editing	Hour of Code D

Year 5	Computing systems and networks – systems and researching	Creating Media – Video Production	Hour of Code E	Data and Information – Flat-file databases	Creating Media – Introduction to vector graphics	Scratch
Year 6	Computing systems and networks – communication and collaboration	Creating Media – Web Page Creation	Hour of Code F	Data and information – Spreadsheets	Creating media – 3D modelling	Scratch

Pre-School					
Term	**Unit Name**	**Curriculum Content Skills and knowledge**	**Key vocabulary**	**Authentic outcome**	**Evidence**
Autumn 1		To access the internet with adult supervision as a group Beginning to handle books and touch screen technology carefully when supervised Enjoys drawing and writing on paper, on screen and on different textures, such as in sand or playdough and through using touch-screen technology. Shows interest in toys with buttons, flaps and simple mechanisms and begins to learn to operate them Incorporate cameras and old technology into provision	touch technology screen button safe internet search		Wall displays Photographs Floor book
Autumn 2					
Spring 1					
Spring 2					
Summer 1					
Summer 2					

Reception						
Term	**Unit Name**	**Curriculum Content Skills and knowledge**	**Key vocabulary**	**Authentic outcome**	**Cultural Capital/ SMSC / British Values**	**Evidence**
Autumn 1	**Intro to algorithms Bee-bots**	To give and follow commands (one at a time) to navigate other children Identify errors in verbal instructions Understand that algorithms are series of steps or instructions	Algorithms Instructions Directions		Understand how to use technology safely Learn what is morally correct when using technology Consider potential dangers	Wall displays Photographs Floor book
Autumn 2	**Online safety**	Through art, posters and discussion Know to tell an adult if they see something that upsets them Know the SMART rules and know everything they see is not real Know not to give information about themselves to others	SMART Safe Meet Accept Reliable Tell			
Spring 1	**JIT iPad - Paint**	To know how to use different tools to create different pictures To fill backgrounds, change colours and add pictures by dragging and dropping	Paint Drag and drop Click			
Spring 2	**Hour of Code (pre-reader express)**	To understand how devices respond to demands To understand that algorithms are a series of steps or instructions Plan and generate a sequence of instructions	Algorithms Instructions Directions			

Summer 1	**JIT iPad – write**	Know that technology can be used to communicate Use keyboard on iPads to add captions/text Use backspace, space, delete correctly Choose a correct background that matches text	Drag Drop Click Type Select Keyboard	to retell a story as a collective group		
Summer 2	**2Paint – paint for art**	Develop the use of shape, line and colour to communicate a specific idea or artistic style through use of brushes, pens, lines, fill Understand the difference between a graphics package and paper-based art activities Understand the needs and variety of tools in graphic packages and what their purposes are	Drag Drop Design Rotate Tools			

Year 1						
Term	**Unit Name**	**Procedural Knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computing Systems and Networks – technology around us**	Be able to save and retrieve to amend To organise and name files appropriately Develop correct use of keyboard including shift and enter keys to be able to recognise common uses of information technology beyond school	Understand that files can be retrieved to edit Know that different programmes do different things Know the importance of giving files appropriate names Understand how files are stored and ordered	Save Retrieve Edit Programme Files Keyboard		Understand the advantages of technology Know how to use technology safely and appropriately Understand how technology is shaping the world we know today Safer Internet Day Video links to support learning
Autumn 2	**Creating Media – Digital Painting**	Use technology purposefully to create, organise, store, manipulate and retrieve digital content Develop use of drag, drop and click and have increasing control Select colours and refine the shape, line and colour to communicate an idea Talk about their graphics package and their choice of tools	Know what the term multimedia means Understand the use of different fonts, sizes and styles for different purposes	Detail Lines Fill Spray	To create an image linked to history unit to display	

Spring 1	**Hour of Code A**	Plan, generate and follow a sequence of instructions (in real life and on screen) to make something happen Solve given tasks by creating a simple program Use logical reasoning to make predictions and describe the effects Identify errors (bugs)	Know that coding is writing instructions in a way that a computer can interpret them to make a programme Know that when there is an error it is called a bug and that they can debug it by fixing it Understand prediction and trial and error are important	Algorithms Symbols Bug Debug		
Spring 2	**Data and Information – Grouping Data**	Develop classification skills by carrying out sorting activities Use simple graphing software to produce basic tables/ charts Interpret data, discuss the information and answer simple questions Sort items by asking simple yes/no questions	Understand that IT can be used to sort items and information Understand that IT can be used to create and display charts and graphs Begin to understand that unless data has been entered accurately it cannot be used to provide correct answers	Data Logging Sort Items Information Charts Graphs		
Summer 1	**Creating Media – Digital writing**	Develop correct use of keyboard Including shift key for capital letters Add captions to photos and graphics Make simple changes to text e.g. font, style, colour To click two buttons at once to screenshot To be able to print work directly	Know that text can be different colours, sizes and styles Understand that the mood of a piece can be easily changed through use of text and graphics Begin to understand that images, sounds and text can be subject to copyright	Text Keyboard Shift Caption Comment Copyright		
Summer 2	**Hour of Code A**	Continued from Autumn 2	Continued from Autumn 2	Continued from Autumn 2	Continued from Autumn 2	

Knowledge continuous throughout the key stage
▪ Know what it means to use technology safely. ▪ Understand what is meant by personal information. ▪ Understand how to keep personal information safe online. ▪ Know the rules for keeping safe online. ▪ Understand that personal information, e.g. email address, usernames, passwords, home address or telephone number should not be shared, either online or offline, without a trusted adult's permission. ▪ Know that they should not ask to meet anybody from the online world in the offline world. ▪ Know and abide by the school's rules for keeping safe online (age appropriate). ▪ Understand that technology should be used respectfully. ▪ Know where to go for help and support when they have concerns about content they have seen on the internet or other technologies. Know where to go for help and support when they have concerns about contact on the internet or other technologies.

Year 2						
Term	**Unit Name**	**Procedural Knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computing systems and networks - IT Around Us**	Can show how to use technology safely Identify features and types of information technology beyond school	Understand different types of computers and technology and how they are used Able to recognise the features of information technology Understand how information technology can benefit us Understand how rules can help us and that choices are made when using information technology	Information Technology Features Safety Choices		Understand how technology is advancing and how it can support learning use internet to learn about news and information understand how to stay safe on the internet Know how technology is progressing Safer Internet Day Video links to support learning
Autumn 2	**Creating media – digital photography**	To make changes to images e.g. cropping Take pictures with a still camera and capture still and moving images	Know that there are various ways of capturing still and moving images Understand the need to frame an image or scene and keep the camera still Know how to take images appropriately and responsibly Know how to take photos responsibly and appropriately and with consent	Portrait Landscape Still Focus Zoom Crop		

Spring 1	**Hour of Code B**	Create and debug simple programs Use logical reasoning to predict behaviours of simple programs Explore and create sequences on a device To use repeat button to complete sequences easier	Understand that coding is how games work Understand what debugging is and begin to develop strategies to find bugs Understand there are different ways to create and produce a sequence of commands	Debug Bug Repeat Algorithm		
Spring 2	**Data and Information – Pictograms**	Use a tally chart to collect data Compare objects that have been grouped by attribute Develop classification skills by sorting Construct given comparison questions Use computer program to present information in different ways Create simple basic tables, charts and graphs Enter data correctly Interpret graphs, discuss the information and answer simple questions Explain that we can present information using a computer	Understand that IT can be used to sort items and information. Understand that IT can be used to create and display charts and graphs. Develop an understanding of what data logging can be used for (Science). Understand that IT can be used to add to and change charts and graphs quite easily. Begin to understand that unless data has been entered accurately it cannot be used to provide correct answers to questions.	Data Tally Chart Bar Graph Attribute Organise Present	Link to DT unit to gather information regarding their product	

		Give simple reasons to why information should not be shared				
Summer 1	**Creating Media – Digital Music**	Explore a range of electronic music and sound devices and software. Be able to listen to and to select a sound from a bank of pre-recorded sounds. Use sound recorders, both at and away from the computer, to record and playback sounds e.g. voices, instruments, environmental sounds. Use software to explore and create sound and musical phrases for a purpose. Use basic editing tools to change recorded sounds (speed up, slow down, reverse, echo) to alter the mood or atmosphere Use recorded sound files in other software applications. Be able to save sound files.	Understand that most devices have stop, record and playback functions Be aware that sound can be recorded and stored on the computer Know what the term multimedia means	Multimedia Sound Playback Record Speed Reverse Echo		

		Be able to share recordings with a known audience.				
Summer 2	Hour of Code B	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	

Knowledge continuous throughout the key stage

- Know what it means to use technology safely.
- Understand what is meant by personal information.
- Understand how to keep personal information safe online.
- Know the rules for keeping safe online.
- Understand that personal information, e.g. email address, usernames, passwords, home address or telephone number should not be shared, either online or offline, without a trusted adult's permission.
- Know that they should not ask to meet anybody from the online world in the offline world.
- Know and abide by the school's rules for keeping safe online (age appropriate).
- Understand that technology should be used respectfully.
- Know where to go for help and support when they have concerns about content they have seen on the internet or other technologies.

Know where to go for help and support when they have concerns about contact on the internet or other technologies.

Year 3						
Term	**Unit Name**	**Procedural Knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computing systems and networks – connecting computers**	Identify input and output devices Explain that a computer system accepts an input and processes it to produce an output Explain how a computer network can be used to share information Explain the role of a switch, server and wireless access points in a network	Develop understanding of digital devices, including inputs, processes and outputs Understand that a digital device is made up of several parts Recognise that computers can be connected to each other Know a range of ways that computer networks can be used for communication	Inputs Outputs Processes Digital Non-digital Network Routers Switches		Understand how technology has developed communication To communicate safely using technology Use the internet appropriately to research Understand how it will support them In further life Safer Internet Day Video links to support learning Assembly to parents regarding Online Safety
Autumn 2	**Creating media – Stop-frame animation**	Use a range of devices to capture still and moving images for a purpose Be able to 'resize' images Import music and stills into video editing software for a specific project Arrange, trim and cut clips Create a storyboard and then use captured images to create a short animated sequence which communicates a specific idea	Understand how animations are used to enhance a presentation Understand that planning is a pivotal part of the design process Understand that still images are used in animations Understand how to take images appropriately Understand how sound can be used to create effect	Animation Still Image Repetition Frame rate Thumbnails	Link to Stone Age	

		Explain that an animation is made up of a sequence of images Discuss and evaluate the quality of their own and others' captured images and make decisions whether to keep, delete or change them.	To understand that a capturing device needs to be in a fixed position Understand that smaller movements create smoother animation Understand that a project must be exported before being shared			
Spring 1	**Hour of Code C**	Write and design programs that accomplish specific goals Read what a sequence in a program does Work with various forms of input eg. repeats and loops Debug programs through self and peer assessment Test and evaluate to solve problems Use logical reasoning to detect and correct errors	Understand how to plan and write programs Know what debugging is and how it can be used Understand that evaluation is an essential process Be aware that every day objects use sensors and outputs Understand how to logically reason to detect and correct errors	Loops Repeat Input Output		
Spring 2	**Data and information – branching databases**	Create branching databases Use yes/no questions to gain an understanding of what attributes are and how to use them to sort objects of groups Create a database to organise and analyse information to answer questions Use a database to answer straightforward questions	Understand what a branching database is and how to create one Understand that there are different types of data. Understand the need to structure information properly in a database. Know, understand and use the vocabulary: file, record, field,	Branching database Data Retrieve Interpret Structure Record Classify Sort	Collect data from teachers and other classes to create spreadsheets	

		Select and use the most appropriate method for organising and presenting data Retrieve information from different levels of branching databases	sort and search. Recognise similarities and differences between ICT and paper-based systems. Talk about the advantages of using IT to sort, interrogate and classify information quickly. Understand that effective yes / no questions are key to organising data efficiently in a branching database.			
Summer 1	**Creating media – desktop publishing**	Use different font sizes, colours and effects to communicate meaning for a given audience. Use various layouts, formatting, graphics and illustrations for different purposes or audiences. Use various software tools to complete a project, problem or task. Use page setup to select different page sizes and orientations. Use cut, copy and paste to refine and re-order content. Combine and use various software tools to complete a project, problem or task.	Recognise the features of good page design and multimedia presentations. Consider how design features meet the needs of the audience e.g. poster, news paper, menu, instructions. Understand that some tasks and problems require a variety of software tools to accomplish them Understand that evaluation and improvement are vital parts of the design process and that ICT allows changes to be made quickly and efficiently. Demonstrate this through editing their work			

		Use appropriate editing tools to ensure their work is clear and error free, e.g. spell checker, thesaurus, find and replace.				
Summer 2	**Hour of Code C**	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	

Knowledge continuous throughout the key stage

- Know how to use technology responsibly.
- Understand that online actions can impact on other people.
- Understand the need to keep personal information and passwords private in order to protect themselves when communicating online.
- Know how to respond if asked for personal details or in the event of receiving unpleasant communications
- Understand the risks posed by the internet relating to contact e.g. bullying, grooming.
- Know a range of ways to report concerns about contact and content
- Understand the risks posed by the internet relating to content e.g. violent and biased websites.
- Understand the school's acceptable use policy.
- Understand what acceptable and unacceptable online behaviour is.
- Recognise that cyber bullying is unacceptable and will be sanctioned according to the school's policies and procedures, know how to report cyberbullying
- Understand the risks involved in arranging to meet and subsequently meeting anybody from the online world in the offline world.
- Know what images are suitable to include in an online profile and ensure that appropriate permissions have been obtained,

Understand the need for certain rules of conduct particularly when using live forms of communication

Know the school's rules for keeping safe online and be able to apply these beyond school.

Year 4						
Term	**Unit Name**	**Procedural knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computing systems and networks – the internet**	Search the web safely and appropriately Explain that the internet enables us to view the world wide web Describe the current limitations of world wide web media Use computer networks including the internet Understand how the internet provides services Use search technologies effectively	Apply knowledge of networks to appreciate the internet as a network of networks Understand which content is appropriate to access, add to and edit	Internet Networks Content Services Search		Communicate socially using technology safely, at school and at home Consider the potential dangers of using the internet Learn what is morally correct, at school and home Understand how technology has developed communication between cultures and countries Assembly to parents regarding Online Safety
Autumn 2	**Creating media – audio production**	Identify the input device (microphone) and output devices (speaker and headphones) required to work with sound digitally Use Audacity to produce a podcast Locate and use sound files from online sources, e.g. Audio Networks, and other	Understand the ownership of digital audio and copyright implications Talk about software which allows the creation and manipulation of sound and music. Understand that many types of sounds can be combined in editing	Sound Multimedia Audio Copyright Software Podcast Record Edit Refine Sequence	Produce a podcast	

		multimedia resources. Select, import and edit existing sound files in sound editing software, e.g., Audacity. Use editing tools to refine and improve outcomes and performances. Use recorded sound files in other software applications. Be able to share sound recordings with a wider audience. Use music software to experiment with capturing, repeating and sequencing sound patterns. Use ICT to create and perform sounds or music that would otherwise not be possible in a live situation, e.g., editing a multi-part piece.	software. Understand how sound can be used in multimodal texts to create meaning and provide effects. Understand that copyright exists on most recorded music.	Repeat		Hands on experiences Eg. Makey Makeys Safer Internet Day Video links to support learning

Spring 1	**Hour of Code D**	Continue to : Write and design programs that accomplish specific goals Debug and correct programs through peer and self-assessment Work with various forms of inputs/outputs Set up events, measures and properties within a program Use logical reasoning when creating and fixing sequences	Know the difference between inputs and outputs Know that a range of inputs / outputs can be used Understand that computers can collect data from various inputs Understand how to use logical reasoning Understand what the terms sequence, repetition and selection mean	Sequence Repetition Inputs Outputs Selection		
Spring 2	**Data logging**	Create frequency diagrams and graphs to answer questions. Begin to identify what data should be collected to answer a specific question. Use data loggers to capture, record and analyse data continuously over time, including sound, temperature and light. (Science) Use a data logger to 'snap shot' a series of related but separate readings in the course of an appropriate investigation. (Science)	Understand that data loggers can be used to sense external and physical changes and subsequently collect data in a range of simple investigations. (Science) Understand that data can be collected more efficiently by a data logging device compared with manual methods. (Science) Know that data logging devices can be pre-programmed to collect data for a given time and on different triggers and remotely for a long period of time. (Science).	Data Sensors Capture Input Output Variables		

Summer 1	**Creating Media – photo editing**	Discuss and evaluate the quality of their own and others' captured images and make decisions whether to keep, delete or change them Be able to 'resize' images (pixels, resolution, aspect ratio and dimensions). Be able to use basic tools in a software package to change images according to purpose. Add to the composition of an existing image To adjust colours, rotate, flip, crop, add filters, apply effects to an image Understand the difference between natural and edited images Evaluate the effectiveness of their choices	Develop understanding of how digital images can be changed and edited and how they can be saved and reused Understand the impact that editing photos can have Know how to take images appropriately and responsibly Understand that copyright exists on most digital images and video about the impact of choices and decisions in their work	Edit Composition Contrast Brightness Vibrancy Filters Effects Exposure	Photo campaign linked to create question eg littering.	
Summer 2	**Hour of Code D / makey-makeys**	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	

Knowledge continuous throughout the key stage

- Know how to use technology responsibly.
- Understand that online actions can impact on other people.
- Understand the need to keep personal information and passwords private in order to protect themselves when communicating online.

- Know how to respond if asked for personal details or in the event of receiving unpleasant communications
- Understand the risks posed by the internet relating to contact e.g. bullying, grooming.
- Know a range of ways to report concerns about contact and content
- Understand the risks posed by the internet relating to content e.g. violent and biased websites.
- Understand the school's acceptable use policy.
- Understand what acceptable and unacceptable online behaviour is.
- Recognise that cyber bullying is unacceptable and will be sanctioned according to the school's policies and procedures, know how to report cyberbullying
- Understand the risks involved in arranging to meet and subsequently meeting anybody from the online world in the offline world.
- Know what images are suitable to include in an online profile and ensure that appropriate permissions have been obtained,

Understand the need for certain rules of conduct particularly when using live forms of communication

Know the school's rules for keeping safe online and be able to apply these beyond school.

Year 5						
Term	**Unit Name**	**Procedural Knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computer systems and networks – Systems and searching**	Explain the input, output and processes aspects of a variety of different real-world systems Recognise that a system is a set of interconnected parts which work together Describe the role of a particular IT System Demonstrate that different search terms produce different results To explain how search results are created and their limitations	Develop their understanding of computer systems and how information is transferred between systems and devices	Search results Terms IT system Interconnected Networks Data		Understand how technology can support in later life, including job opportunities Understand the potential dangers of internet Know what is safe Assembly to parents regarding Online Safety Hands on experiences Eg. Makey Makeys Safer Internet Day Video links to support learning Digital Leaders after school club
Autumn 2	**Creating media – video production**	Design, create, manage and manipulate Make effective use of transitions and animations in presentations. Consider their appropriateness and overall effect on the audience. Independently select, process and import images, video and sounds from a variety of sources to enhance work	Understand the importance of evaluation and adaptation of individual features to enhance an overall presentation. Understand that images, sounds and text can be subject to copyright and abide by copyright rules	Production Scenes Motion graphics Special effects Bit rate Shot Cut Trim Overlay	Video linked to topic question to show in assembly	

		Make use of transitions and special effects in video editing software, understanding the effect on the audience.	Discuss and evaluate own and others' images and movies, refining for given audience or task.			
Spring 1	**Hour of Code E**	Use repetition and selection in programs Use variables in programs Design and create programs using decomposition Design programs to accomplish specific tasks or goals Use logical reasoning Design test and refine programs	Know the meaning of key terms selection, variables and decomposition Know that programs can be represented in different formats Understand the need for precision Understand how experiences of programming relate to control systems in real world	Selection Variables Decomposition Sequence		
Spring 2	**Data and Information – Flat file databases**	Explain that a computer program can be used to organise data Outline how ordering data allows us to answer some questions Outline how 'and' and 'or' can be used to refine data selection Discuss how IT enables you to search and sift through large amounts of different types of information and	Recognise the need for accuracy when designing, entering and interrogating data and how this will affect the quality of information gained. Recognise the consequences of using inaccurate data and relate to the outside world, e.g. police, doctors, banks, school	Field Record Data Sort Group		

		describe the advantages of using the tools Check the reliability of the data; identify and correct inaccuracies Construct, refine and interpret bar charts, scatter graphs, line graphs and pie charts. Search data according to more than one criterion. Present data to a specified audience and display findings in other software, e.g. through presentation software. Compare different charts and graphs, e.g., in tables, frequency diagrams, pictograms, bar charts, databases or spreadsheets and understand that different ones are used for different purposes	databases. . Understand which searches and graph types are relevant to a specific problem and types of information. Understand that there are different types of data, e.g., numeric, alphabetic, date, alphanumeric, currency.			
Summer 1	**Creating media – introduction to vector graphics**	Start to create vector drawings Learn how to use different drawing tools to help them create images Layer their objects and begin grouping and duplicating them to support the creation	Recognise that images in vector drawings are created using shapes and lines, and each individual element in the drawing is called an object. Understand that vector graphics can be scaled	Vector Graphics Objects Layers Scale Elements	Final piece linked to create question	

		of more complex pieces of work Create each object in a drawing in its own layer	without affecting quality			
Summer 2	**Hour of Code B / Scratch**	Continue from Spring 1	Continue from Spring 1	Continue from Spring 1	Continue from Spring 1	

Year 6						
Term	**Unit Name**	**Procedural knowledge**	**Knowledge**	**Key vocabulary**	**Authentic Outcome**	**Cultural Capital/ SMSC / British Values**
Autumn 1	**Computing systems and networks – communication and collaboration**	To recognise that data is transferred across networks using agreed protocols (methods) Complete a collaborative online project Modify others work within the bounds of copyright and with relevant permissions Can evaluate the best forms of communication for different situations	Understand how data is transferred over the internet Understand how the internet facilitates online communication and collaboration Know how to stay safe and communicate responsibly considering what should and should not be shared on the internet Explain that data is transferred in packets Discuss opportunities that technology offers for communication and collaboration	Communication Networks Packet Transfer Shared access		Understand how technology can support in later life, including job opportunities Understand the potential dangers of internet Know what is safe Assembly to parents regarding Online Safety Hands on experiences Eg. Makey Makeys Safer Internet Day Video links to support learning Digital Leaders after school club
Autumn 2	**Creating media – web page creation**	Upload and download projects to other devices and online space e.g. VLE, blog or website, collaborating and communicating with audiences in locations beyond school.	Recognise the features of good design in different printed and electronic texts, (e.g. a poster, website, presentation). Talk about design in the context of own work.	Webpage Website Images Videos Hyperlinks Media Aesthetics	The children will create their own website that will use a variety of tools to convert their learning. The children will link their work to	

		Develop and use criteria to evaluate design and layout of a range of resources including web sites, pages on VLE, online resources and presentations Evaluate design and layout of a range of resources including web sites, pages on VLE, online resources and presentations. Format and edit work to improve clarity and purpose using a range of tools, e.g. cut and paste, justify, tabs, insert and replace Make effective use of transitions and animations in presentations. Consider their appropriateness and overall effect on the audience. Independently select, process and import images, video and sounds from a variety of sources to enhance work. Develop the use of hyperlinks to produce more effective, interactive, non-linear presentations. Use of hyperlinks to produce more effective, interactive, non-linear presentations.	To recognise that web pages can contain different media types To recognise that a webpage Is a set of hyperlinked web pages To consider copyright and use of images Recognise the need to preview pages and for a navigation path	Navigation paths	their website and update it constantly with a focus on audience and purpose and ways to make their website more engaging. Linked to Discover question	

		Develop consistency across a document - same style of font, colour, body text size, etc. Select suitable text, sounds and graphics from other electronic sources, and import into own work				
Spring 1	**Hour of Code F**	Use repetition and selection in programs. Use variables in programs. Design and create programs using decomposition. Design programs to accomplish specific tasks or goals. Use logical reasoning to develop systematic strategies that can be used to debug algorithms and programs. Use procedures in programs. Design, test and refine programs to control robots or floor turtles taking account of purpose and needs. Use programming software to create simulations.	Know the meaning of the key terms: – selection. – variables. – decomposition. Know the meaning of logical reasoning. Understand what a procedure is and why it is important in programs. Know that programs can be represented in different formats including written and diagrammatic. Understand the need for precision when creating sequences to ensure reliability. Understand how experiences of programming / control relate to control systems in the real world.	Selection Variables Decomposition Sequence		

			Understand that there are often different ways to solve the same problem or task Understand that programming software can create simple and complex simulations			
Spring 2	**Data and information – Introduction to spreadsheets**	Use functions to create new data Calculate using formatting Use existing cells within a formula Choose suitable ways to present spreadsheet data Explore the effects of changing variables in models and simulations in order to solve a problem. Make and test predictions. Enter formulae into a pre-prepared spreadsheet - explore the effects of changing variables. Develop simple spreadsheet models to investigate a real life problem. Create simple spreadsheet models to investigate a real life problem. Identify and enter the correct formulae into cells. Make predictions of the	Understand when and where it is appropriate to use a spreadsheet model or a simulation to support an investigation and explain their choices. Understand that spreadsheets can automate functions, making it easier to test variables, e.g. when planning a budget you can change the number of items and see the changes to total cost. Understand that spreadsheets can be used to explore mathematical models. Understand the need for accuracy and frequent checking when entering formulae.	Columns Rows Spreadsheets Format Calculations Formulas Cells Variables		

		outcome of changing variables.	Understand the possible consequences of using inaccurate data or formulae.			
Summer 1	**Creating media – 3D modelling**	Use a computer to produce 3D models Work in a 3D space, moving, resizing and duplicating objects Create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy Plan, develop and evaluate their 3D model of a building	Examine the benefits of grouping and ungrouping 3D objects Recognise you can work in three dimensions on a computer	Lift Lower Duplicate Group Placeholders		
Summer 2	**Hour of code F / Scratch**	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	Continued from Spring 1	