Stimpson Avenue Academy
Computing Curriculum

East Midlands Academy Trust

Data Handling	E-Safety	Multimedia	Programming	Technology in our lives	ICT Skills

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	**Unit 1.1 - We are treasure hunters** *The children will program a toy to move around a map to find buried treasure. They will start by thinking of algorithms for their routes, then input these as stored programs for the robot. They predict how the robot will move and will debug their programs.*	**Unit 2.1 - We are astronauts** *The children will build on work from Unit 1.1 – We are treasure hunters to program a sprite (such as a spaceship) to move around the screen. This unit acts as a springboard for programming in Year 3.*	**Unit 3.1 - We are programmers** *The children create an animated cartoon using characters they design. They use a paint tool to create characters and backgrounds. They then create an animation by translating a storyboard into a series of scripted instructions (program) for graphic objects.*	**Unit 4.1 - We are software developers** *The pupils start by playing and analysing educational computer games, identifying those features that make a game successful. They then plan and design a game, with a clear target audience in mind. They create a working prototype, and then develop it further to add functionality and improve the user interface. They test their game and make any necessary changes.*	**Unit 5.1 - We are game developers** *The pupils plan their own simple computer game. They design characters and backgrounds, and create a working prototype, which they develop further based on feedback they receive.*	**6.1 We are app planners** *The pupils learn about the capabilities of websites, think of a subject that a website could inform about or engage somebody with, and then pitch the idea for their website.*
Autumn 2	**Unit 1.2 We are TV chefs** *Pupils produce short videos of themselves making a healthy meal or snack. They also decompose a complex problem into smaller parts – an important idea from computer science.*	**Unit 2.2 We are games' testers** *Pupils will try to work out how some simple Scratch games work. They also look at free online or open source games and share their favourite games with the class.*	**Unit 3.2 We are bug fixers** *The children work with six example Scratch projects. They explain how the scripts work, finding and correcting errors in them, and explore creative ways of improving them. The children learn to recognise some common types of programming error, and practise solving problems through logical thinking.*	**Unit 4.2 We are toy designers** *The children work together to design a simple toy that incorporates sensors and outputs and then create an on-screen prototype of their toy in Scratch. Finally, they pitch their toy idea to a Dragons' Den-style panel.*	**Unit 5.2 We are cryptographers** *The pupils learn more about communicating information securely through an introduction to cryptography (the science of keeping communication and information secret). They investigate early methods of communicating over distances, learn about two early ciphers, and consider what makes a secure password.*	**Unit 6.2 - We are project managers** *Pupils work collaboratively to develop a website. Pupils apply computational thinking to the task of managing a complex project.*
Spring 1	**Unit 1.3 We are painters** *This unit allows children to create digital illustrations for familiar stories and understand the difference between a print and a digital picture.*	**Unit 2.3 We are photographers** *The children review photos online, practise using a digital camera, take photos to fit a given theme, edit their photos, and then select their best images to include in a shared portfolio.*	**Unit 3.3 We are presenters** *This unit gives children a chance to make a short, narrated video of themselves practising a sport or other skill, and to use this to help improve their performance.*	**Unit 4.3 We are musicians** *The children produce music suitable for any purpose they choose, such as music inspired by the sounds of the Rainforest.*	**Unit 5.3 We are artists** *The pupils use vector and turtle graphics to explore geometric art, taking inspiration from the work of Escher, Riley and traditional Islamic artists, as well as experimenting with complex 'fractal' landscapes.*	**Unit 6.4 We are interface designers** *The children will start to design the look/feel of their website's main interface. They begin by sketching ideas, planning the different screen layouts for the pages and developing these using a site mapping tool.*
Spring 2	**Unit 1.4 We are collectors** *The pupils will use web search engines to collect pictures of different types of animals and then explore ways in which those pictures can be organised.*	**Unit 2.4 We are researchers** *The children research a topic – safely, effectively and efficiently – using a structured approach (mind mapping). They share their findings with others through a short multimedia presentation.*	**Unit 3.4 We are network engineers** *The pupils investigate how computer networks work. They use a simulation and learn some simple command prompt (C:) tools for testing network connections.*	**Unit 4.4 We are html editors** *The children learn about the history of the web, before studying HTML (hypertext mark-up language), the language in which web pages are written. They learn to edit and write HTML, and then use this knowledge to create a web page.*	**Unit 5.4 We are web developers** *The pupils work together to create a website explaining e-safety and responsible online behaviour.*	**Unit 6.3 We are market researchers** *The pupils conduct research into the potential market for their website, using an online survey together with interviews or focus groups. They analyse the data and information they obtain and create a presentation summarising their findings.*
Summer 1	**Unit 1.5 We are storytellers** *In this unit, the children create a talking book that they can share with others.*	**Unit 2.5 We are detectives** *In this unit, the children are challenged to solve a mystery by reading, sending and replying to emails, and by listening to a witness statement. They use a fact file sheet to create a table and identify the culprit.*	**Unit 3.5 We are communicators** *This unit allows the children to learn about a number of e-safety matters in a positive way. They will work with a partner in another class, learning how to use email and video conferencing safely.*	**Unit 4.5 We are co-authors** *In this unit, the pupils collaborate to create a 'mini Wikipedia'. They then go on to add or amend content on the real Wikipedia.*	**Unit 5.5 We are bloggers** *In this unit, pupils create a media-rich blog, comment on blogs and respond to comments.*	**Unit 6.5 We are mobile app developers** *In this unit, the pupils draw on their work from the previous Year 6 units to create a working app. They write down their algorithms and use a programming toolkit to code them.*
Summer 2	**Unit 1.6 We are celebrating** *In this unit, pupils will have the opportunity to create a digital greetings card, which could be used for a religious festival such as Diwali or Christmas, pupils' birthdays, or simply to say thank you or good luck.*	**Unit 2.6 We are zoologists** *In this unit, the children go on a bug hunt, recording and identifying the small animals they find. They then organise the data they have collected, record it using a graphing package, and interpret the graph to answer questions about the animals.*	**Unit 3.6 We are opinion pollsters** *In this unit, the children create their own opinion poll, seek responses, and then analyse the results.*	**Unit 4.6 We are meteorologists** *This unit brings together data measurement, analysis and presentation, as the children take on the role of meteorologists and weather presenters.*	**Unit 5.6 We are architects** *In this unit, the pupils research examples of art gallery architecture, before using Trimble SketchUp to create their own virtual gallery. Finally, they use the gallery to exhibit their own artwork.*	**Unit 6.6 We are marketers** *The pupils work collaboratively to produce marketing materials for the app they have been developing in the Year 6 units. They create a poster or flyer and shoot a short video.*

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Year 1

				Aut		Spr		Sum		Key Vertical Computing Links	Horizontal/Diagonal Links
				1	2	1	2	1	2		
	Programming and Computational Thinking	We are treasure hunters	Understand that a programmable toy can be controlled by inputting a sequence of instruction							**EYFS Technology** Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.	**Year 1 English Autumn 1** **Narrative** Traditional tales with predictable phrasing – oral and written sentences
			Develop and record sequences of instructions as an algorithm								
			Program the toy to follow their algorithm								
			Debug their programs								
			Predict how their programs will work								
		We are TV chefs	Break down a process into simple, clear steps, as in an algorithm							**Year 1 Autumn 1** Understand that a programmable toy can be controlled by inputting a sequence of instruction. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work.	**Year 1 English Autumn 2** **Poetry** Playground rhymes and songs – performance of poems learned by heart
			Use different features of a video camera								
			Use a video camera to capture moving images develop collaboration skills								
			Discuss their work and think about how it could be improved								
	Creativity	We are painters	Use the web safely to find ideas for an illustration							**EYFS Technology** Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. **EYFS Exploring and using media and materials** Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. **EYFS Being imaginative** Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories. **EYFS Moving and Handling** Children show good control and coordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing. **EYFS Understanding** Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.	**Year 1 English Spring 1** **Narrative** Classic stories which reflect childhood experiences – illustrated sentences, retelling the events of a story **Non-Fiction** Description/report of personal experience – journal/diary
			Select and use appropriate painting tools to create and change images on the computer								
			Understand how this use of ICT differs from using paint and paper								
			Create an illustration for a particular purpose								
			Know how to save, retrieve and change their work								
			Reflect on their work and act on feedback received								
	Computer Networks	We are collectors	Find and use pictures on the web								
			Know what to do if they encounter pictures that cause concern								
			Group images on the basis of a binary 1 (yes/no) question								
			Organise images into more than two groups according to clear rules								
			Sort (order) images according to some criteria								
			Ask and answer binary (yes/no) questions about their images								
	Communication / Collaboration	We are storytellers	Use sound recording equipment to record sounds								**Year 1 English Summer 1** **Narrative** Contemporary Animal Stories – a short story which innovates on one that's been read **Poetry** Animal Poems – rhyming couplets about animals
			Develop skills in saving and storing sounds on the computer								
			Develop collaboration skills as they work together in a group								
			Understand how a talking book differs from a paper-based book								
			Talk about and reflect on their use of ICT								
			Share recordings with an audience								
	Productivity	We are celebrating	Develop basic keyboard skills, through typing and formatting text							**Year 1 Spring 1** Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer. Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose Know how to save, retrieve and change their work. Reflect on their work and act on feedback received.	**Year 1 English Summer 2** **Narrative** Stories with royal characters – an original short story **Non-Fiction** Information both real and imagined (royalty) – character profile
			Develop basic mouse skills								
			Use the web to find and select images								
			Develop skills in storing and retrieving files								
			Develop skills in combining text and images								
			Discuss their work and think about whether it could be improved								

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Year 2

				Aut		Spr		Sum		Key Vertical Computing Links	Horizontal/Diagonal Links
				1	2	1	2	1	2		
	Programming and Computational Thinking	We are astronauts	Have a clear understanding of algorithms as sequences of instructions							**Year 1 Autumn 1** Understand that a programmable toy can be controlled by inputting a sequence of instructions. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work.	
			Convert simple algorithms to programs								
			Predict what a simple program will do								
			Spot and fix (debug) errors in their programs								
		We are games' testers	Describe carefully what happens in computer games							**Year 2 Autumn 1** **Year 1 Autumn 1** Understand that a programmable toy can be controlled by inputting a sequence of instructions. Develop and record sequences of instructions as an algorithm. Program the toy to follow their algorithm. Debug their programs. Predict how their programs will work.	
			Use logical reasoning to make predictions of what a program will do								
			Test these predictions								
			Think critically about computer games and their use								
			Be aware of how to use games safely and in balance with other activities								
	Creativity	We are photographers	Consider the technical and artistic merits of photographs							**Year 1 Spring 1** Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer. Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose. Know how to save, retrieve and change their work. Reflect on their work and act on feedback received.	**Year 2 English Spring 1** **Narrative** Picture books – illustrated story **Poetry** Non-fiction Journals (seed growth) – plant growth diary/journal
			Use a digital camera or camera app								
			Take digital photographs								
			Review and reject or pick the images they take								
			Edit and enhance their photographs								
			Select their best images to include in a shared portfolio								
	Computer Networks	We are researchers	Develop collaboration skills through working as part of a group							**Year 1 Spring 2** Find and use pictures on the web. Know what to do if they encounter pictures that cause concern. Group images on the basis of a binary 1(yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria. Ask and answer binary (yes/no) questions about their images.	**Year 2 English Spring 2** **Non-Fiction** Instructions (safety in the home) - Safety information booklet
			Develop research skills through searching for information on the internet								
			Improve note-taking skills through the use of mind mapping								
			Develop presentation skills through creating and delivering a short multimedia presentation								
	Communication / Collaboration	We are detectives	Understand that email can be used to communicate							**Year 1 Summer 1** Use sound recording equipment to record sounds. Develop skills in saving and storing sounds on the computer. Develop collaboration skills as they work together in a group. Understand how a talking book differs from a paper-based book. Talk about and reflect on their use of ICT. Share recordings with an audience.	
			Develop skills in opening, composing and sending emails								
			Gain skills in opening and listening to audio files on the computer								
			Use appropriate language in emails								
			Develop skills in editing and formatting text in emails								
			Be aware of e-safety issues when using email								
	Productivity	We are zoologists	Sort and classify a group of items by answering questions							**Year 1 Spring 2** Find and use pictures on the web. Know what to do if they encounter pictures that cause concern. Group images on the basis of a binary 1(yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria. Ask and answer binary (yes/no) questions about their images.	**Year 2 Maths Autumn 2** Interpret and construct simple pictograms, tally charts, block diagrams and tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. Ask-and-answer questions about totalling and comparing categorical data
			Collect data using tick charts or tally charts								
			Use simple charting software to produce pictograms and other basic charts								
			Take, edit and enhance photographs								
			Record information on a digital map								

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Year 3

				Aut		Spr		Sum		Key Vertical Computing Links	Horizontal/Diagonal Links
				1	2	1	2	1	2		
	Programming and Computational Thinking	We are programmers	Create an algorithm for an animated scene in the form of a storyboard							**Year 2 Autumn 1** Have a clear understanding of algorithms as sequences of instructions. Convert simple algorithms to programs. Spot and fix (debug) errors in their programs. **Year 2 Autumn 2** Use logical reasoning to make predictions of what a program will do. Think critically about computer games and their use.	
			Write a program in Scratch to create the animation								
			Correct mistakes in their animation programs								
		We are bug fixers	Develop a number of strategies for finding errors in programs							**Year 3 Autumn 1** Write a program in Scratch to create the animation. Correct mistakes in their animation programs. **Year 2 Autumn 2** Describe carefully what happens in computer games. Use logical reasoning to make predictions of what a program will do. Test these predictions. Think critically about computer games and their use. Be aware of how to use games safely and in balance with other activities.	
			Build up resilience and strategies for problem solving								
			Increase their knowledge and understanding of Scratch								
			Recognise a number of common types of bug in software								
	Creativity	We are presenters	Gain skills in shooting live video, such as framing shots, holding the camera steady, and reviewing							**Year 2 Spring 1** Consider the technical and artistic merits of photographs. Use a digital camera or camera app. Take digital photographs Review and reject or pick the images they take. Edit and enhance their photographs Select their best images to include in a shared portfolio.	**Year 3 English Spring 1** **Narrative** Imagined recounts – diary **Non-fiction** Eyewitness accounts (including video and audio recordings) - imagined eye-witness account of a real event
			Edit video, including adding narration and editing clips by setting in/out points								
			Understand the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length								
	Computer Networks	We are network engineers	Understand the physical hardware connections necessary for computer networks to work							*First encounter.*	
			Understand some features of internet protocols								
			Understand some diagnostic tools for investigating network connections								
			Develop a basic understanding of how domain names are converted to IP addresses								
	Communication / Collaboration	We are communicators	Develop a basic understanding of how email works							**Year 3 Spring 2** Understand the physical hardware connections necessary for computer networks to work. Understand some features of internet protocols. Develop a basic understanding of how domain names are converted to IP addresses. **Year 2 Summer 1** Understand that email can be used to communicate. Develop skills in opening, composing and sending emails. Use appropriate language in emails. Develop skills in editing and formatting text in emails. Be aware of e-safety issues when using email	**Year 3 PSHE Spring 2** I can identify when something feels safe or unsafe. **Year 3 PSHE Summer 1** I know and can use some strategies for keeping myself safe online. **Year 3 English Summer 1** **Non-fiction** Instructions (Egyptians)
			Be able to use email to send a message								
			Be aware of broader issues surrounding email, including 'netiquette' and e-safety								
			Work collaboratively with a remote partner								
			Experience video conferencing								
	Productivity	We are opinion pollsters	Understand some elements of survey design							**Year 2 Summer 2** Sort and classify a group of items by answering questions. Collect data using tick charts or tally charts. Use simple charting software to produce pictograms and other basic charts. **Year 1 Spring 2** Group images on the basis of a binary 1 (yes/no) question. Organise images into more than two groups according to clear rules. Sort (order) images according to some criteria Ask and answer binary (yes/no) questions about their images.	**Year 3 Maths Summer 1** Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables **Year 3 English Summer 2** **Non-Fiction** Persuasive Language
			Understand some ethical and legal aspects of online data collection								
			Use the web to facilitate data collection								
			Use charts to analyse data								
			Interpret results represented in a chart or table								

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Year 4

			Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2	Key Vertical Computing Links	Horizontal/Diagonal Links
Programming and Computational Thinking	We are software developers	Develop an educational computer game using selection and repetition							**Year 3 Autumn 2** Develop a number of strategies for finding errors in programs. Build up resilience and strategies for problem solving. Increase their knowledge and understanding of Scratch. Recognise a number of common types of bug in software. **Year 3 Autumn 1** Create an algorithm for an animated scene in the form of a storyboard. Write a program in Scratch to create the animation. Correct mistakes in their animation programs	**Year 4 Maths Autumn 1** Estimate and use inverse operations to check answers to a calculation
		Understand and use variables								
		Start to debug computer programs recognise the importance of user interface design, including consideration of input and output								
	We are toy designers	Design and make an on-screen prototype of a computer-controlled toy							**Year 3 Autumn 2** Develop a number of strategies for finding errors in programs. Build up resilience and strategies for problem solving. Increase their knowledge and understanding of Scratch. Recognise a number of common types of bug in software.	
		Understand different forms of input and output (such as sensors, switches, motors, lights and speakers								
		Design, write and debug the control and monitoring program for their toy								
Creativity	We are musicians	Use one or more programs to edit music							*First encounter.*	**Year 4 Music Spring 1** Benjamin Britten's music and cover versions
		Create and develop a musical composition, refining their ideas through reflection and discussion								
		Develop collaboration skills develop an awareness of how their composition can enhance work in other media								
Computer Networks	We are html editors	Understand some technical aspects of how the internet makes the web possible							**Year 3 Spring 2** Understand the physical hardware connections necessary for computer networks to work. Understand some features of internet protocols. Understand some diagnostic tools for investigating network connections. Develop a basic understanding of how domain names are converted to IP addresses.	**Year 4 English Spring 1 &2 Non-Fiction** Advertising campaigns (environmental issues) – posters, leaflets and radio/tv adverts
		Use HTML tags for elementary mark up								
		Use hyperlinks to connect ideas and sources								
		Code up a simple web page with useful content								
		Understand some of the risks in using the web								
Communication / Collaboration	We are co-authors	Understand the conventions for collaborative online work, particularly in wikis							**Year 3 Summer 1** Develop a basic understanding of how email works. Be able to use email to send a message. Be aware of broader issues surrounding email, including 'netiquette' and e-safety. Work collaboratively with a remote partner Experience video conferencing. **Year 3 Spring 2** Understand some features of internet protocols. Develop a basic understanding of how domain names are converted to IP addresses.	**Year 4 English Summer 1 Narrative** Biography (real or imagined) – magazine article (Class magazine) **Non-Fiction** 'How to' guides (inventions) – guidebook/webpage
		Be aware of their responsibilities when editing other people's work								
		Become familiar with Wikipedia, including potential problems associated with its use								
		Practise research skills								
		Write for a target audience using a wiki tool								
		Develop collaboration skills								
Productivity	We are meteorologists	Understand different measurement techniques for weather, both analogue and digital							**Year 3 Summer 2** Understand some elements of survey design. Understand some ethical and legal aspects of online data collection. Use the web to facilitate data collection. Use charts to analyse data. Interpret results represented in a chart or table **Year 2 Summer 2** Use simple charting software to produce pictograms and other basic charts. Take, edit and enhance photographs. Record information on a digital map	**Year 3 Maths Summer 1** Interpret and present data using bar charts, pictograms and tables **Year 4 Maths Spring 1** Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs
		Use computer-based data logging to automate the recording of some weather data								
		Use spreadsheets to create charts								
		Analyse data, explore inconsistencies in data and make predictions								
		Practise using presentation software and, optionally, video								

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Year 5

				Aut		Spr		Sum		Key Vertical Computing Links	Horizontal/Diagonal Links
				1	2	1	2	1	2		
	Programming and Computational Thinking	We are game developers	Create original artwork and sound for a game							**Year 4 Autumn 2** Design and make an on-screen prototype of a computer-controlled toy. Design, write and debug the control and monitoring program for their toy. **Year 4 Autumn 1** Develop an educational computer game using selection and repetition Understand and use variables. Recognise the importance of user interface design, including consideration of input and output.	
			Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables								
			Detect and correct errors in their computer game								
			Use iterative development techniques (making and testing a series of small changes) to improve their game.								
		We are cryptographers	Be familiar with semaphore and Morse code							**Year 4 Spring 2** Understand some technical aspects of how the internet makes the web possible Use HTML tags for elementary mark up. Use hyperlinks to connect ideas and sources. Code up a simple web page with useful content. Understand some of the risks in using the web.	
			Understand the need for private information to be encrypted								
			Encrypt and decrypt messages in simple ciphers								
			Appreciate the need to use complex passwords and to keep them secure								
			Have some understanding of how encryption works on the web								
	Creativity	We are artists	Develop an appreciation of the links between geometry and art							**Year 1 Spring 1** Use the web safely to find ideas for an illustration. Select and use appropriate painting tools to create and change images on the computer. Understand how this use of ICT differs from using paint and paper. Create an illustration for a particular purpose. Know how to save, retrieve and change their work. Reflect on their work and act on feedback received.	**Year 5 Art Spring 1/2** Aztecs *(more info to follow)* **Year 5 Maths Autumn 2** Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. Identify: angles at a point and 1 whole turn (total 360°), angles at a point on a straight line and half a turn (total 180°), other multiples of 90°
			Become familiar with the tools and techniques of a vector graphics package								
			Develop an understanding of turtle graphics								
			Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers								
			Develop some awareness of computer-generated art, in particular fractal-based landscapes								
	Computer Networks	We are web developers	Develop their research skills to decide what information is appropriate							**Year 4 Spring 2** Understand some technical aspects of how the internet makes the web possible. Use HTML tags for elementary mark up. Use hyperlinks to connect ideas and sources. Code up a simple web page with useful content. Understand some of the risks in using the web.	**Year 4 PSHE Spring 2** I can recognise when people are putting me under pressure and can explain ways to resist this.
			Understand some elements of how search engines select and rank results								
			Question the plausibility and quality of information								
			Develop and refine their ideas and text collaboratively								
			Develop their understanding of e-safety and responsible use of technology								
	Communication / Collaboration	We are bloggers	Become familiar with blogs as a medium and a genre of writing							**Year 4 Summer 1** Understand the conventions for collaborative online work, particularly in wikis. Be aware of their responsibilities when editing other people's work. Become familiar with Wikipedia, including potential problems associated with its use. Practise research skills. Write for a target audience using a wiki tool. Develop collaboration skills	**Year 5 English Autumn 1 Narrative** Sci-fi – short story or play **Non-fiction** Newspaper reports (historical events/space race) - newspaper
			Create a sequence of blog posts on a theme								
			Incorporate additional media								
			Comment on the posts of others develop a critical, reflective view of a range of media, including text								
	Productivity	We are architects	Understand the work of architects, designers and engineers working in 3D							**Year 5 Spring 1** Develop an appreciation of the links between geometry and art. Become familiar with the tools and techniques of a vector graphics package. Develop an understanding of turtle graphics. Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers. Develop some awareness of computer-generated art, in particular fractal-based landscapes.	**Year 5 Summer 1** Identify 3D shapes, including cubes and other cuboids, from 2D representations. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.
			Develop familiarity with a simple CAD (computer aided design) tool								
			Develop spatial awareness by exploring and experimenting with a 3D virtual environment								
			Develop greater aesthetic awareness								

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Year 6

			Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2	Key Vertical Computing Links	Horizontal/Diagonal Links
Programming and Computational Thinking	We are app planners	Develop an awareness of the purposes of different types of websites							**Year 5 Autumn 2** Be familiar with semaphore and Morse code. Understand the need for private information to be encrypted Encrypt and decrypt messages in simple ciphers. Appreciate the need to use complex passwords and to keep them secure. Have some understanding of how encryption works on the web	
		Understand geolocation, including GPS								
		Identify interesting, engaging content								
		Evaluate competing products								
		Pitch a proposal for a new website								
	We are project managers	Scope a project to identify different components that must be successfully combined							**Year 6 Autumn 1** Develop an awareness of the purposes of different types of websites. Understand geolocation, including GPS. Identify interesting, engaging content. Evaluate competing products. Pitch a proposal for a new website.	
		Identify their existing talents and plan how they can develop further knowledge and skills								
		Identify the component tasks of a project and develop a timeline to track progress								
		Identify the resources they'll need to accomplish a project								
		Use web-based research skills to source tools, content and other resources								
		Consider strategies to ensure the quality of a collaborative project								
Creativity	We are interface designers	Work collaboratively to design the website's interface							**Year 4 Summer 2** Understand different measurement techniques for weather, both analogue and digital. Use computer-based data logging to automate the recording of some weather data. Use spreadsheets to create charts. Analyse data, explore inconsistencies in data and make predictions. Practise using presentation software and, optionally, video.	**Year 5 English Spring 1 Narrative** Biography – biography (anthology)
		Use site mapping tools to create a design prototype of their website								
		Develop or source the individual interface components (media assets) they will use								
		Address accessibility and inclusion issues								
		Document their design decisions and the process they've followed								
Computer Networks	We are market researchers	Create a set of good survey questions							**Year 5 Summer 2** Understand the work of architects, designers and engineers working in 3D. Develop familiarity with a simple CAD (computer aided design) tool. Develop spatial awareness by exploring and experimenting with a 3D virtual environment. Develop greater aesthetic awareness.	**Year 5 Maths Spring 2** Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs **Year 5 English Spring 2 Non-fiction** Speeches – a speech
		Analyse the data obtained from a survey								
		Work collaboratively to plan questions								
		Conduct an interview or focus group								
		Analyse and interpret the information obtained from interviews or a focus group								
		Present their research findings								
Communication / Collaboration	We are mobile app	Become familiar with another programming toolkit or development platform							**Year 6 Spring 2** Create a set of good survey questions. Analyse the data obtained from a survey. Work collaboratively to plan questions. Conduct an interview or focus group. Analyse and interpret the information obtained from interviews or a focus group. Present their research findings.	**Year 6 Maths Autumn 2** Use simple formulae. Express missing number problems algebraically **Year 6 Maths Spring 1** Enumerate possibilities of combinations of 2 variables. Find pairs of numbers that satisfy an equation with 2 unknowns.
		Import existing media assets to their project								
		Write down the algorithms for their app								
		Program, debug and refine the code for their website								
		Thoroughly test and evaluate their website								
Productivity	We are marketers	Consider key marketing messages, including identifying a unique selling point							**Year 6 Spring 2** Create a set of good survey questions Analyse the data obtained from a survey. Work collaboratively to plan questions. Conduct an interview or focus group. Analyse and interpret the information obtained from interviews or a focus group. Present their research findings.	**Year 6 English Summer 2 Non-Fiction** Memoirs – Chapter Book
		Develop a printed flyer or brochure incorporating text and images								
		Further develop knowledge, skills and understanding in relation to creating a website								
		Further develop skills relating to shooting and editing video								

Data Handling | *E-Safety* | *Multimedia* | *Programming* | *Technology in our lives* | *ICT Skills*