Our Computing Curriculum

The curriculum below is separated into key stages (KS1, LKS2, UKS2) and then split in to two progressive sections. These sections may be used when planning progression through lessons or through differentiation when planning lessons and determining outcomes for children.

We have used the National Curriculum (2014) objectives, as well as progression guidance from Derby Diocesan Trust to develop a range of progressive objectives in 5 strands: E-Safety (see E-Safety policy); Programming; Multimedia; Handling Data; and Technology in Our Lives.

The success criteria below does not determine how many lessons are required to cover each criteria: multiple criteria may be addressed within one lesson, or one statement may take multiple lessons to teach successfully. Each strand has been planned in to the two-year curriculum cycle at Firs. Every strand will not be covered every year, but every child who goes through their education at Firs will receive teaching in all of the strands by the end of Year 6. However, at any point in the school year, if a class teacher identifies the need for a particular strand to be addressed for individuals or their class, this may be planned in as an additional teaching opportunity.

Computing Overview

The order of the topics below may change, however the computing strand will always be taught with the specified topic.

	Cycle A						Cycle B					
Year 1/2	**Enchanted Woodland**	**Moon Zoom**	**Muck Mess and Mixtures**	**Rio de Vida**	**Street Detectives**	**Land Ahoy**	**Bright Lights Big City**	**Superheroes**	**Paws, Claws and Whiskers**	**Scented Garden**	**Dinosaurs**	**Towers, Tunnels and Turrets**
	E-Safety (Self Identity Online Reputation Online Relationships Online Bullying)	Programming	Technology in Our Lives	Multimedia	Handling Data	No computing taught with this topic	E-Safety (Managing Online Information Health well-being and lifestyle Privacy and Security Copyright and Ownership)	Technology in Our Lives	Multimedia	Programming	No computing taught with this topic	Multimedia
Year 3/4	**Gods and Mortals**	**Urban Pioneers**	**I am Warrior**	**Predator**	**Playlist**	**Tribal Tales**	**Heroes and Villains**	**Tremors**	**Traders and Raiders**	**Burps Bottoms and Bile**	**Mighty Metals**	**Blue Abyss**
	E-Safety (Self Identity Online Reputation Online Relationships Online Bullying)	No computing taught with this topic	Technology in our lives	Multimedia	Multi-media	Handling data	E-Safety (Managing Online Information Health well-being and lifestyle Privacy and Security Copyright and Ownership)	No computing taught with this topic	Programming	Multimedia	Programming	Handling Data
Year 5/6	**A Child's War**	**Hola! Mexico**	**Frozen Kingdom**	**Revolution**	**Blood Heart**	**Darwin's Delights**	**Off With Her Head!**	**Stargazers**	**Alchemy Island**	**Pharaohs**	**Peasants, Princes and Pestilence**	**Time Traveller**
	E-Safety (Self Identity Online Reputation Online Relationships Online Bullying)	Handling Data	Handling Data	Technology in our lives	Multimedia	Programming	Handling Data	Programming	Multimedia	No computing taught with this topic	E-Safety (Managing Online Information Health well-being and lifestyle Privacy and Security Copyright and Ownership)	Technology in our lives

	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	National Curriculum understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions § create and debug simple programs § use logical reasoning to predict the behaviour of simple programs		**National Curriculum** design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts § use sequence, selection, and repetition in programs; work with variables and various forms of input and output §use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs			
	DDAT Progression • *Pupils learn to program a basic floor turtle such as a BeeBot to navigate increasingly complex routes and are able to debug their instructions when the turtle does not reach the intended destination* • *Pupils learn to program an onscreen app such as BeeBot or Kodable to complete a set task and are able to debug their instructions when the turtle does not reach the intended destination* • *Pupils use a more complex turtle with standard units to navigate increasingly complex routes, and are able to debug their instructions when the turtle does not reach the intended destination*		***DDAT Progression*** • *Pupils learn to use graphical programming language, such as Scratch or Logo to draw regular 2D shapes. Pupils add loops or procedures to create a repeating pattern* • *Pupils write a simple algorithm, for instance to create a basic traffic light sequence. They then use flowcharting software (such as Go or Flowgo) to create a simple program to control an onscreen icon*		***DDAT Progression*** • *Pupils write a simple algorithm, for instance to create a basic traffic light sequence. They then use flowcharting software (such as Go or Flowgo) to create a simple program to control an onscreen icon. They are able to explain how their program works* • *Pupils create a computer game, using a graphical language such as Scratch or Kodu*	
Programming	• Explore a range of control toys and devices • Explore outcomes when individual buttons are pressed on a robot • Follow instructions to move around a course • Create a series instructions to move their peers around a course • Explore an on screen turtle (or Bee BOT) navigate it around a course or grid • While navigating around a course on a computer predict what will happen once the next command is entered. • Have experiences of controlling other devices such as sound recording devices, music players, video recording equipment and digital cameras	• Talk about how everyday devices can be controlled • Control a floor robot using appropriate buttons, Make predictions and estimate distances and turns • Create a sequence of instructions to control a programmable robot to carry out a pre-determined route to include direction, distance and turn • Know that devices and actions on screen may be controlled by sequences of actions and instructions • Create a sequence of instructions to create a right-angled shape on screen	• Explain what an algorithm will do by reading the commands. • Test my algorithm and recognise when to change it • Link their learning of a programmable robot to creating a set list of instructions for a on screen robot (e.g Textease turtle) • Use an on screen robot to draw a path • Navigate around Scratch (or similar) • Create a repeat pattern that instructions motions by specifying the number of steps, direction and turn. • Adds speech • Make my sprite change colour • Control what my sprite does using specified keys.	• Can talk about what everyday/real life objects uses algorithms and discuss what the algorithms will tell them to do • Begin to break algorithms down to solve problems. • I know an algorithm is a set of instructions. • Create a list of 5 commands which involve movements and looks. • Draw using pen up and down linking their knowledge of properties of shapes • Use costumes • Use two sprites and two algorithms • Use sound • Begin to use sensing to create a command • Begin to use timings to control movements and speech between characters	• Begin to think logically to analyse a simple game and discuss what the different algorithms should instruct. • I can predict what will happen when discussing different algorithms, • Understand how breaking things down into different events may make it easier to debug, edit and improve. • Begin to create a simple game between two sprites • Create movements using co-ordinates and rotations (with degrees) • Create drawings using pen shades, directions and angles. • Create an animation with speech and sensing between at least 2 characters. • Use 'IF' to control objects and create variables • Control the sprites movement using the keyboard	• Show logical thinking when creating a complicated algorithm, • Sort algorithms between what will and won't work and explain why by breaking it into smaller parts and explaining why. Test the algorithms to support this. • Starting to find more than 1 way to debug and solve a problem. • Create a game that uses a range of commands including sensing, movement, variables and IF THEN. http://www.simonhaughton.co.uk/scratch-programming/ • Create a story or animation using a range of commands and shows creativity and imagination.

Computing Curriculum Progression Sep 2024

	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	National Curriculum use technology purposefully to create, organise, store, manipulate and retrieve digital content		**National Curriculum** elect, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information			
	DDAT Progression • _Digital Publishing:_ Pupils learn to use basic word processing package and to write and illustrate a short story • _Graphics:_ Pupils learn to create a simple digital painting • _Animations:_ Pupils learn to make a simple animation for instance in Puppet Pals		**DDAT Progression** • _Presentations:_ Pupils learn to write and deliver a presentation on a given subject • _Sound and video:_ Pupils record and edit media to create a short sequence • _Animations:_ Pupils learn how to develop a storyboard and then create a simple animation using for instance 'Puppet Pals' or 'Stop Motions' Animation'		**DDAT Progression** • _Presentations:_ Pupils learn to write and deliver a presentation, incorporating a range of media • _Animations:_ Pupils learn how to develop a storyboard and then create a simple animation using for instance 'Puppet pals' or 'Stop Motions Animation' - this may be extended by editing the final product in using video editing software	
Multimedia	• Develop familiarity with the keyboard – spacebar, backspace, shift, enter, to provide text on screen that is clear and error free • Select appropriate images • Add text to photographs, graphics (images) and sound e.g. captions, labelling and simple sentences through the use of e.g. *2create A Story* • To print • To save with help • Use a paint package to create a picture to communicate their ideas: Explore shape, line and colour, talk about their choice of tools, talk about the differences between a graphics package and paper based art activities (undo, changes quickly and easily made) • To make animated pictures/drawings in 2create a story (https://www.youtube.com/watch?v=u6NlVyMqJf0 seesaw example)	• Use the mouse or arrow keys to insert words and sentences • Develop basic editing skills including different presentational features (font size, colour and style) • Save, print, retrieve and amend their work • Use appropriate editing tools to improve their work • To create a stop frame animation using split pin figures	• Combine a mixture of text and graphics to share my ideas in a presentation • Continue to make appropriate choices about fonts, images, size through peer assessment and self evaluation, evaluate design and make suitable improvements • Begin to use more than two fingers to enter text • To create a stop frame animation using one drawing	• Use word art and animations when creating a presentation whilst considering the appropriate audience • Use a spell checker • Use more than two fingers when typing • Explore new media such as making videos • Record using a programme • To create a stop frame animation using two objects and one body movement e.g. waving or walking	• Design in response to a given criteria • Create simple hyperlinks and buttons in a presentation • Insert videos into a presentation • Begin to use two hands when typing • Evaluate websites and current publications in terms of colour, font, pictures and use this to inform their own work • To create a stop frame animation with two objects including movement and speech.	• Create a presentation using timings, auto play and more complicated hyperlinks • Type confidently with two hands • Edit their presentation in response to peer feedback and considering the audience • Insert text boxes and use columns to create a more interesting layout • To create a stop frame animation with two objects and a background/set.

Computing Curriculum Progression Sep 2024

	Key Stage 1	Lower Key Stage 2		Upper Key Stage 2	
	National Curriculum use technology purposefully to create, organise, store, manipulate and retrieve digital content	**National Curriculum** select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information			
	DDAT Progression • <u>*Working with data:*</u> *Pupils learn to create and use a pictogram*	***DDAT Progression*** • <u>*Working with data:*</u> *Pupils learn to search, sort and graph information*		***DDAT Progression*** • <u>*Modelling:*</u> *Pupils learn how to use a spreadsheet to model data* • <u>*Working with data:*</u> *Pupils learn to search, sort and graph information*	
Handling Data	• Sort at least 3 pictures using a branching database	• Use a branch database to answer questions • Make a branch database with at least 4 pictures. • Use a datalogger remotely (without a computer) • To read the 3 different measurements of a data logger • To create environments/ situations where those readings change	• create and use a branching database to organise, reorganise and analyse information • Use a data logger for snap shot readings • To retrieve saved information from a log box • To use log box information to draw graphs/tables	• Choose an appropriate programme to represent information • To know what a data logger can be used for • To create an investigation to use the data logger to record information • To begin to link the data logger components to variables in science • Understand cells in a spreadsheet • to enter formulae for the four operations (+-x/) into a spreadsheet • to use 'SUM' to calculate the total of a set of numbers in a range of cells	• To know when a database might be useful • Use and interpret information from a data logger • To use computing programmes linked with the data logger • To choose how to record and represent information from a data logger using a computer • Create a database that enables you to search through entries using fields

	Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	National Curriculum recognise common uses of information technology beyond school		**National Curriculum** understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration § use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content			
	DDAT Progression • Pupils learn about some of the uses of the internet		**DDAT Progression** • Pupils are introduced to the basics of online searching, including how to use effective keywords. They also learn to conduct searches that provide them with the most helpful and relevant information • Pupils learn to collaborate electronically by blogging, mailing and working on shared documents using the pupil sites of the DLG		**DDAT Progression** • Pupils explore issues relating to online searching, including how to use effective keywords, using directories and subject categories, and how to analyse the usefulness and relevancy of the results. They learn to conduct searches that provide them with the most helpful and relevant information • Pupils learn to collaborate electronically by blogging -mailing and working on shared documents using the pupil sites of the DLG. This can be extended to working with other schools • Pupils learn that connected devices exchange packets of data and this can convey a range of information from a text to a video call • Pupils develop skills for evaluating websites, online information and advertising by rating the trustworthiness and usefulness of websites, and learning to identify the different types of online advertising	
Technology in Our Lives	• Discuss where they have seen and used technology. • Sort pictures of what is and isn't classed as technology and discuss what each one is used for. • Use given websites to answer questions. • Know how technology can be used to send messages (Class dojo, email etc.)	• Discuss why we use technology • Know the internet can be used for research • Know that pages have authors just like their own work	• Know how to create a simple search using a search engine • Label and talk about the use of different parts of a computer (laptops and desktops) e.g. mouse, keyboard, screen, power cable. • Navigate across websites using the buttons.	• Create more specific searches using key words in a search engine. • Know how to choose an appropriate website (age, look, author) • Label and talk about the parts of a computer and products that enhance it's use (webcam, headphones, printers) and know their uses. • Navigate across websites using the back, forward, refresh and hyperlinks. • Begin to talk about the author of websites an how this effects it's truth. (*Also covered in E-Safety*)	• Create specific searches using "" and or in a search engine • Discuss how results are ranked • Know how chatrooms and social media and connect people from long distances • Take part in a forum including responding with text and media • Begin to discuss how the internet works including networks and IP addresses • Know how to check for reliability of a website (*Also covered in E-Safety*) • Label parts of a webpage	• Know how being able to connect with people from long distances can enhance collaboration • Compare two websites that given information on the same topic. Which is the most reliable? (*Also covered in E-Safety*) • Use other sources to check reliability of information. (*Also covered in E-Safety*) • Discuss the many uses for the internet • Know how information is transported on the internet including understanding networks and IP addresses • Understand copyright and how this effects images and information I find on the internet (*Also covered in E-Safety*)

Computing Curriculum Progression Sep 2024