



Computing Curriculum 2022

Enquire Learning Trust
Ever Curious, Always Learning

Enquire Learning Trust - Computing Curriculum 2022

Intent

At Enquire Learning Trust, we believe that it is vital for all our pupils to learn from and about Computing and Technology, so that they can understand the world around them. Through teaching our computing curriculum, we aim to equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information as well as having the skills to manipulate, develop and interpret different forms of technology in an ever-changing world.

In such a fast-moving curriculum, we are constantly looking at new ways of delivering relevant and exciting activities, while still delivering the fundamental skills needed for computing. Using technology safely and responsibly is a main priority and ensuring all pupils are able to use the internet and equipment appropriately is of paramount importance. We encourage our pupils to make links across the curriculum, the world and our local community, to reflect on their own experiences, which are designed in our curriculum, allowing horizontal and vertical links with previous year groups.

The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming. Building on this knowledge and understanding, pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate – able to use, and express themselves and develop their ideas through, information and communication technology – at a level suitable for the future workplace and as active participants in a digital world.

Our ambitious computing curriculum is now structured in 3 areas that allow all pupils from EY to year 6 to progress through different categories of knowledge. These are:

Digital Literacy	Information Technology	Computer Science
(Mechanics, searching/selecting information and E-safety)	(Digital Artefacts and computing contexts)	(Algorithms, programming, data and systems)

Each area of the curriculum gives pupils time to practice and rehearse the knowledge needed to be proficient at computing and be ready for the next age of learning.

Implementation

The Enquire Learning Trust bespoke computing curriculum offers a cross curricular scheme of work for EYFS, Key Stage 1 and Key Stage 2 which matches the expectations of the National Curriculum. The curriculum looks at the progression needed for all pupils to develop and embed skills and knowledge within the strands of: computer science, information technology and digital literacy. The curriculum is designed to support teaching and learning and the acquisition of subject knowledge in all areas. Children will have the opportunity to explore and respond to key issues such as digital communication, cyber-bullying, online safety, security and social media.

Impact

- Children will be confident users of technology, able to use it to accomplish a wide variety of goals, both in school and at home.
- Children will have a secure and comprehensive knowledge of the implications of technology and digital systems which is important in our ever-evolving society.
- Children will be able to apply the British Values of democracy, tolerance, mutual respect, rule of law and liberty when using digital systems.
- solve problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Aims

The curriculum for computing aims to ensure that all pupils:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

Key stage 1 Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and those programs execute by following precise and unambiguous instructions (Computer Science)
- create and debug simple programs (Computer Science)
- use logical reasoning to predict the behaviour of simple programs (Computer Science)
- use technology purposefully to create, organise, store, manipulate and retrieve digital content (Information Technology)
- recognise common uses of information technology beyond school (Information Technology)
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. (Digital Literacy)

Key stage 2 Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. (Computer Science)
- use sequence, selection, and repetition in programs, work with variables and various forms of input and output. (Computer Science)
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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. (Computer Science)
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- 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. (Information Technology)
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (Digital Literacy)

Evidence Collection for Subject Leaders

It would be good to save evidence of some pieces of work within pupil's Microsoft Teams when children are able to demonstrate independently a new skill or knowledge they have learned. This might be the end piece for their design. It is not necessary to save every piece of work but to get a sample of pupils work across the curriculum to show breadth and coverage. Evidence of progression could also be a discussion with pupils about what they have learnt within that strand and how they would use that new skill in different contexts.

Year group curriculum overview

	Autumn 1		Autumn 2		Spring 1		Spring 2		Summer 1		Summer 2
Year 1	E-safety: Using the internet safely.	Information Technology Typing training.	Coding with Tynker JR	E-safety: the internet safely	Digital Literacy: Using a computer/device.		Information Technology: bug hunters Finding, saving, organising, sending, and presenting		Information Technology: Potty Painters - Digital Art and book design		Computer Science: Scratch Jnr - introduction and fundamentals
Year 2	E-safety: Staying safe on the internet – Jessie and Friends.		Computer Science: Scratch Jnr - introduction and fundamentals		Digital Literacy: Using search. Typing training.		Information Technology: Using a computer. What is the Internet.	Information Technology: Introduction to photo editing.	Information Technology: taking and using photos	Information Technology: Presentations iOS	Computer Science: Scratch Jnr - introduction and fundamentals
Year 3	E-safety: Google Share with care Topic related activities throughout the year.		Information Technology: Research and develop a topic Use school current school topic		E-safety: Google Be Internet Brave	Computer Science: Lightbot - Algorithms	Computer Science: Tynker - Animations		Computer Science: Tynker – Loops, debugging and events.		Computer Science: Tynker – If statements. HTML App Coding
Topic related activities throughout the year.											
Year 4	E-safety: Google Don't fall for fake		Computer Science: Networks: Understanding the different ways computer communicate	Information Technology: Email	Information Technology: Word processing PowerPoint	Information Technology: Photo Editing - Functions	Computer Science: Tynker - Algorithms Conditions, Functions and App design		Information Technology: Stop motion animation		Computer Science: Scratch Creation of controllable maze game.
Year 5	E-safety: Google Secure your secrets Topic related activities throughout the year.	Information Technology: Using shared cloud documents Use school current school topic	Computer Science: Spreadsheets – Using Formula to automate mathematical problems.	Computer Science: Networks: Search Algorithms	E-safety: Cyberbullying	Computer Science: Lightbot – Algorithms Procedures. Loops and Debugging	Computer Science: Scratch – Simple Game creation		Information Technology: Animation through varied apps	Information Technology: Website creation. SharePoint Use school current school topic	Computer Science: Microsoft Kodu – Advanced game creation
Topic related activities throughout the year.											
Year 6	E-safety: Google It's cool to be kind Interland's Kind Kingdom		Information Technology: 3D modelling using Sketchup.	Information Technology: Creating CVs Using IT beyond school	E-safety: Why is Social Media Free? Fake News in real life.	Information Technology: Making Videos	Computer Science: MIT App Inventor– Making an app about secondary schools to take home Using IT beyond school		Computer Science: HTML Hacking and Python Coding	Information Technology: Video/Photo Editing	Computer Science: Swift Playground – Conditional Code, While loops and Logic.

Assessment

This computing curriculum is also paired with an **assessment framework** to support teacher assessment, next steps planning and gap analysis. This framework provides information that can be used to help plan and assess pupil knowledge, understanding and skills in primary computing. It covers the main expectations for children at the end of each Key Stage. It sets out reasonable expectations of what children could achieve in each year at primary school, thus allowing teachers to track progress towards the statutory attainment targets.

By the **end of each key stage**, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

The progression statements derive from the Programme of Study for computing; they break down the original bullet points into shorter, more manageable chunks. Each statement is accompanied by 'What to look for' descriptors. These are designed to support planning for teaching and learning. The framework sets out a sequence that illustrates progression and that can be used to make judgements about pupil achievements. The framework is not intended to be definitive – it should be seen as indicative rather than prescriptive.

The framework is divided into three main strands and an app specific sub strand that covers the National Curriculum.		
Digital Literacy (Mechanics, searching/selecting information, and E-safety)	Information Technology (Digital Artefacts and computing contexts)	Computer Science (Algorithms, programming, data, and systems)

Assessments may be made during computing lessons or when pupils are using apps during topic learning that showcase their computing skills.

These statements are just **guidance and suggestions** to show the progression from **Emerging towards**, **working towards**, **ARE** and **Greater Depth**. Remember that pupils need to be confidently showing they understand how to use each key concept confidently and independently.

All of the assessment statements are found in the BromCom website which allows teachers to assess as they move through the curriculum. It enables real-time assessment and aids planning for next steps and quickly identifies which children are secure in a skill and which children need further support.

Sequence of knowledge over time to meet curriculum end points.







Digital Literacy	Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Using technology safely	Internet safety rules and keeping safe.	Avatar and profile safety online.	To understand how different activities and responses online affect our feelings	Know the implications of when we post anything online.	To understand how Pop ups work.	To understand Password safety and how complexity keeps your accounts safe.	To understand cyberbullying and how to respond.
	Keeping Personal information private	Understanding what information should and should not be online.	Knowing how to respond to personal questions online and having the right to say no!	To understand what could happen if photos/pictures are shared.	Investigating different levels of privacy. What information should we protect? Public or private?	To understand about catfishing and scams online	To understand how much you share online exposes your safety	To understand Password safety and different layers of security such as 2 factor authentication. To understand email scams.
	Identify where to go for help and support if they have concerns over content.	Understanding who our trusted adults are.	Children know what to do if something is concerning them – trusted adults at home and in school.	Identifying 4 trusted adults. Looking at what is and what is not acceptable to post online.	To know there are different ways to take actions. To know they don't have to deal with concerns alone.	To recognise if online information is credible. Fake news and disinformation.	To understand what to do if your personal information is leaked.	To understand how to report cyberbullying.
	Using IT beyond school	Understanding of only talking online to people we know	Putting media stories into context and look at sites that help us like Childline and CEOP Using technology outside of school.	Understand that not everyone online is telling the truth.	To understand what a positive online presence looks like.	Google Interland – putting learning into practice – e-Safety class assembly	To introduce the CV and what it is used for.	To understand why social media sites don't charge to be used. To understand bias and fake news. To code an app that is useful outside of school
	Using devices effectively – mechanics Automaticity	Using a mouse and starting to learn key letters on a keyboard.	Log in practice Developing keyboard and mouse skills. To understand what cut, copy and paste does.	Developing touch typing skills. To understand how the internet works and how computers help us learn.	Topic related word processing and presentation skills. Saving and retrieval.	To use keyboard shortcuts for Cut, copy and paste Ctrl C, V	To use copy, paste in spreadsheet to automate formula.	To use different types of mouse and keyboard combination such as drag and drop and two finger scrolling.














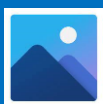










	Searching and selecting	Selecting the correct app	Using safe search and understanding why.	Identifying websites that are appropriate to my age. Using search engines and rating favourite websites	Selecting credible sources for digital artefacts. Saving to a folder for easy access.	To understand how search engines display information. How to get better search results.	Searching for templates to build your own work on.	Learn about advanced search algorithms such as linear, binary and hashing, using a battleship game.
Information Technology	Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Use technology purposefully to organise, store and retrieve digital content.		Learn how to find, save, show, and send images on iPad devices.	Using a computer to edit saved images.	Create and save documents to do with topic.	To use Word and PowerPoint to display work/projects	Create a website using SharePoint to advertise a business. Understand the use of copyright.	How to save video/picture files to cloud storage (iCloud, OneDrive) for later use.
	Use technology purposefully to create and manipulate digital content.	Using PicCollage to manipulate photos (Shrink, expand, turn)		To use photo editing software to discover different layers in images.	To import images into documents and manipulate size and wrapping.	To use more advanced photo editing functions	Create and understand animation principles and use software to create animations	Use Computer Aided Design (CAD) software to create and manipulate 3D shapes
	Select, use and combine a variety of software (including internet services) on a range of digital devices. KS2			Use book creation apps to create eBooks.	Use browsers and apps/programs to import and display work	To use different apps/programs to photo edit to see how skills are transferable.	To use different software and platforms to create animations.	To use video creation tools and programs to create layers and effects for a video project. Use Apple and Windows devices to sync and transfer content.
	Design and create a range of programs, systems and content that accomplish given goals.			To use a range of applications to save and edit work to produce a newly created image.	To collect and organise topic work digitally to produce a display piece.	Use different programs to create videos using a range of techniques such as green screen and stop motion animation.	Using spreadsheets, we create formula that automatically completes the tasks at hand.	Video creation and effects. 3D modelling.
Computer Science	Knowledge	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Understand what algorithms are	Introduction to the word Algorithm and what it means	Using a list of instructions to complete coding tasks.	Using instructions in the right order to achieve desired results	To understand how different platforms have different but similar instructions	To use algorithms to make aspects of a game work.	To use a list of instructions to create a 3D game world.	To use algorithms to create an app that links to the pupils secondary schools website
	Create and debug simple programs (that accomplish specific goals – KS2)	Following instructions and looking at order.	Learning that debugging is fixing wrong code – Tynker Jnr – directional	Fixing the wrong code – Scratch Jnr	Presented with code problems and children must detect the error	Create a maze game that others will play. Debug the ways others will try and cheat.	Create own controllable game that includes score, timer and lives. The game will need debugging in	Developing an app to share with others – pupils must debug problems for app to work successfully.

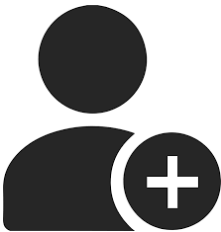













			problem solving. Up/down/left/right Getting code in the right order	Getting the right amount of code to solve the problem.	and debug the programme.		order to word correctly.	
	Use logical reasoning to predict the behaviour of simple programs (and to detect and correct errors – KS2)			introduce the idea of how to predict the behaviour of code before it has run.	Predicting code using questions and showing errors to allow pupils to correct the code.	Use prediction to plan how someone might cheat in a maze game and patch any issues.	Predict the path of sprites that have been coded.	Predict how functions will act when coding an app.
	Use sequence, selection and repetition in programs; work with variables.		To introduce the term REPEAT and how programs can loop an action	To repeat a sequence of events and predict the behaviour.	To use repeat blocks to code a looped solution to problems.	To code forever a sequence that helps our maze game run without errors or cheating.	Introducing Variables and how they are used to code a scoreboard, timer and life counter.	Using Logic to code loops of code when needed.
	Controlling or simulating physical systems	Using simple commands to control a sprite's direction	Using simple commands to reach a specified destination.	Using commands to create a range of motion. Using 1 sprite to control another.	Using commands to create a simple game.	Creating a simple game from scratch using a variety of control methods.	Advancing from 2D to 3D control within a game building environment.	Designing an app - control hyperlink and website destination.
	Solve problems by decomposing them into smaller parts	One direction at a time.	Phrase "What do I need to do next?" to be used to draw out the next step.	Code one aspect at a time.	Code one solution at a time.	Code one sprite until it works, then move onto the next.	Code the game until It works, add variables and other decorations after.	Code one app button at a time. Copy and edit code later.
	Work with various forms of input and output	Taping the screen. Using 2 fingers to zoom and twist.	Using the screen keyboard.	Drag and drop.	Using a keyboard and mouse	Using multiple keys at the same time.	Using cloud sync to output to different devices.	Using QR codes to output app updates. To use different platforms for coding.
	Understand how networks can provide multiple services, such as the world wide web.					To understand how a network used physical infrastructure to connect devices. How local devices communicate What an IP address it and how it is used on the world wide web	Now networks search internally to return results. Using cloud networks to share documents.	

	Collecting, analysing, evaluating, and presenting data and information.		Create an eBook	Using Word to collect and save topic work.	Using PowerPoint to present work.	Using a website/Microsoft Sway to present information.	To understand spreadsheet formula. Data is collected, entered and presented in spreadsheets shared via Teams.	Creating a mobile device app to display information
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Software and Apps used

















iPad Apps	Year 1		Year 2		Year 3		Year 4	Year 5	Year 6
	Scratch Jr 	Microsoft PowerPoint 	Scratch Jr 	Microsoft PowerPoint 	Tynker 	iMovie 	Keynote 	Keynote 	Swift Playground 
	Pages 	Piccollage 	Lightbot Hour 	Snapseed 	Keynote 	iOS Camera 	iMovie 	Lightbot Hour 	iMovie 
	Tynker JR 	Tayasui Sketches School 	Piccollage App 		Google Earth 	Google Arts and Culture 	Pages 		Kahoot 
	iOS Camera 	Apple Photos 	Photo Editor – Autodesk Sketchbook 		Tayasui Sketches School 		iMotion 		MIT app inventor QR test app. 
	Adobe Spark 						Photo Editor – Autodesk Sketchbook 		
	Safari 						Tynker 		















Windows Software	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6	
	Chrome	Edge	Chrome	Edge	Chrome	Edge	Chrome	Edge	Chrome	Edge	Chrome	Edge
	Microsoft Word		Paint.net		Microsoft Word		Microsoft Word		Microsoft Word	Microsoft Excel	Microsoft Teams	
												
	Microsoft PowerPoint				Microsoft PowerPoint		Microsoft PowerPoint		Microsoft PowerPoint	Microsoft Publisher	Windows Photos	
												
	Paint (Windows)				Scratch desktop (or online)		Paint.net		Microsoft Teams		Mozilla X-Ray	
												
							Scratch desktop (or online)		Scratch desktop (or online)		Scratch desktop (or online)	
												
									Pivot Animator			
												
									Microsoft Kodu			
												





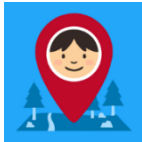




	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Online Services requiring account creation (Free) 	Adobe Account for Spark 		The Tynker app will need a classroom account setting up to unlock levels 4 -10  Creating Class accounts for the Tynker App	The Tynker app will need a classroom account setting up to unlock levels 4 -10  Creating Class accounts for the Tynker App	MIT app inventor.  Will need pupils to copy their own save code to log in every week,	Swift playground will require an Apple ID. These can be made via Apple School Manager. 
Online services needing Office 365 login (Pupil and teacher) 			Tynker Online requires Office 365 account (login with the windows logo icon) Tynker Online also needs a class set up and a class code shared to the pupils. 	Tynker Online requires Office 365 account (login with the windows logo icon) Tynker Online also needs a class set up and a class code shared to the pupils. 	Microsoft SharePoint  Microsoft Word online  Microsoft Excel online  Microsoft Publisher 	SketchUp – Login with Microsoft account 

Equivalent Programs

It is good practice to mention the equivalent services from competing companies, as real world will use different software suites. Functions and skills learned in one are often transferable to others.

Vendor	 Microsoft	 Apple		
Word Processing	 Microsoft Word	 Apple Pages	 Google Docs	 WPS Office
Spreadsheet	 Microsoft Excel	 Apple Numbers	 Google Sheets	 WPS Office
Presentation	 Microsoft PowerPoint	 Apple Keynote	 Google Slides	 WPS Office

Online storage	 Microsoft OneDrive	 Apple iCloud	 Google Drive	 Dropbox
Website Creation	 Microsoft SharePoint		 Google Sites	
Page layout publishing	 Microsoft Publisher	 Apple Pages	 Lucidpress	 WPS Office
Photo Editing	 Photos	 Apple Photos	 Google Drawings	 Paint.net

Other Coding Apps	 <p>Kodable</p>	 <p>Microsoft Kodu</p>	 <p>Lightbot</p>	 <p>A.L.E.X</p>
	 <p>Little Red Coding club</p>			
Useful apps	 <p>Google Earth</p>	 <p>Google Expeditions</p>	 <p>Epic Reading app.</p>	 <p>AR-Kid Space.</p>

Resources From....



Microsoft



SketchUp



MIT
APP INVENTOR

