Eccleston Primary School Computing Curriculum

Whole school definition: **Computing** is the process of using computer technology to complete a given goal-oriented task.

Computing Curriculum Progression

National Curriculum Computing - Purpose of study

A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. 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.

Aims

The national curriculum for history 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.

EYFS – see Development Matters 2021 for detailed examples of how to support learning in EYFS

Understanding the World: People and communities, the world and technology. Practitioners should support children in experiencing a range of technologies – using cameras, photocopiers, CD players, tape recorders and programmable toys, in addition to computers.

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Computing Curriculum Statement

Whole school definition: **Computing** is the process of using computer technology to complete a given goal-oriented task.

Intent

At Eccleston Primary School, our vision is to inspire independent learners to thrive in a changing world and ensure every child develops a healthy relationship with technology. At our school we value and recognise the contribution that technology can make for the benefit of all pupils, staff, parents, governors and society. We strive to provide safe opportunities in computing to motivate, inspire and raise standards across the curriculum. Everyone in our school community will be equipped with the digital skills to meet developing technology with confidence, enthusiasm and prepare them for a future in an ever-changing world.

We want our children to be creators and innovators not just mere consumers of digital content. The idea of the children as digital creators is what underpins our planning and computing units. Our children are taught to understand that technology is an integral part of modern life and the key to the future is to harness and understand technology's potential. Computing is a constantly evolving subject that involves solving complex problems, being able to collaborate with others, learn from mistakes and refine solutions.

Our computing curriculum is designed to be easy to follow, with logical sequenced steps that will equip all children with the essential skills and knowledge they need to use technology safely and creatively. It has numerous cross circular links with art, mathematics, science and design and technology. When planning we ensure that children can build on their understanding, as each new concept is taught with opportunities for children to consolidate and reapply their skills and knowledge throughout the year. Each computing unit is planned to provide new challenges and variety, to ensure we keep the child's interest at a maximum. There is a strong emphasis on improving computing/digital vocabulary, core fundamental digital skills and computational concepts.

Here at Eccleston Primary School, we believe safety is paramount. We promote and model a balanced digital life, recognising that amongst the many positives that technology has to offer, risks exist and children need to be taught to manage their digital lives properly. We strive to model and educate our children to use technology creatively, positively, responsibly and safely. Our curriculum supports the key aims of the government's Internet Safety Strategy (Digital Literacy / UK Council for Child Internet Safety (UKCCIS) framework) of supporting children to stay safe and make a positive contribution online, as well enabling teachers to develop effective strategies for understanding and handling online risks.
We believe there are core digital skills that children must possess if they are to meet our school's vision of independence, creativity and a healthy digital life.

- All children must have a basic understanding of coding and how the web works.
- All children must be able to evaluate online information and be social media savvy.

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- All children must understand online safety rules and know how to report and block.
- All children must be proficient with word processing and able to use cloud storage.
- All children must be able to create visually engaging content/presentations in order to present learning to others.
- All children must have experience of online collaboration and using communication tools.
- All children must be taught the concept of personal archiving and possess their own digital portfolio of work.

Implementation: How is Computing taught at Eccleston Primary School?

At Eccleston Primary School, the requirements of the Computing Curriculum are taught through half-termly units, where the children have access to their own computer/laptop or iPad. The curriculum at our school is carefully mapped out to ensure that pupils acquire knowledge, vocabulary and skills in a well-thought out and progressive manner, with each teacher following the Knowsley Computing Scheme of Work and progression document. The Knowsley scheme highlights the knowledge, skills and vocabulary for each year group and is progressive from year to year. New learning is based upon what has been taught before and prepares children for what they will learn next. Every unit has a clear end point and an end product which children work towards on their learning journey. The teaching style that we adopt is as active and practical as possible although at times we do give children direct instruction on how to use hardware and software. We teach computing both discretely and cross curricular when clear links with other subjects are present.

Our Computing units and progression model is broken down into four strands that make up our computing curriculum. These are Essential Skills, Computer Science, Information Technology and Digital Literacy.

Essential Skills: ensure the children have the core basic skills to use multiple devices, this is designed to promote independence.

Computer Science: underlines the knowledge and skills relating to computational thinking, coding, algorithms and networks.

Information Technology: underlines the knowledge and skills relating to digital communication, creating multimedia content and data representation/handling.

Digital Literacy: underlines the knowledge and skills relating to online safety and technology in society.

We participate in annual events such as national Computing week, safer Internet day and anti-bullying week.

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Impact

In our Computing curriculum the children revisit each objective several times, via different themes helping to ensure the best results are achieved. Our school encourages discussions between staff and pupils to help the children best understand their progress and their next steps. We also encourage pupils to document their own learning in pupil journals. These journals can also be used to showcase and celebrate computing work as well as providing evidence of the pupil's knowledge and digital skills.

We constantly monitor to ensure the children have learnt the things we've taught them and if they are struggling, we can introduce additional support the next time they encounter that objective. Impact is about how we know what you do is making a difference. If children are keeping up with the curriculum, they are deemed to be making good or better progress.

We measure the impact of our curriculum through the following methods:

- Pupil discussions and interviewing the pupils about their learning (pupil voice).
- Pupil journals and assessment/feedback on content creation.
- Governor monitoring with our subject computing link governor.
- Moderation staff meetings with opportunities for dialogue between teachers.
- Pupil self reflection.
- A reflection on standards achieved against the planned outcomes (progression/what to observe in learning).
- Learning walks and reflective staff feedback (teacher voice).
- Dedicated Computing leader time.
- Formative and summative approaches.

Computing Curriculum Progression

Computing Coverage Overview

Topic	Year Group						
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mandatory Skills							
Computational Thinking							
Controlling Robots							
STEM Activities							
Programming / Coding							
IT Concepts / Hardware / Networks							
Game Design							
Typing / Word Processing / Presenting							
Digital Storytelling							
Multimedia / Creative Apps							
Data Handling							
2D & 3D Modelling							
Animation							
Photography / Film Making							
Digital Literacy (Websites / Searching / Communication)							
Online Safety							

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	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.	Digital Literacy **My Online Life** This activity takes place over the course of the term. It covers all the DFE statutory requirements for digital literacy and online safety.
Autumn 2	Information Technology **Talking Technology** The children will learn how to take photos, record video and record audio. This is an important skill that will enable them to document their own learning and ideas. The children will create a Tech Museum as they get to explore and play with old technology.	Information Technology **Mini Beasts** Children will use technology to classify minibeasts. In this activity the children will learn about gathering and presenting information. They will then make their own David Attenborough style nature documentary	Information Technology **Presentations and typing** The children will learn to use presentation software and develop their keyboard skills.	Information Technology **Be digitally awesome** This unit is all about ensuring the children possess core skills with word processing, spreadsheet and presentation apps.	Information Technology **Endangered Animals** The children will learn online research skills, create illustrations and posters to raise awareness of our planet's endangered animals. The children will also get involved with environmental campaigns. They will make a class film about how making small changes can help e.g. air pollution and turning off your engines.	Information Technology **Making AR Games** In this activity the children will be introduced to the world of Augmented Reality (AR). They will then be set the task of designing and creating a game that uses AR.	Information Technology **VR Worlds** The class will explore Virtual Reality (VR) and how it can be used in the classroom. The children will also build their own VR world.
Spring 1	Computer Science **Nursery Rhyme Coding**	Computer Science **What is a computer?**	Computer Science **Making Games**	Computer Science **Dancing Robot**	Computer Science **Hour of Code**	Computer Science **STEAM challenges** This activity will see a series of creative STEM	Computer Science **Chicken Run - Crossy Roads**

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	Using the theme of traditional tales, this activity develops computational thinking such as sequencing and promotes core technology skills.	In this unit children will learn about the different parts of a computer and iPad. They will learn new skills, tips and tricks. The children will be able to see the inner working of a computer and build their own. Includes a range of continuous provision activities national and international achievements.	Using Scratch the children will create a hero versus villain game. They will create sprites and learn the basics of using Scratch coding.	The children will be using some of Scratch Jr's more advanced coding blocks to create their own interactive dancing robot game. The children will learn the important skills of critical thinking, problem solving and debugging.	The class will sign up for Hour of Code and work through various challenges. The class can also choose to take part in global coding events.	challenges. Children will tackle code, maths, art, DT and lots of problem solving.	The children will create their own version of the popular app Crossy Roads using visual coding. They will learn about decomposition and how to evaluate games.
Spring 2	**Digital Literacy** **Technology & Me** This unit helps children to make sense of and explore the technology around them. The children will get to experience a range of technology/ equipment, including digital cameras, iPads, video cameras, microscopes and sound recorders.	**Digital Literacy** **Modern Tales** Using the vehicle of the children's stories, the children will learn to navigate the rules of online safety and communication. The children will make animations based on an online situation they may encounter.	**Digital Literacy** **Online Buddies** This activity will explore what friendship means online. The children will learn about the do's and don'ts of communicating over the internet.	**Digital Literacy** **Online Detectives** This activity is designed to support children in mastering the art of advanced internet searching. They will learn new tricks to improve their searches while they try to solve puzzles.	**Digital Literacy** **Fake or real?** Fake news is a serious concern and in this activity children will learn how they can sort the truth from the lies. Making videos to show what they have found out.	**Digital Literacy** **YouTuber** Every child wants to be a "YouTuber". In this activity children will learn about what that means, the positives and negatives, safety tips and they will create their own video blog (vlog).	**Digital Literacy** **Online Safety Dilemmas** In this activity the children will become online safety ambassadors. They will be given modern day dilemmas. Dilemmas that children face everyday online and asked to produce a series of "what to do" videos to explain how to cope online.
Summer 1	**Information Technology** **Animal Safari**	**Information Technology** **News Presenter**	**Information Technology** **Story Land**	**Information Technology** **Rainforests**	**Information Technology** **Dinosaurs**	**Information Technology** **Binary Messages**	**Information Technology** **Money**

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	This unit helps children use iPads/ tablets independently to collect and record information. The children will learn about opening apps, scanning QR codes, taking photos and recording information in a tally chart. Includes a range of continuous provision activities.	In this activity children will become news reporters. They will be given a series of break news stories based on popular traditional tales. The children will film short clips using green screen before sharing/ saving their work.	The children take the role of authors to write the sequel to popular children's stories. They then create illustrations for their story and record them self reading it in order to create an audiobook to publish online.	The children will explore rainforests through new Virtual Reality (VR) apps. They will also use Augmented Reality (AR) to create their own learning games for younger children to play.	In this activity the children will make their own summer blockbuster. They will learn all about filming techniques and storytelling	This activity introduces binary code. It explains what binary code is and how it is used. The children then challenge each other to solve word problems by using binary code.	The children will explore money, stocks and shares through a series of challenges and games. Creating a spreadsheet and digital book to explain the importance of understanding how money works.
Summer 2	**Computer Science** **Robots** This unit gives children their first taste of computing (computational thinking and coding). The children will learn new skills and practice giving instructions to complete tasks. Includes a range of continuous provision activities.	**Computer Science** **My friend the robot** In this unit children will learn all about computational thinking and problem solving with a variety of unplugged activities and online coding games.	**Computer Science** **Code a story** The children will write a basic story with illustrations. They will then turn this into an animated story using visual coding. The activity will introduce new concepts such as conditional language, repeat loops and debugging.	**Computer Science** **Programming with Robots** Robots can be found almost everywhere. In this unit the children explore the history of robots and then get to program a robot around a maze.	**Computer Science** **Games Designer** The children will learn all about the career of games designer. They will play games, write reviews and then design and prototype their own game. Finally they will pitch their game idea to the class.	**Computer Science** **Web Designer** In this activity the children will learn about the history of the web, basic HTML, how to create their own graphics and how to publish their own website	**Computer Science** **Coding Playground** Children will be introduced to textbased programming and how apps are made. They will complete self paced programming challenges. Finally the class can explore connecting programable toys and drones.