Penketh Primary School COMPUTING

WARRINGTON PRIMARY ACADEMY TRUST

PENKETH

Intended Curriculum Progression Document

Penketh Primary School – Computing progression through EYFS
Understanding the World: Computing Overview

Playing & Exploring - Engagement	Active Learning - Motivation	Creating & Thinking Critically - Thinking
• Finding out & exploring • Playing with what they know • Being willing to 'have a go'	• Being involved & concentrating • Keep on trying • Enjoying achieving what they set out to do	• Having their own ideas (creative thinking) • Making links (building theories) • Working with ideas (critical thinking)

ELG
NO ELG's are represented for this area.

Focus	Electronic Communication Understanding Technologies	Text and Multimedia	Research and E-Safety	Digital images and audio	Algorithms Handing information	Vocabulary- To be used daily.
Reception Skills	• Completes a simple program on electronic devices.	• Begin to list different IT in their home.	• Begin to give reasons why we need to stay safe online. • Can use the internet with adult supervision to find and retrieve information of interest to them.	• Can create content such as a video recording, stories, and/or draw a picture on screen.	• Develops digital literacy skills by being able to access, understand and interact with a range of technologies.	Internet, website, mouse, images, paint, technology, share, collect, set, sound, communicate, videos, photos, programme

Reception Knowledge	Autumn 1 Me and My Family	Autumn 2 Seasons and Celebrations	Spring 1 The Ocean	Spring 2 Transport	Summer 1 Growth and Change	Summer 2 Castles and Dragons
	• Can turn on an iPad, open a programme and follow instructions.	• Can explain how to stay safe when using the internet. • Can follow teachers' instructions when using an online interactive programme such as paint or draw.	• Can write a variety of CVC words using a keyboard.	• Can use the iPad and class cameras to take their own images. • Can send a group class email to a different class and wait for a response.	• To collect information about the measurement of plants and see which was the best environment for growing in.	• Can use 'Google' to find out more information about animals and use the images to support their own representations. • Can explain who 'hector' is and why we use him.

E-Safety	Computer Skills	Programming	Word Processing skills	Data Collection

Children to be exposed to key vocabulary daily in provision. High quality resources will be provided for daily accessibility.
Role-play areas will be a key area where a range of technologies will be used in play- telephones, microwaves, cookers, keyboards, televisions, CD player. These should be modelled.
Explicit teaching will be needed within this area when using iPads and researching. This should take place in small, guided groups.

CORE VALUES: **CHILDREN FIRST**   **RESILIENCE**   **PIONEERING**

Year 1: Computing skills progression	
KS1: POS - 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 - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	**Electronic Communication** - Contribute to a class email to another class/school/teacher etc
Text and Multimedia - Work with others and with support to contribute to a digital class resources which includes text, graphic and sound - Open and close windows - Turn a device on - Type using both hands	**Research and E-Safety** - Explore information from a variety of sources - Save a picture from the internet
Digital Images and audio (photos, paint, animation) - Use a range of simple tools to modify a picture/create a picture/use a paint package	**Algorithms (Control)** - Control simple everyday devices to make them produce different outcomes.
Handling information (databases and graphs) - As a class or individually with support, children use a simple pictogram to develop graphical awareness	**Understanding technologies** - Show an awareness of the range of devices and tools they encounter in everyday life - Show an awareness that why they create one a computer or tablet can be shown to others via another device (e.g. printer, projector, Apple TV)

Year 1 – End points	
E-Safety	• To develop skills to recognise potential dangers online and act accordingly to keep themselves and others safe. • To begin to understand what information should be kept safe when using the internet.
Computer Skills	• To begin to apply mouse and trackpad skills by launching applications, manipulating windows and opening and saving files and folders. • To begin to develop basic computer skills in order to use a desktop or laptop computer.
Programming (with toys and Scratch Jr)	• To begin to understand the principles of programming. • To understand an algorithm as a set of step-by-step instructions. • To begin to understand why it is important to be precise when writing an algorithm. • To develop a sense of creating, debugging and logical reasoning.
Word Processing Skills	• To begin to develop typing and word processing skills. To have some knowledge of the location of letters and symbols on the keyboard.
Data Collection	• To understand data is information and this can be sorted into groups based on criteria. • To understand data can be represented in different ways.

Year 2: Computing skills progression	
KS1: POS - 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 - use technology purposefully to create, organise, store, manipulate and retrieve digital content - recognise common uses of information technology beyond school - 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.	**Electronic Communication** - Work collaboratively by email to share and request information of another class or story character
Text and Multimedia - Generate their own work combing in text, graphics and sound. - Save, retrieve and edit work	**Research and E-Safety** - Use a search engine to find specific and relevant information to use in a topic - Use key words to search for specific information
Digital Images and audio (photos, paint, animation) - Use a range of tools and software to create or modify a picture to communicate an idea - Create a simple animation to tell a story	**Algorithms (Control)** - Control a device, on and off screen, making predictions about the effect their programming will have
Handling information (databases and graphs) - Use a graphing package to collect, organise and classify data, selecting appropriate tools to create a graph and answer questions - Enter information into a simple branching database and use it to answer questions - Save, retrieve and edit work	**Understanding technologies** - Show an awareness of a range of inputs to a computer (Interactive whiteboard, mouse, touch screen, keyboard - Begin to show an awareness that computers can be linked to shared resources

Year 2 – End points	
E-Safety	• Identify where to go for help and support when they have concerns about content or contact • To recognise a range of search engines, including Google, Bing and Yahoo
Algorithms	• To be able to create, test and debug algorithms • To begin to use directional language (forwards, backwards, quarter turn)
Programming using Conditionals	• To use conditional statements ('if' statements) when programming • To predict the outcome of a sequence in Scratch JR • To identify 'bugs' in an algorithm and 'debug' them accordingly
Presentation Skills	• To be able to make a simple presentation using learnt skills • To know how to save files in a folder
Data Collection	• To understand the ways in which data can be collected • To have the ability to create tally charts, bar charts and pictograms
Creating using	• To demonstrate basic IT skills to create sprite or picture

Year 3: Computing skills progression	
KS2: POS - 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 - 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 - 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 - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable	**Electronic Communication** - Show good understanding and awareness of the need to abide by school e-safety rules

technology	• To create digital content using an app

behaviour; identify a range of ways to report concerns about content and contact.	
Text and Multimedia - Record and present information integrating a range of appropriate media combining text and graphics in printable form	**Research and E-Safety** - Using another curriculum area as a starting point, children ask their own question then use ICT sources to find answers, making use of search engines - Children talk about using ICT to find information/resources showing an emerging understanding of internet safety
Digital Images and audio (photos, paint, animation) - Manipulate digital images using a range of tools in appropriate software to convey a specific mood or idea	**Algorithms (Control)** - Able to type a short sequence of instructions and to plan ahead when programming devices on and off screen
Handling information (databases and graphs) - Use a simple database (the structure of which has been set up for the) to enter and save information on a given subject - Follow straight forward lines of enquiry to search data	**Understanding technologies** - Begin to show discernment in their use of computing devices and tools for a particular purpose and explain why their choice was made - Show an understanding that their password is the key to accessing a personalised set of resources and files - Show an awareness of where passwords are critical in everyday use (parents accessing bank details)

Year 3 – End points	
E-Safety	• To support and use each other when using the internet and all digital media, in a safe and secure way. • To behave in a manner that will reduce risk and enable them to experience all the positive opportunities which are available to them online. • To discuss and begin to form opinions about some of the issues raised by the use of ICT and internet safety.
Programming and Algorithms	• To know that algorithms are a sequenced structure of instructions that can be changed. • To break down problems into smaller parts (decomposing).
Programming using Scratch	• To understand the benefit of being able to identify problems in an algorithm and being able to 'debug' them. • To know that algorithms are used in everyday life.
Internet	• To understand the importance of word order when searching. • To begin to distinguish between a reliable and unreliable website or webpage.
Presentation Skills	• To know that media processing programs can be used to present information. • To know the different ways presentations can be edited on media processing programs. • To understand how to use video and audio in presentations.

Year 4 : Computing skills progression

KS2: POS
- 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
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.

Electronic Communication
- Share work that has been done electronically (email)
- Seek and respond to feedback

Text and Multimedia
- Include sound and video for on-screen presentations which include hyperlinks
  Show an awareness of audience
- Seek feedback

Research and E-Safety
- Make use of copy and paste becoming aware and showing an understanding of plagiarism
- Understand not all information on the internet is accurate
- Develop a growing awareness of how to stay safe when using the internet (in school and at home)
- Understand the school's internet policies

Digital Images and audio (photos, paint, animation)
- Make a short film/animation from images (still and/or moving) that has been sourced, captured or created

Algorithms (Control)
- Use control software devices or simulate this on screen (Scratch)
- Predict, test and refine programming

Handling information (databases and graphs)
- Work as a class or group to create a data collection sheet and use it to set up a simple database
- Enter information and interrogate it (by searching, sorting and graphing etc)

Understanding technologies
- Make choices about devices and tools used for specific purpose and explain in relation to context
- Begin to show an awareness of specific tools used in working life
- Show an awareness of the need for accuracy in spelling and syntax to search effectively

Year 4 – End points

E-Safety	• To continue to support and use each other when using the internet and all digital media, in a safe and secure way. • To continue to behave in a manner that will reduce risk and enable them to experience all the positive opportunities which are available to them online.
Word Processing Skills	• To understand that word processing documents are used to organise information. • To be able to utilise a number of features on a word processing program. • To use word processing and media processing programs to display information.
Presentation Skills	• To create presentations using slide transitions and animations • To consider layout using text boxes, columns, tables and borders.
Programming	• To use logical reasoning to explain how some simple algorithms work. • To understand that prediction, trial and error are important when controlling devices to achieve a specific outcome.
Animation (and project)	• To understand that animation is a sequence of pictures that are manipulated to appear as moving images. • Be able to discuss a minimum of two different styles of animation and compare and contrast the good and bad points. • To use and apply skills learnt previously in a project that involves designing, creating and evaluating a character.

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Year 5: Computing skills progression

KS2: POS
- 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
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.

Electronic Communication
- Recognise binary code
- Write basic HTML
- Understand webpages as a form of communication

Text and Multimedia
- Use advanced tools in word processing such as text formatting, line spacing etc

Research and E-Safety
- Understand the purpose of copyright regulations and the need to repurpose information for a particular purpose
- Independently and with due regard for safety, search the internet using a variety of techniques to find a range of information and resources on a specific topic

Digital Images and audio (photos, paint, animation)
- Use images created or captured as part of a bigger project
- Create multiple track compositions that contain a variety of sounds

Algorithms (Control)
- Create command sequences to control devices in response to sending (i.e. uses inputs as well as outputs)

Handling information (databases and graphs)
- Set up and use a spreadsheet model to explore patterns and relationships
- Know how to enter simple formulae to assist this process (SUM, AVERAGE, MIN & MAX)

Understanding technologies
- Show an understanding of the school network and how it links computers in school and beyond
- Compare this with other known networks that may be encountered at home or in the wider world (e.g. banks, hospitals)

Year 5 – End points

E-Safety	• To understand the concept of copyright and what that means when using the internet. • To understand that plagiarism is the act of using someone else's work and pretending it is your own. • Understand how to make a positive contribution to online communities.
Presentations	• Ability to use a range of multimedia and word processing packages (word and PowerPoint). • Understand that a hyperlink links one page to another using a highlighted word or image.
Programming	• To have the ability to spot errors in an algorithm and debug it. • Use a range of tools to improve programs and games.
Webpages	• To be able to discuss the different features of a webpage and understand that webpages are another form of communication. • To be able to write basic HTML. • Recognise binary code.
Audio and Sound	• Explain and evaluate what features makes good quality audio content.
Data	• To begin to understand the basic functions involved in creating spreadsheets. • To be able to explain the purpose of a spreadsheet and how they are useful.

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Year 6: Computing skills progression

KS2: POS
- 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
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- 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.

Electronic Communication
- Share work electronically
- Understand networks as part of the World Wide Web

Text and Multimedia
- Use effects to convey meaning rather than to impress

Research and E-Safety
- Check websites for security features
- Understand the effects of cyberbullying and stereotyping
- Use appropriate methods to validate information and check for bias and accuracy

Digital Images and audio (photos, paint, animation)
- Use images created, manipulated or captured as part of a bigger project
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Algorithms (Control)
- Design, build, test, evaluate and modify a system; ensuring that it is fit for intended purpose

Handling information (databases and graphs)
- Set up and use own spreadsheet containing formulae to investigate
- Ask 'What If' questions and change variables in their model
- Check for mistakes in formulae regularly

Understanding technologies
- Show an understanding of how filtering and monitoring tools affect their use of the school network and internet

Year 6 – End points

E-Safety	• To be able to discuss the consequences of cyberbullying. • Learning to support and use each other when using the internet and all digital media, in a safe and secure way. • Empower children to behave in a manner that will reduce risk and enable them to experience all the positive opportunities which are available to them online. • Consider the effects of technology on health, wellbeing and lifestyle and be able to make steps to manage this.
Presentation Skills	• Be able to effectively evaluate own and others' work. • Be able to discuss the purpose and audience of a presentation/piece of work. • Create a document/presentation based on a particular purpose and audience. .
Networks	• Understanding of how devices are connected to the internet and web.
Programming	• To be able to write commands using simple coding language. • To ensure a sequence is present when coding and understand the importance of this in relation to the desired outcome.
Databases	• To understand that different searches can be carried out on a database to refine your search. • To be able to distinguish the difference between AND & OR searches on a database.
Movies	• To understand some of the different aspects that go into making movies (locations, props, camera, sound etc) • To be able to use video editing software to create a short film • To be able to critically evaluate own and others' work suggesting ways in which it can be improved/edited