GATEWAY FEDERATION COMPUTING CURRICULUM PROGRESSION DOCUMENTS

Curriculum Subject Area — Computing Progression Framework

Date: *Updated September 2022*

In the Early Years, we have selected the Early Learning Goals that link most closely to the Computing National Curriculum.

Early learning goals	UNDERSTANDING THE WORLD	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

The NATIONAL CURRICULUM for computing in Key stage 1 & 2 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.

- **STRAND 1 - What is a computer?**
- **STRAND 2 - Presenting information and multimedia (Information technology)**
- **STRAND 3 - Presenting data (Information technology)**
- **STRAND 4 - Programming and using algorithms (Computing Science)**
- **STRAND 5 - E-safety**

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PROGRESSION THROUGH THE SCHOOL						
Reception	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Strand 1 **What is a computer?**	**Pupils should be taught to:** • Use different digital devices • Identify the physical features of computers • Use touch screens (i-pads) • Select a suitable device for a set task		**Pupils should be taught to:** • Use different digital devices proficiently • Identify the physical features of computers • Use touch screens, touch pads and mice confidently • Select a suitable device for a set task – i-pad or laptop • Be confident finding their way around a keyboard and features of a laptop • Type effectively with both hands • Be familiar with different file types • Navigate the laptop desktop and organise and save files • Access and use a range of internet based services (e-mail, Skype, Facetime etc.)			
Strand 2 **Computing Science**	**Pupils should be taught to:** • 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		**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 • 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			
Strand 3 **Information Technology**	**Pupils should be taught to:** • recognise common uses of information technology beyond school		**Pupils should be taught to:** • use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content • understand computer networks including the internet; how they can provide multiple services, such as the world wide web			
Strand 4 **Digital Literacy**	**Pupils should be taught to:** • use technology purposefully to create, organise, store, manipulate and retrieve digital content		**Pupils should be taught to:** • 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			
Strand 5	**Pupils should be taught to:** • use technology safely and respectfully,		**Pupils should be taught to:** • use technology safely, respectfully and responsibly; recognise acceptable/unacceptable			

E-Safety (Link to Jigsaw PSHE)	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.	behaviour; identify a range of ways to report concerns about content and contact

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The following progression objectives are in mixed year groups and have been amalgamated from the Sheffield Primary Computing Progression Framework so the objectives for each mixed year group are taken from the higher year group. E.g – Year 1 & 2 objectives are taken from Year 2. Teachers should move through the objectives over a two year period.

FOUNDATION

What is a Computer?	Presenting information and multimedia	Presenting data	Programming and using algorithms
-Use different digital devices. - Recognise that you can access content on a digital device. - Use a mouse, touchscreen or appropriate access device to target and select options on screen. - Recognise a selection of digital devices. - Recognise the basic parts of a computer, e.g. mouse, screen, keyboard. - Select a digital device to fulfil a specific task, e.g. to take a photo.	-Use technology to explore and access digital content. - Operate a digital device with support to fulfil a task. - Create simple digital content, e.g. digital art. - Choose media to convey information, e.g. image for a poster.	-Access content in a range of formats, e.g. image, video, audio. - Answer basic questions about information displayed in images e.g. more or less.	- Explore technology. - Repeat an action with technology to trigger a specific outcome. - Recognise the success or failure of an action. - Follow simple instructions to control a digital device. - Recognise that we control computers. - Input a short sequence of instructions to control a device.
E-safety			
- Are aware that some online content is inappropriate. - Are aware that information can be public or private. - Know to tell an appropriate adult if they see something on the computer that upsets them. - Can describe what makes a good friend			
Resources:	**Apple i-pads** **Bee-bots** **Teach Computing Scheme**		

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Vocabulary:	
STRAND 1 - What is a computer?	
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Year 1 & 2

What is a Computer?	Presenting information and multimedia	Presenting data	Programming and using algorithms
-Recognise what a computer is (input > process > output). - Recognise that a range of digital devices contain computers, e.g. phone, games console, smart speaker. - Explain what the basic parts of a computer are used for. - Identify and use input devices, e.g. mouse, keyboard; and output devices, e.g. speakers, screen. - Open key applications independently. - Save and open files to/from a given folder. - Add an image to a document from a given folder/source. - Resize an image in a document. - Highlight text and use arrow keys. - Capture media independently (e.g. take photos, record audio).	-Create simple digital content for a purpose, e.g. digital art. - Recognise that we can use technology to record and playback audio or take and view photographs. - Apply edits to digital content to achieve a particular effect, e.g. emphasise part of a text. - Present ideas and information by combining media, e.g. text and images. - Explain that you can search for information on the internet. - Plan out digital content, e.g. a simple sketch or storyboard. - Identify the common features of digital content, e.g. title, images. - Recognise that we can use different types of media to convey information, e.g. text, image, audio, video.	- Identify different forms of digital content, i.e. text, image, video and audio. – Recognise charts, pictograms and branching databases, and why we use them. – Identify an object using a branching database – Recognise an error in a branching database. – Create a branching database using pre-prepared images and questions - Identify the features of a good question in a branching database. - Independently plan out and create a branching database. – Evaluate a given branching database and suggest improvements.	- Explain that computers have no intelligence and we have to program them to do things. - Create a program with multiple steps e.g. to control a floor robot. - Predict the outcome of an algorithm or program with multiple steps. - Recognise that the instructions in an algorithm need to be clear and unambiguous. - Identify and correct errors in a given algorithm or program, and recognise the term debugging. - Explain what an algorithm is, and that when inputted on a computer it is called a program. - Plan out a program by creating an algorithm, and evaluate its success.

E-safety	
• Understand that you can share digital content online • Understand what personal information is and the need to keep it private • Know who to tell if concerned about content or contact online • Understand that digital content belongs to the person who first created it • Save and reuse digital content found online	• Can identify rules to add to an acceptable use policy for the class • Understand that spending a long time in front of a computer screen can be unhealthy • Understand that when we share content online, we might not be able to delete it • Know that not all information found online is true • Understand that the digital content we make belongs to us • Can remember a simple password and know not to tell anyone • Understand what makes a good online friend and the need to be kind and thoughtful

• Understand why we use passwords	online as in the real world
Resources:	**Laptops** **(i-pads)** **Teach Computing Scheme**
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Year 3 & 4

What is a Computer?	Presenting information and multimedia	Presenting data	Programming and using algorithms
- Recognise that you can organise files using folders. - Explain what a good file name would look like. - Delete and move files. - Use key parts of a keyboard effectively, e.g. shift, arrow keys, delete). - Know how to copy and paste text or images in a document. - Crop an image and apply simple filters. - Use a search engine to find specific information. - Recognise that school computers are connected together on a network.	Collect, organise and present information using a range of media. - Design and create digital content for a specific purpose, e.g. poster, animation. - Edit digital content to improve it according to feedback. - Identify the features of a good piece of digital content and apply these in own design. - Explain the benefits of using technology to present information. - Know where to find copyrightfree content, e.g. creative commons images. - Collaborate with peers using online tools, e.g. blogs, Google Drive, Office 365, if available.	Draw conclusions from information stored in a database, chart or table. - Design a questionnaire and collect a range of data on a theme. - Choose appropriate formats to present data to convey information. - Recognise that school computers are connected together on a network. - Recognise that the Internet is made up of computers and other digital devices connected together all around the world. - Know that you use a web browser to access information stored on the internet. - Appreciate that you need to use specific software to work with video, images, audio etc.	Create a program using a range of events/inputs to control what happens. - Recognise that we can decompose a problem into smaller parts to help solve it. - Explain when to use forever loops and count-controlled loops, and use them in programs. - Recognise selection in a program or algorithm. - Use selection in algorithms in programs to alter what happens when a condition changes, e.g. if…then… - Design a program for a purpose. Decompose into parts and create an algorithm for each one. - Recognise common mistakes in programs and how to correct them
E-safety			
• Understand that we can search for information in a variety of ways and that we influence the outputs of searches depending on our input • Know different ways of reporting unacceptable content and contact online • Understand when to share personal information and when not to • Understand that games and films have age ratings, and what that means • Understand that people can give permission for others to use their content e.g. using Creative Commons.		• Recognise what kind of websites are trustworthy sources of information • Can rate a game or film they have made and explain their rating • Understand the benefits of a good password • Recognise the benefits and risks of different apps and websites • Understand that the media can portray groups of people differently • Are aware that some people lie about who they are online	

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Year 5 & 6

What is a Computer?	Presenting information and multimedia	Presenting data	Programming and using algorithms
-Type efficiently using both hands. - Use a range of keyboard shortcuts. - Recognise that different devices may have different operating systems. - Organise files effectively using folders and files names. - Use the advanced search tools when using a search engine to find specific information and images. - Explain the basic function of an operating system. - Recognise common file types and extensions e.g. jpeg, png, doc, wav - Recognise a range of Internet services, e.g. email, VOIP (e.g. Skype, FaceTime), World Wide Web, and what they do.	- Select, combine and remix a range of media to create original content. - Consider all steps of the design process when creating content (e.g. identify problem, plan, create, evaluate, share.) - Identify the most effective tools to present information for a specific purpose. - Explain the benefits of using technology to collaborate with others. - Evaluate existing digital content in terms of effectiveness and design.	Recognise what a spreadsheet is and what it is used for. - Explain the difference between physical, mobile and wireless networks. - Use simple formulae in a spreadsheet to find out information from a set of data. - Collect data for a purpose and plan out a spreadsheet to present it effectively, using relevant formulae. - Produce graphs from data in a spreadsheet to answer a question. - Analyse and evaluate data and information in a spreadsheet, chart or database. - Recognise that poor quality data leads to unreliable results.	- Design and program a physical computing system that uses sensors. - Recognise and use procedures (sub-routines) in programs. - Plan out a program in detail, including task, algorithm, code and execution level. - Explain common errors in programs and how to fix them. - Use nested selection statements in a program or algorithm effectively. - Combine a variable with relational operators (< = >) to determine when a program changes, e.g. if score > 5, say “well done”. - Recognise key concepts (sequence, selection, repetition and variables) in a range of languages and contexts.
E-safety			
• Know where to find copyright free images and audio, and why this is important • Demonstrate responsible use of online services and technologies, and know a range of ways to report concerns • Critically evaluate websites for reliability of information and authenticity		• Become increasingly savvy online consumers: know that algorithms are used to track online activities with a view to targeting advertising and information • Know that there are laws around the purchase of games; the production, sending and storage of images; what is written online; and around online gambling • Understand what makes a strong password and why this is important at school and in the wider world	

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