Hillborough Infant and Nursery School Computing Progression Framework

This progression framework maps the progression of skills and knowledge for the computing curriculum from Year 1 to Year 2 and is used as the starting point for both planning and monitoring progression.

The statements within this framework have been taken from a variety of sources including Cambridgeshire Progression in Computing Capability, Sheffield Primary Computing Progression Framework, NCCE Teaching Resources, Purple Mash Scheme of Work and QuickStart Computing.

We have split the Computing Curriculum into 4 areas:

- **Using and Understanding Technology in the Real World**
- **Computational Thinking and Programming**
- **Digital Literacy - creating, designing, editing, manipulating, presenting, collecting, analysing**
- **Online Safety and Digital Literacy**

Using and Understanding Technology in the Real World
Throughout their time in primary education, pupils need to extend that understanding to include computer networks such as the Internet, and the services they can provide such as the World Wide Web. Teachers need to provide practical, fun experiences that allow pupils to make links with their existing understanding of the world around them. In doing so, pupils will ultimately become much more effective creators and users of digital content.

Computational Thinking and Computer Science - programming and coding
Computational thinking is about looking at a problem in a way in which a computer can help us to solve it. This is a two-step process; first, we think about the steps needed to solve a problem, then, we use our technical skills to get the computer working on the problem.
Computer Science is more than programming, but programming is an absolutely central process for Computer Science. It covers two distinct, but related, aspects - the ideas and principles that underpin how digital technology works, sits alongside the practical experience of programming, almost certainly the best way for primary pupils to learn about computer science. Programming encourages creativity, logical thought, precision and problem-solving, and helps foster the personal, learning and thinking skills required in the school curriculum.

Digital Literacy - creating, designing, editing, manipulating, presenting, collecting, analysing
As well as being consumers pupils need to be creators and develop confidence, competence and independence to tinker and experiment when using familiar and unfamiliar technologies. They need to have the opportunity to design and create, edit, manipulate, collect, analyse, evaluate and present data and information on a wide range of technology, across a wide range of media including text, images, sound, animation, video and 3D, VR and AR, in a wide variety of contexts to express their own insights and ideas. The internet makes it easy for pupils to work collaboratively online in real-time and can share their work with others for review and comments, just as they have always been able to do in class. Pupils need to work with numerical data and experience working with both small and large datasets, some of which can be generated by them or wider across the curriculum.

Online Safety and Digital Literacy
The statements under this area have been taken from the Education for a Connected World framework which describes the skills and understanding that children and young people should have the opportunity to develop at different ages and stages. It highlights what a child should know in terms of current online technology, its influence on behaviour and development, and what skills they need to be able to navigate it safely. 3 of the 8 aspects will be covered within the Computing Curriculum:

- *5. Managing online information* - This strand explores how online information is found, viewed and interpreted. It offers strategies for effective searching, critical evaluation and ethical publishing.
- *7. Privacy and security* - Privacy and security This strand explores how personal online information can be used, stored, processed and shared. It offers both behavioural and technical strategies to limit the impact on privacy and protect data and systems against compromise.
- *8. Copyright and ownership* - This strand explores the concept of ownership of online content. It explores strategies for protecting personal content and crediting the rights of others as well as addressing potential consequences of illegal access, download and distribution
- The other 5 aspects will be embedded in the PSHE curriculum: 1. Self-image and Identity 2. Online relationships 3. Online reputation 4. Online bullying 6. Health, wellbeing and lifestyle.

Click on the links below to view the progression statements for each year group

EYFS	**Year 1**	**Year 2**

Computing Progression Framework - EYFS

Using and Understanding Technology in the Real World	Computational Thinking and Programming	Digital Literacy - creating, designing, editing, manipulating, presenting, collecting, analysing	Online Safety and Digital Literacy
Using and Understanding Technology Pupils can: ● recognise a range of digital devices ● use different digital devices ● recognise that a range of technology is used in places such as homes and schools] ● select and use technology for particular purposes. ● recognise and understand 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 the basic parts of a computer, e.g. mouse, screen, keyboard ● recognise key parts of a keyboard, e.g. spacebar, numbers and letters ● understand that information and media can be stored on a digital device, e.g. they ask to view a photo that has been taken on a tablet ● can access content in a range of formats, e.g. image, video, audio *The internet and WWW* Pupils: ● are beginning to access and retrieve online content with support ● can explore and navigate around adult chosen / age-appropriate website which includes text, images, sounds and video *Networks - sharing, collaborating and communication* Pupils: ● understand that you can access the same content on different devices	Pupils can: ● plan out a program by creating an algorithm ● explore technology and talk about what is can do and how ● 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 ● try alternative approaches to achieve a goal ● recognise and understand that we control computer ● can order the steps of a known task ● input a short sequence of instructions to control a device ● recognise patterns in groups of objects	Pupils can: ● distinguish between text, image, video and audio content ● use technology to explore and access digital content. ● operate a digital device with support to fulfill a task ● choose a digital device from a selection to complete a specific task ● choose media to convey information, e.g. image for a poster *Digital Writing and Art* - pupils: ● create simple digital content, e.g. digital art. ● add text to a document using the keyboard (where appropriate) *Audio* - pupils ● can record audio *Digital Photography and Film* - pupils ● can use a camera on a tablet to take a photo, record a short film ● can with support retrieve saved digital content e.g. photos	*Managing online information* Pupils can: ● talk about how to use the internet as a way of finding information online. ● identify devices I could use to access information on the internet. *Health, well-being and lifestyle* Pupils can: ● can identify rules that help keep us safe and healthy in and beyond the home when using technology. ● can give some simple examples of these rules. *Privacy and Security* Pupils can: ● identify some simple examples of my personal information (e.g. name, address, birthday, age, location). ● describe who would be trustworthy to share this information with; I can explain why they are trusted. ● explain that passwords are used to protect ● information, accounts and devices. *Copyright and ownership* Pupils: ● know that work I create belongs to me. ● can name my work so that others know it belongs to me.

Computing Progression Framework - Year 1

Using and Understanding Technology in the Real World	Computational Thinking and Programming	Digital Literacy - creating, designing, editing, manipulating, presenting, collecting, analysing	Online Safety and Digital Literacy
Using and Understanding Technology Pupils: ● recognise and can give examples of common uses of information technology they encounter in their daily routine. ● identify different types of technology and name the main parts of a computer and device ● switch on and log into different devices e.g. tablet, computer ● use a mouse or finger(s) on a touch screen in different ways such as click and drag objects on a screen, make objects, create a picture, open a program or app ● are beginning to recognise that information (work) on a computer can be stored and saved ● are beginning to understand that information can be retrieved, edited and re-saved and with support can save and retrieve their work ● recognise that work can be printed and shared *The internet and WWW* Pupils: ● are beginning to access and retrieve online content with support ● can explore and navigate around adult chosen ● / age-appropriate website which includes text, images, sounds and video ● with appropriate levels of support, can collect data (e.g. numerical, research facts etc.) which they are able to retrieve and store. *Networks - sharing, collaborating and communication* Pupils: ● recognise that work can be shared between devices ● can comment and share ideas with others in their class using online tools ● recognise that people around them can view their screen to see their work ● know what to do if something they receive upsets them.	Pupils can create, debug and implement simple algorithms (instruction) and programs on a range of digital devices. Pupils understand that computers have no intelligence and humans have to program them to do things. They understand that digital devices follow precise and unambiguous instructions. Pupils: ● can give instructions to a friend and follow their instructions ● understand what an algorithm is ● can identify and list the steps of a known task in order and create a simple algorithm ● understand that the order of instructions in an algorithm is important ● can press the buttons in the correct order to make a robot do what they want ● describe what will happen/happened when they press(ed) buttons on a robot ● describe what actions they need to do to make something happen ● begin to predict what will happen for a short sequence of instructions ● can spot mistakes when they run a program e.g. on a floor robot or programming app and can debug the error ● understand what the terms debug and debugging mean ● are beginning to understand that digital devices simulate real situations	Pupils are beginning to use a range of technology and techniques to use and create digital content such as still and moving images, video, audio and text. They can explain which tools they used when creating their work and making changes and improvements. Pupils can spot the differences between writing or painting on a computer and with a pencil on paper Pupils can use tools and apps, often selected by an adult, to mix together different media (such as text and images) to present what they have learned and share with others for feedback. *Digital Writing* - pupils: ● know writing on a computer is called typing and can identify and find keys on a keyboard ● can add, remove and edit text ● know that the look of text can be changed by using different icons on toolbars ● know how to select a word to change the look *Audio* - pupils ● know how to use simple audio equipment to listen to sounds e.g. embedded in audiobooks, websites, sound buttons ● are beginning to create their recordings using digital devices (microphones, tablets, talking postcards etc.) *Digital Painting* - pupils: ● can use a range of different tools such as freehand, shape and line tools to draw a picture ● can use different paint tools and colours when creating pictures and change the colour and brush sizes ● are beginning to experiment with how to create a range of effects - shades, patterns and results using different tools *Digital Photography and Film* - pupils ● know that some digital devices can capture images using a camera ● can use a digital device to take a photo and view and record a film and playback. ● with adult support, can create films from still photos, choosing preferred transition and basic ● visual effects. ● can contribute to discussions about the choice of audio to accompany a film.	*Managing online information* Pupils can: ● identify devices could use to access information on the internet ● give simple examples of how to find information (e.g. search engine, voice-activated searching) ● use the internet to find things out. ● use simple keywords in search engines. ● describe and demonstrate how to get help from a trusted adult or helpline if find content that makes me feel sad, uncomfortable, worried or frightened. *Privacy and Security* Pupils can: ● recognise simple examples of personal information (e.g. name, address, birthday, age, location) and more detailed examples (e.g. where I live, my family's names, where I go to school) ● describe people can trust and can share this with; explain why can trust them. ● explain why should always ask a trusted adult before share any personal information online. ● explain how passwords can be used to protect information and devices. *Copyright and ownership* Pupils can: ● explain why work they create using technology belongs to them ● say why it belongs to them (e.g. 'it is my idea' or 'I designed it') ● save work so that others who it belongs to (e.g. filename, name on content).

Computing Progression Framework - Year 2

Using and Understanding Technology in the Real World	Computational Thinking and Programming	Digital Literacy - creating, designing, editing, manipulating, presenting, collecting, analysing	Online Safety and Digital Literacy
Using and Understanding Technology Pupils: ● can identify common uses of information technology beyond school, including those which they don't frequently encounter in their daily routine. ● compare types of information technology and identify common features ● know that information (work) can be stored and saved in different places e.g. on a computer and online ● understand that saved information can retrieved, edited and re-saved and can independently save and retrieve their work ● know that work can be printed ● know that work can be shared so it can be viewed and edited by others *The internet and WWW* Pupils: ● can explore and navigate around adult chosen/age appropriate websites which include text, images, sounds and video ● can talk about what they have found out ● are beginning to conduct specific keyword searches using child friendly search engines to locate exact information to answer simple questions. *Networks - sharing, collaborating and communication* Pupils: ● recognise that information technology can be connected ● can share work with others in their class for feedback ● are beginning to recognise that people can be working within the same app or online tool at the same time and that they will see updates in real-time ● can view and comment on shared work by others ● can send simple messages to others in their class and year group ● are beginning to use online tools to ask and answer questions and share information. They understand that posts must be clear and appropriate. They know what to do if something they receive upsets them.	Pupils understand what an algorithm is and understand that algorithms are implemented as programs on digital devices. Pupils understand that we control computers by giving them instructions (program) and that digital devices follow precise and unambiguous instructions. Pupils: ● can create an algorithm to achieve specific goals ● understand that instructions in an algorithm need to be clear and unambiguous ● can convert an algorithm into a program by e.g. entering instructions into a floor robot or creating program to control an on-screen sprite ● can solve real and imaginary problems on and off screen ● use the principles of logical reasoning to plan and predict the outcome of simple algorithms and programs ● identify and explain patterns in algorithm and begin to understand repetition ● identify and correct errors in a given algorithm and program (debugging) ● can watch a program execute and spot where it goes wrong to debug it ● evaluate the success of an algorithm or program ● are beginning to use the language if… then to describe the relationship between two actions	Pupils are using a wider range of technology to, use, manipulate and create digital content such as still and moving images, video, audio and text. With appropriate levels of support, pupils can collect information/data (e.g. numerical, research facts etc.) and present and communicate it in a variety of ways. Pupils can explain tools used to create and improve work. With support, pupils are beginning to access and retrieve online content, making appropriate choices to achieve specific goals. *Digital Writing and Presentations* - pupils ● can use tools and apps such to mix together different media (such as text, images, video and audio to present what they have learned and planned ● can use tools within apps to manipulate media *Making Music* - pupils ● use technology to listen to music ● can use technology to create musical patterns ● can experiment with pitch and duration ● can review and refine musical patterns using technology ● can record music and playback *Data Handling* - pupils: ● can interpret and construct simple pictograms, tally charts, block diagrams and simple tables ● can ask and answer simple questions e.g. by counting the number of objects in each category and sorting the categories by quantity; totalling and comparing categorical data. *Digital Photography and Film* - pupils: ● can explain the process of taking a good photograph e.g. the effect that light has on a photo ● use a range of photography skills to capture a photo and different tools within the camera app to apply different effects to photos ● can explain the process of filming good footage ● understand you can edit and change digital content ● can use photo editing tools to make changes and add text e.g. captions, labels ● can use basic video editing tools to e.g. trim start and end of films taken ● can create films from still photos and films and use different transitions to create different visual effects ● use basic editing tools add text and audio to films	*Managing information online* Pupils can: ● use keywords in search engines ● demonstrate how to navigate a simple webpage to get to information (e.g. home, forward, back buttons; links, tabs and sections). ● explain what voice activated searching is and how it might be used (e.g. Alexa, Google Now, Siri). ● explain the difference between things that are imaginary, 'made up' or 'make believe' and things that are 'true' or 'real'. ● explain why some information online may not be true. *Privacy and security* Pupils can: ● describe how online information about them could be seen by others ● describe and explain some rules for keeping personal information private ● explain what passwords are and can use passwords for accounts and devices ● explain how many devices in homes could be connected to the internet and can list some of those devices. *Copyright and ownership* Pupils can: ● describe why other people's work belongs to them ● recognise that content on the internet may belong to other people.