Helsby Hillside Primary School

Computing and E-Safety Essential Learning

With kindness, respect and gratitude, together we aim high in all we do.

Computing - Essential Learning – EYFS
In Reception children will: Be exposed and given opportunities to explore a range of computing apparatus during teaching of other subject areas and continuous provision. This is based upon children's interests and in preparation for the National Curriculum in Year 1. The following learning activities incorporate computing: • Internet safety • Taking a photograph with a camera or tablet/iPad • Searching for information on the internet • Playing games on the interactive whiteboard or iPad • Exploring an old typewriter or other mechanical toys • Using a Beebot or other programmable toys
Project Evolve – E-safety In these units, the children will • Understand that both online and offline, they can say 'no', 'please stop', I'll tell' to someone who makes them feel sad, uncomfortable, embarrassed or upset. • Begin to explore some ways in which the internet can be used to communicate with other people. • Be able to give some examples of how I might use technology to communicate with people I know. • Begin to understand and describe ways that some people can be unkind online. Show some awareness of how this makes us feel. • Explore rules that help keep us safe and healthy in and beyond the home when using technology.

Unit of Work	Computing - Essential Learning – Year 1
Technology around Us	In this unit, the children will: • Be able to explain that technology is something that can help us and give examples from around the classroom. • Name the main parts of a desktop computer • Understand how to use a mouse to click and drag objects • Know how to a mouse to create a simple picture • Be able to use a keyboard to type their name (NC - recognise common uses of information technology beyond school)
Moving a Robot	In this unit, the children will: • Be able to move a floor robot backwards, forwards, left and right. • Independently predict the outcome of a sequence of commands. • Be able to combine movements to create their own simple sequences. • Understand the sequence of commands is very important and begin to debug errors. (NC - create and debug simple programs, use logical reasoning to predict the behaviour of simple programs)
Digital Writing	In this unit, the children will:

	• Use a keyboard to type capital and lower-case letters. • Be able to type numbers • Use a keyboard to use the space bar to create a space and the arrow keys to move the cursor. • Use the icons or short cut keys use bold, italic and underline. • Be able to change the font type. (NC - use technology purposefully to create, organise, store, manipulate and retrieve digital content)
Grouping Data	In this unit, the children will: • Be able to group objects based on similar properties. • Understand how to describe properties of an object or a group of objects. • Understand that objects can be grouped based on more than one property. • Be able to record how many objects are in a group. (NC - use technology purposefully to create, organise, store, manipulate and retrieve digital content)
Project Evolve E-safety	In these units, children will: • Understand that everyone can encounter things online that they don't like as well as things that are real or make believe. They will learn that it is important to get help from a trusted adult they see content that makes them feel sad, uncomfortable, worried or frightened • Understand why it is important to be kind and considerate to people online. • Begin to explore how to keep themselves safe on line and star to identify some simple examples of personal information (e.g. name, address, birthday, age, location) that should not be shared. • Explain how passwords are used to protect information, accounts and devices. (NC - 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)

Unit of Work	Computing - Essential Learning – Year 2
Information Technology around us	In this unit, the children will: • Be able to identify and talk about examples of information technology around school. • Be able to identify and talk about examples of information technology in the local community. • Understand the different rules for using technology (NC - recognise common uses of information technology beyond school)
Digital Photography	In this unit, the children will: • Know to identify which devices can be used to take photographs. • Understand how to take their own photographs both landscape and portrait. • Be able to discuss things to consider when taking a photograph to make it a good photograph. • Be able to use simple editing photographs including cropping and lighting. (NC - use technology purposefully to create, organise, store, manipulate and retrieve digital content)

Robot Algorithms	In this unit, the children will: • Understand that a series of instructions is known as a sequence. • Use an algorithm to program a sequence on a floor robot. • Start to create algorithms to move a floor robot along different routes on a mat. • Be able to test and debug algorithms with increasing independence. (NC - create and debug simple programs, use logical reasoning to predict the behaviour of simple programs)
Programming Quizzes	In this unit, the children will: • Understand how to create and run simple sequences in scratch Jnr using the green flag. • Be able to predict the outcome of a sequence orally. • Know how to choose background for a design • Be able to change the sprite to different characters to suit their design. • Know how to create simple algorithms and improve them by adding features. • Be able to debug their programs with support from a partner. (NC - create and debug simple programs, use logical reasoning to predict the behaviour of simple programs)
Project Evolve E-Safety	In these units, children will: • Be to explore how people may not be honest about who they are or how they look online. Also that some people may act differently online than they do on line. • Understand how information put online about some can last a long time and that online information can be seen by others. • Learn what is meant by 'private' and 'keeping things private' when we are online. Be able to give examples of some of the way we can keep personal information private online. (NC - 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.)

Unit of Work	Computing - Essential Learning – Year 3
Connecting Computers	In this unit, the children will: • Understand that digital devices produce an output. • Be able to identify input and output sizes. • Be able to talk about the similarities and differences when using digital and non-digital devices. • Understand that a computer network is made up of a number of devices. • Understand how devices in a network are connected. (NC - 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)
Stop-Frame Animation	In this unit, the children will: • Understand that an amination is a sequence of drawings and photographs. • Create a flip book animation.

	• Upload images to iMotion. • Create a simple animation on iMotion using flight changes in drawings or photographs. (NC - 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)
Sequencing Sounds	In this unit, the children will: • Identify sprite and backdrop in Scratch. • Understand that sequences in Scratch are created using blocks. • Combine a sequence of connected sounds including some sound. (NC - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts, use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs)
Branching Databases	In this unit, the children will: • Be able to group objects using yes/no questions. • Choose attributes within an existing group. • Understand how to use an online branching database with yes/no questions. (NC - 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)
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Unit of Work	Computing - Essential Learning – Year 4
Audio Editing	In this unit, the children will: • Be able to identify the input and output devices used to record and play sound. • Be able to use a computer to record audio and consider the quality of the recording. • Understand how to use the soundwaves view to trim their project. • Know how to add sound effects and background music to voice recording.

	(NC - 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)
Repetition in Shapes	In this unit, the children will: • Be able to use FD, BK, RT, LT, CS, Home, Pu and Pd command to move the sprite. • Use counter- controlled loops to repeat commands. • Understand which values to change in a loop. • Be able to debug errors in my programs with increasing independence. (NC - 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)
Photo Editing	In this unit, the children will: • Know how to crop and rotate to improve the composition of a digital image. • Understand how use different colour effects to create different moods. • Be able to use the clone features with photo editing software. • Be able to combine text and images. • Understand why editing photographs can be unethical in certain situations. (NC - 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)
Repetition in Games	In this unit, the children will: • Understand how read a code snippet and predict the outcome. • Be able to modify snippets of code to create an outcome. • Know what an infinite loop is and how to use it. • Be able to identify which parts of a loop can be changed and what the effect of the change will be. (NC - use sequence, selection, and repetition in programs; work with variables and various forms of input and output , design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts)
Project Evolve E safety	• Identify times or situations when someone may need to limit the amount of time they use technology e.g. I can suggest strategies to help with limiting this time. • Describe strategies for safe and fun experiences in a range of online social environments (eg livestreaming, gaming platforms). • Be able to recognise when someone is upset, hurt or angry online. • Be able to describe ways people can be bullied through a range of media. • Give some simple examples of content which I must not use without permission from the owner, eg videos, music, images. • Describe positive ways for someone to interact with others online and understand how this will positively impact on how others perceive them.

	• Explain that others online can pretend to be someone else including my friends and I can suggest reasons why they might do this. (NC - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact)

Unit of Work	Computing - Essential Learning – Year 5
Video Productions	In this unit, the children will: • Identify devices and use features on a digital video recording device. • Know how to use a microphone. • Be able to decide and use suitable camera angles. • Be able to save and retrieve video content. • Identify parts of videos that need to be improved and make edits. (NC - 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)
Selection in Physical Computing	In this unit, the children will: • Be able to create a simple circuit and connect it to a crumble. • Add an LED switch to a simple circuit. • Use 'if...then' selection to direct the program • Understand that a condition being met can start an action. • Write their own algorithm, test and debug with increasing independence. (NC - 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)
Systems and searching	In this unit, the children will: • Be able to describe the input, process and output of familiar digital system. • Understand that computer systems communicate with other devices. • Effectively be able to refine a web search to make the results more specific. • Understand how to find trustworthy websites and understand that information on the Internet may not be totally accurate. • Be able to explain how search engines make money and that results can be influenced for this. (NC - use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content)
Selection in Quizzes	In this unit, the children will: • Be able to identify conditions in a program • Understand how to modify a condition in a program • Be able to use selection in an infinite loop to check a condition

	• Understand how to identify the condition and outcomes in an 'if... then... else...' statement • Be able to create a program that uses selection to produce different outcomes • Be increasingly independent when testing and improving their program (NC - 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)
Project Evolve – E-safety	In this unit, the children will: • Understand why you need to use strong and secure passwords. • Explain how many free apps or services may read and share my private information (e.g. friends, contacts, likes, images, videos, voice, messages, geolocation) with others. • Understand that there are some people online who may want to do me or my friend's harm. I can recognise that this is not my/our fault • Talk about how online bullying can be different to bullying in the physical world and can describe some of those differences. • Know to get help when they are being bullied online. • Understand how identify online can be copied, modified or altered. (NC - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.)

Unit of Work	Computing - Essential Learning – Year 6
Variables in Games	In this unit, the children will: • Develop a greater understanding of variable, knowing that they can be either letters or numbers. • Be able to identify variables and understand that they can be changed. • Develop their own algorithms to create a game with greater independence. • Be able to use variables to extend the life of their game. • Be increasingly independent when testing and improving their program (NC - design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts, use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs)
Introduction to Spreadsheets	In this unit, the children will: • Begin to collect data and enter it into a spreadsheet. • Understand how to use formulas within a single cell. • Begin to use a formula which includes a range of cells. • Understand how the results can be presented in different ways.

	(NC - 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)
3D Modelling	In this unit pupils will: • Learn how to add 3D shapes to a project • Explore viewing 3D shapes from different perspectives • Begin to explore moving and rotating 3D shapes • Experience duplicating 3D objects • Explore how to analyse a 3D model • Chose objects to use in a 3D model • Begin to construct 3D models based on a design (NC - 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)
Sensing Movement	In this unit, the children will: • Understand that a microbit is an input, process and output device. • Understand how to use if, then, else statements within a program • Be able to adapt code to create a microbit that can be used as a navigational device. • Develop their understanding of programming to create a program which enables the microbit to be used as a step counter. • Be able to debug their programs with increasing independence, working systematically to identify where the errors occur. (NC - 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)
Project Evolve E-safety	In this unit, the children will: • Explain the reason for technology to regulate age-related content (e.g. PEGI, BBFC, parental warnings) • Understand and discuss the pressures that technology places on someone and how/when they could manage this. • Know what to do if a password is shared, lost or stolen. • Talk about how to be kind and show respect for others online including the importance of respecting boundaries regarding what is shared about them online. • Understand how things shared online can have unintended consequences for others. • Know how to capture bullying content as evidence (e.g. screen=grab, URL, profile) to share with others who can help me. • Begin to critically evaluate online content relating to gender, race, religions, disability, culture and other groups and explain why it is important to challenge inappropriate representations online.

	(NC - use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.)