HADY PRIMARY SCHOOL

Computing Curriculum

At Hady Primary School, the children are provided with the opportunity to develop their creativity through the use of a wide range of programs and applications that make deep links with mathematics, science and design and technology. Pupils will become digitally literate as they explore the world of programming and develop their understanding of fundamental principles including algorithms, data representation, logic and abstraction.

- By the time our children leave Hady, they will:
- Be responsible, confident and creative users of technology, who apply computational thinking beyond the computing curriculum.
- Be digitally literate and are active participants in a digital world.
- Know how to stay safe whilst using technology and on the internet, minimising risk to themselves and others.
- Understand and follow our agreed E-Safety rules, and know who to contact if they have concerns, including the use of report buttons.
- Have the ability to ask and answer questions
- Use search options effectively whilst understanding the need to evaluate the relevance of content.
- The children will be respectful, responsible and competent digital citizens; they will have the knowledge to support themselves and others online.

Computing-Long Term Plan – 2022/2023 Academic Year

IT – Information Technology *CS* – Computer Science *DL* – Digital Literacy

EYFS

Throughout the day children have access to a range of technology, for both focussed and self-chosen learning. Children will explore these continuously throughout the year. Children will use ipads for games / activities linked to the topic or area specific. The camera to take photos with, Remote control toys – cars, Battery operated toys – Beebots (when learning a about instructions or direction) Interactive white boards to enhance learning through games and songs or during lessons. Google Earth / phonics bug / drawing, sorting, information gathering/ sound buttons are all examples of when computing is used in EYFS. Children can listen to a pre-recorded message on clip boards and talking tins. - exploring old typewriters / computers / mechanical toys, telephones. Within the Role play area many items are used to support how we use computing/technology within the home.

KEY SKILLS - *DL* – How will EYFS pupils become digitally literate?

- 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.

EYFS Goal	How does Computing fit into this>
Personal, Social and Emotional Development -Managing Self	E-Safety;

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge; - Explain the reasons for rules, know right from wrong and try to behave accordingly.	- Talk about good & bad choices in real life e.g. taking turns, saying kind things, helping others, telling an adult if something upsets you. - Play appropriate games on the Internet. - Talk about good and bad choices when using websites – being kind, telling a grown up if something upsets us & keeping ourselves safe by keeping information private. Technology in our Lives; - Recognise purposes for using technology in school and at home. - Understand that things they create belong to them and can be shared with others using technology. - Recognise that they can use the Internet to play and learn
Expressive Art and Design – Creating with Materials - Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;	Information Technology - 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. - create music using a digital device - use a digital device to paint
Communication and Language – Listening, Attention and Understanding - Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions; - Make comments about what they have heard and ask questions to clarify their understanding;	Programming - Help adults operate equipment around the school. - Use simple software to make things happen - Press buttons on a floor robot and talk about the movements – use of coda pillar - Explore options and make choices with toys, software and websites

Progression plan	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topic Title	Marvellous me	Once upon a Time	Animals	Mighty Machines	Let's go outside	All around the world

						
Nursery/ Reception	**IT**	**CS-Toy**	**IT-Music**	**CS-Unplugged**	**IT-Digital art**	**IT-Unplugged**
	Technology all around us	Codapillar	Music creation	Barefoot Computing	Tux painting	Barefoot Computing

EYFS	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	CS-Toy	IT-Music	CS-Unplugged	IT-Digital art	IT-Unplugged
	Technology around us https://www.ilearn2.co.uk/computerdiscoveryfree.html http://code-it.co.uk/wp-content/uploads/2015/05/bankpla	**Codeapillar**.. https://www.somerset.org.uk/sites/edtech/Primary%20Computing/NWP%20free%20samples/Y1%20Programming%206%20Core%20Codapillar.pdf	**Music creation** https://www.ilearn2.co.uk/freeyear1musiccreation.html	**Barefoot Computing** - Jam sandwich http://swaygrantham.co.uk/wp-content/uploads/2016/09/JamSandwichAlgorithm.pdf https://www.barefootcomputing.org/docs/default-source/at-home/pizza_party_activity.pdf?sfvrsn=154d91ea_2	**Tux paint** https://www.j2e.com/jit5 tuxpaint.org	**Barefoot Computing** Lego Building Crazy Characters Head, Shoulder, Knees and Toes

	n.pdf http://code-it.co.uk/wp-content/uploads/2015/05/supermarketplan.pdf http://www.crickweb.co.uk/Early-Years.html https://www.nurseryworld.co.uk/News/article/ict-in-role-play-check-it-out					Boats Ahoy Busy Bodies

Key Stage One

Key Stage One	National Curriculum Objectives
	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 instruction ● create and debug simple programs ● use logical reasoning to predict the behaviour of simple program ● 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.

KEY SKILLS - *DL* – Key Stage One	
Year One	**Year Two**
- Recognise a range of digital devices. - Select a digital device to fulfil a specific task, e.g. to take a photo. - Name a range of digital devices, e.g. laptop, phone, games console. - Log on to the school computer /unlock the school tablet with support. - Identify the basic parts of a computer, e.g. mouse, keyboard, screen. - Use a suitable access device (mouse, keyboard, touchscreen, switch) to access and control an activity on a computer. - Open key applications independently. - Save and open files with support. - Add an image to a document from a given folder/source with support.	- 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 the arrow keys. - Capture media independently (e.g. take photos, record audio).

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	IT	CS	IT	CS	IT
Yr 1 and 2 A	Technology Around Us Logging on LO: To Identify technology To identify a computer and its main parts To use a mouse in different ways To use a keyboard to type on a computer To use the keyboard to edit texts To create rules for using technology	Creating Media Digital Painting LO: To describe what different freehand tools do To use the shape tool and the line tools To make careful choices when painting a digital picture To explain why I chose the tools I used To use a computer on my own to paint a picture	Programming Moving a robot LO: To explain what a given command will do To act out a given word To combine 'forwards' and 'backwards' commands to make a sequence To describe a series of instructions as a sequence To explain what happens when we change the	Creating Media Digital Writing LO: To use a computer to write To add and remove text on a computer To identify that the look of text can be changed on a computer To make careful choices when changing text To explain why I used the tools that I chose To compare typing on a	Introduction to sequencing and animation – Programming Sequencing LO: To use a map to give commands (introduction to algorithms) To begin to use blocks to create a sequence To develop understanding of sequencing by programming (paired programming) To use move, turn and pick blocks in a sequence	Data and information Grouping Data LO: To label objects To identify that objects can be counted To describe objects in different ways TO count objects with the same properties To compare groups of objects To answer

	Curriculum links: https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us https://www.abcya.com/games/find_the_tech Hello Ruby keyboard https://www.helloruby.com/play/12 Paper computer http://www.helloruby.com/play/29 **Extension** **https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us**	**To compare painting a picture on a computer and on paper** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-painting https://www.j2e.com/jit5 Y1) Tuxpaint.org (Y2)	**order of instructions** **To use logical reasoning to predict the outcome of a program** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot** **Plus Lesson 1, 2 and 3 https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms** **Equipment: Beebots**	**computer to writing on paper** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-writing	**To debug programs I have created** **Curriculum Links:** **https://studio.code.org/s/courseb-2022**	**questions about groups of objects** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-1/data-and-information-grouping-data**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	IT	CS	IT	CS	IT
Yr 1 and 2 B	Computing Systems and Networks IT Around Us LO: To recognise the uses and features of information technology To identify the uses of information technology in school To identify information technology beyond school To identify how information technology helps us	Creating Media Digital Music LO: To say how music can make us feel To identify that there are patterns in music To experiment with sound using a computer To use a computer to create a musical pattern To create music for a purpose	Programming Moving a robot LO: To explain what a given command will do To combine four direction commands to make a sequence To describe a series of instructions as a sequence To explain what happens when we change the order of instructions	Digital Photography LO: To use a digital device to take a photograph To make choices when taking a photograph To describe what makes a good photograph To decide how photographs can be improved To use tools to change an image	Programming Unplugged LO: To follow instructions To create a sequence of instructions (algorithm) To understand that the order of instructions is important To break a sequence of moves down into its parts. To decompose a sequence. To say how decomposition	Data and information Pictograms LO: To recognise that we can count and compare objects using tally charts To recognise that objects can be represented as pictures To create a pictogram To select objects by attribute and make comparisons

	To explain how to use information technology safely **To recognise that choices are made when using information technology** **Curriculum links:** **https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-it-around-us**	**To review and refine our computer work** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-1/creating-media-making-music https://www.ilearn2.co.uk/freeyear1musiccreation.html https://musiclab.chromeexperiments.com/	**To plan a simple program** **To use logical reasoning to predict the outcome of a program** **Curriculum Links:** **Use lessons 4 , 5 , 6 to extend learning** **https://teachcomputing.org/curriculum/key-stage-1/programming-a-moving-a-robot** **Plus Lesson 1, 2 and 3** **https://teachcomputing.org/curriculum/key-stage-1/programming-a-robot-algorithms** **Apps** Beebot	**To recognise that photos can be changed** **Curriculum Links:** **https://pixlr.com/x/** https://teachcomputing.org/curriculum/key-stage-1/creating-media-digital-photography	**is used when creating computer programs like animations or games.** **Curriculum Links:** https://curriculum.code.org/hoc/unplugged/4/?fbclid=IwAR2rgsYBNpDD9QScqpv5lXHVFa5pBt0YjReqFN-e2b670mhfWBR3ySF-NAo https://www.barefootcomputing.org/resources/dance-move-algorithms **https://www.barefootcomputing.org/resources/decomposition-unplugged-activity-ks1**	**To recognise that people can be described by attributes** **To explain that we can present information using a computer** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-1/data-and-information-pictograms**

Key Stage 2	National Curriculum Objectives

	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 out ● 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 behaviour; identify a range of ways to report concerns about content and contact

KEY SKILLS - *DL* – Key Stage Two	
Year Three	**Year Four**
- Describe what a computer is (input > process > output). - Explain the difference between input and output devices on a computer. - Know where to save and open files (e.g. in shared folder). - Save files with appropriate names. - Use a keyboard effectively to type in text. - Use left-, right- and double-click on the mouse. - Add an image to a document from the internet. - Resize and move an image in a document. - Use a search engine to find simple information. - Recognise that school computers are connected with support.	- 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

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	CS	DL	CS	IT	IT
Yr 3/4 A	Systems and networks Connecting Computers LO: To explain how digital devices function To identify input and output devices To recognise how digital devices can change the way that we work To explain how a computer network can be used to share	Programming- Sequence in music LO: To explore a new programming environment To identify that commands have an outcome To explain that a program has a start To recognise that a sequence of commands can have an order	E-Safety scheme of work. PROJECT EVOLVE BETA	Programming Repetition LO: To develop a deeper understanding of sequencing in programming To understand repetition in programming To write an algorithm to produce a given outcome To identify patterns in a sequence	Creating media- Photo Editing LO: To explain that the composition of digital images can be changed To explain that colours can be changed in digital images To explain how cloning can be used in phot editing To explain that images can be combined	Creating media Stop-frame animation LO: To explain that animation is a sequence of drawings or photographs To relate animated movement with a sequence of images To plan an animation To identify the

	information **To explore how digital devices can be connected** **To recognise the physical components of a network** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-connecting-computers**	**To change the appearance of my project** **To create a project from a task description** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/programming-a-sequence-in-music Start with some tutorials https://scratch.mit.edu/projects/editor/?tutorial=getStarted		**To use repetition (loops) in an algorithm** **To use a count-controlled loop to complete a sequence** **Curriculum Links:** https://studio.code.org/s/dance-2019/lessons/1/levels/1?fbclid=IwAR1jNZgBZrEjHyfviWFvI9hpQSSkn0IcXmvZ8X38zjehq-JWBjIlOnJW2bk Code.org - Dance Party (2019) **Extension:** https://studio.code.org/s/dance-extras-2019/stage/1/puzzle/1	**To combine images for a purpose** **To evaluate how changes can improve an images** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/creating-media-photo-editing **https://pixlr.com/x/**	**need to work consistently and carefully** **To review and improve an animation** **To evaluate the impact of adding other media to an animation** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/creating-media-animation

	Autumn 1 World Mental Health Day – 10th October	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	CS	IT	CS	IT	DL
Yr 3/4 B	Systems and networks The internet LO: To describe how networks physically connect to other computers. To recognise how networked devices make up the internet To outline how websites can be shared via the World Wide Web (WWW) To describe how content can be added and access on the World Wide Web	Programming Events and Actions LO: To explain how a sprite moves in an existing project To create a program to move a sprite in four directions To adapt a program to a new context To develop my program by adding features To identify and fix bugs in a program	Data and Information Branching database LO: To create questions with yes/no answers To identify the attributes needed to collect data about an object To create a branching database To explain why it is helpful for a database to be well structured To plan the structure of a	Programming Repetition LO: To develop the use of count-controlled loops in a different programming environment To explain that in programming there are infinite loops and count-controlled loops To develop a design that includes two or more loops which run at the same time To modify an infinite loop in a given program	Creating media- Desktop publishing LO: To recognise how text and images convey information To recognise that text and layout can be edited To choose appropriate page settings To add content to a desktop publishing publication To consider how different layouts can suit different	E-Safety scheme of work. 

	(WWW) **To recognise how the World Wide Web (WWW) is created by people** **To evaluate the consequences of unreliable content** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-the-internet	**To design and create a maze-based challenge** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/programming-b-events-and-actions **https://studio.code.org/s/coursec-2020/stage/15/puzzle/1**	**branching database** **To independently create an identification tool** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/data-and-information-branching-databases	**To design a project that includes repetition** **To create a project that includes repetition** **Curriculum Links:** https://scratch.mit.edu/projects/editor/?tutorial=getStarted https://teachcomputing.org/curriculum/key-stage-2/programming-b-repetition-in-games https://projects.raspberrypi.org/en/projects/flower-generator	**purposes** **To consider the benefits of desktop publishing** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/creating-media-desktop-publishing **Comic Creation** https://www.ilearn2.co.uk/comiccreationteacherfree.html https://www.makebeliefscomix.com/Comix/	

Key Stage 2	National Curriculum Objectives
	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 out ● 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 behaviour; identify a range of ways to report concerns about content and contact

KEY SKILLS - *DL* – Key Stage TWO	
Year Five	**Year Six**
- Type using fingers on both hands. - Use common keyboard shortcuts, e.g. ctrl C (copy), ctrl V (paste). - Explain what makes a strong password. - Use folders to organise files. - Know how to mute and unmute audio on a computer or tablet. - Recognise that there is more than one search engine, and they may produce different results. - Use a search engine effectively to find information and images. - Know how to search for an application on a computer/tablet	- 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.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	IT	CS	IT	CS	IT	DL
Yr 5 and 6 A	Systems and networks Sharing information LO: To explain that computers can be connected together to form systems To recognise the role of computer systems in our lives To identify how to use a search engine To describe how to use a search engine	Programming Selection in physical computing LO: To control a simple circuit connected to a computer To write a program that includes count-controlled loops To explain that a loop can stop when a condition is met To explain that a loop can stop when a	Creating media Flat file databases LO: To use a form to record information To compare paper and computer-based databases To outline how you can answer questions by grouping and then sorting data To explain that tools can be used to select specific data To explain that computer	Programming Sensing (variables): Micro:bits LO: To create a program to run on a controllable device To explain that selection can control the flow of a program To update a variable with a user input To use a conditional	Creating media 3D Modelling LO: To recognise that you can work in three dimensions on a computer To identify that digital 3D objects can be modified To recognise that objects can be combined in a 3D model To create a 3D model for a given purpose	E-Safety scheme of work. PROJECT EVOLVE BETA

	To describe how search engines select results **To explain how search results are ranked** **To recognise why the order of results is important, and to whom** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-2/computing-systems-and-networks-sharing-information**	**condition is met** **To explain that a loop can be used to repeatedly check whether a condition has met** **To design a physical project that includes selection** **To create a program a program that controls a physical computing project** **Curriculum Links:** Programming A – Selection in physical computing (teachcomputing.org) https://hadyprimary.sharepoint.com/sites/hadyprimary/Leadership%20Files/Forms/AllItems.aspx?newTargetListUrl=%2Fsites%2Fhadyprimary%2FLeadership%20Files&	**programs can be used to compare data visually** **To use a real-world database to answer questions** **Curriculum Links:** https://teachcomputing.org/curriculum/key-stage-2/data-and-information-flat-file-databases	**statement to compare a variable to a value** **To design a project that uses inputs and outputs on a controllable device** **To develop a program to use inputs and outputs on a controllable device** **Curriculum Links:** Programming B – Sensing (teachcomputing.org) Lesson adaptations to work with them emulator at https://makecode.microbit.org/ https://computing4schools.com/microbit/	**To plan my own 3D model** **To create my own digital 3D model** **Curriculum Links:** **https://teachcomputing.org/curriculum/key-stage-2/creating-media-3d-modelling**	

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