

# Hadley Wood Primary School

## Computing Curriculum Overview



### ICT Vision

Our vision is that every child will leave our school digitally literate, **confident** in their ability to use technology creatively in a wide range of contexts. They will be **capable** coders with the ability to program and control a wide variety of software, with an awareness of the benefits and possible dangers of ubiquitous internet access and communication. Most importantly they will be secure in their knowledge of how to keep themselves safe online and contribute to creating a better Internet for all.

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## Curriculum Intent:

At Hadley Wood, we recognise that technology plays a huge part in modern life and will only become more integral as our children grow up. We appreciate that our children's access to technology outside of school varies widely and we therefore aim to equip every child to confidently use all forms of technology as well as developing a solid understanding of how computers work. Furthermore, we aim to develop children's perception of technology as a tool for learning, innovation and discovery.

Our curriculum aims to embed technology throughout all subjects and allow every pupil hands-on experience of a variety of hardware and software. Children have the opportunity to use technology to enhance their learning in all subjects as well as learn Computer Science discreetly. As a school, we believe we have a dual responsibility when it comes to online safety: to ensure our school's online procedures keep children and young people safe, and to teach them about online safety, in and outside of school. In order to achieve this class teachers foster an open environment in which children are encouraged to ask any questions and participate in an ongoing conversation about the benefits and dangers of the online world in both our computing lessons but also through PSHE, RSE and P4C lessons. We want our children to leave Hadley Wood as confident, capable and caring Digital Citizens who are aware of the importance of equality, privacy and the importance of safe relationships in the online world.

## How we plan for and teach Computing:

The Primary National Curriculum for Computing can be split into 3 strands:

- Digital Literacy: Pupils learn to use technology to express themselves and develop their ideas.
- Information Technology: Pupils learn to use technology to create programs, systems and a range of content.
- Computer Science: Pupils are taught the principles of information and computation, how digital systems work and how to put this knowledge to use through programming.

At Hadley Wood, we teach each Computing strand discreetly, linking Computing lessons to our wider school curriculum wherever possible.

Furthermore, we believe that it is very important that children are taught to be good Digital Citizens. Therefore, every year group delivers a six week block on online safety at the beginning of each academic year. All pupils will sign their Acceptable Use documents following the teaching input to ensure a shared understanding of how to stay safe in the online world. Throughout the course of the year, class teachers revisit online safety through Digital Citizenship lessons at the beginning of each half term. Digital Citizenship lessons encompass online safety, cyber bullying, the importance of online privacy and identity, healthy technology usage, healthy relationships, use of passwords, copyright and managing information online.

## What you will see in our Computing lessons:

1. Every lesson is carefully planned around **an enquiry question for children to answer**. By ensuring that these questions spark children's enquiry and **curiosity**, children are engaged in their learning and want to find out the answer. Lessons are purposeful and result in children gaining a new understanding of the world around them.

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- In each lesson the **learning objective** is designed so that children have a powerful understanding of the skills and understanding they are developing in the lesson. **Success criteria** define the features of the learning intention in the context of the activity so that children can identify what they are aiming for and how well they are doing.
- Learning is effectively sequenced by sharing prior learning '**building blocks**' at the start of each lesson/topic/new concept. We recognise that children are more likely to retain new learning if it connected to prior understanding. Building blocks help pupils of all levels to connect new learning with existing concepts and promote **independence**.
- Teachers start each lesson with a **discursive statement** to engage pupils and draw links between prior and new learning. Different levels of challenge and '**what if**' challenges help to ensure our children have high **aspirations** of themselves and strive to be the best they can be.
- Teachers skillfully use the '**Deliberate Mistake**' approach to learning to build pupil **resilience** to failure alongside their ability to work independently to problem solve. This embeds the concept that making mistakes is integral to the learning process.

## Computing Curriculum Overview: EYFS – Year 6

ICT	
Year 1 and beyond	Early Years
Developing cultural capital	<ul style="list-style-type: none"> <li>Link in understanding between algorithm and instructions</li> <li>Link in understanding between debugging and problem solving</li> <li>Recognise the importance of online safety and the vocabulary associated with it</li> </ul>
Understand what algorithms are	<ul style="list-style-type: none"> <li>Beebots – inputting basic instructions</li> <li>Bee-Bot app on Ipad</li> <li>Scratch Jnr on Ipad</li> <li>Simple instructional; writing</li> </ul>
Create and debug simple programs	<ul style="list-style-type: none"> <li>Beebots – inputting basic instructions</li> <li>Bee-Bot app on Ipad</li> <li>Scratch Jnr on Ipad</li> </ul>
Use logical reasoning to predict the behaviour of simple programs	<ul style="list-style-type: none"> <li>Beebots – inputting basic instructions</li> <li>Bee-Bot app on Ipad</li> <li>Scratch Jnr on Ipad</li> </ul>
Use technology purposefully to create, organise, store, manipulate and retrieve digital content	<ul style="list-style-type: none"> <li>Use IPADS to take pictures of models/creations the children have produced</li> <li>Design pictures on 2Publish/ Purple mash software</li> </ul>
Recognise common uses of information technology beyond school	<ul style="list-style-type: none"> <li>Experience of interactive whiteboard during lessons to move on learning</li> <li>Use of IPADS to capture learning opportunities</li> <li>Technology walk to identify technology around the school</li> </ul>
Online safety	<ul style="list-style-type: none"> <li>Smartie the Penguin. Children make masks.</li> <li>Internet Safety Week</li> <li>Digi Duck story</li> </ul>

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	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Year 1</b>	Online safety: Using the internet safely	Digital Literacy & Online safety: using a computer/device	Coding with Codeapillars/Beebots	Digital Literacy: bug hunters	Digital Literacy: potty painters	Coding: Scratch Jnr - introduction and fundamentals
<b>Year 2</b>	Online safety: Staying safe on the internet  Coding - Predicting behaviour and using repeat command	Coding: Using programs to recreate shapes	Coding - Predicting behaviour and using repeat command	Digital Literacy - Learning about development of world wide web Creating an online presentation	Online safety: Emailing as a class	Digital Literacy: Using technology purposefully
<b>Year 3</b>	Online safety: Use technology safely; understand what is considered as unacceptable behaviour and how to deal with it.	Coding: Sequence instructions Simple repetition	Digital Literacy: Develop an understanding of the history of computers. How computer networks including the internet work.	Digital Literacy: Using a database	Online safety: & Digital Literacy: Communication and collaboration in the wider world.	Coding: Using simple output/model to animate sprites in a variety of different programs.
<b>Year 4</b>	Online safety: Using technology safely, look at examples of what acceptable behaviour is.  Coding: Interactive - Chatbot	Digital Literacy: Research and develop a topic	Online safety: Developing an understanding of the history of computers, networking and the internet.	Coding: Game - Boat race	Digital Literacy: Childnet video competition	Coding: Controlling simple sprites with commands and prompts.
<b>Year 5</b>	Online safety: Securing your secrets  Digital Literacy: News Reports Using programs such as IMovie to bring learning to life	Digital Literacy: Data analysis	Coding: Scratch - Space Junk Game	Online safety: and Digital Literacy: How the internet works	Coding: Building a webpage	Coding: App design

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<b>Year 6</b>	Online safety: Google It's cool to be kind	Digital Literacy: Explore a Topic with Research and Collaboration	Coding: scratch maths Building with Numbers	Coding: Scratch Memory game	Digital Literacy: Childnet video competition	Digital Literacy: using a data analysis program
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## Computing Progression of Skills: EYFS – Year 6

EYFS			
Three and Four-Year-Olds	Personal, Social and Emotional Development		Remember rules without needing an adult to remind them.
	Physical Development		Match their developing physical skills to tasks and activities in the setting.
	Understanding the World		Explore how things work.
Reception	Personal, Social and Emotional Development		Show resilience and perseverance in the face of a challenge. Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time'.
	Physical Development		Develop their small motor skills so that they can use a range of tools competently, safely and confidently.
	Expressive Arts and Design		Explore, use and refine a variety of artistic effects to express their ideas and feelings.
ELG	Personal, Social and Emotional Development	Managing Self	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.
	Expressive Arts and Design	Creating with Materials	Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Digital Literacy</b>	- I can use simple navigation skills to open a web	- I understand that people you communicate with	- I know how to respond to unpleasant	- I can use the internet independently to	- I know how to search for a file/program on a	- I understand the opportunities computer networks

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	<p>browser.</p> <ul style="list-style-type: none"> <li>- I can click on links on a webpage to navigate forward and back.</li> <li>- I know that emails are a way to send and receive messages digitally, which is different to sending a letter.</li> <li>- I know who to tell if I see something I do not like online.</li> <li>- I understand that I must keep my personal information private online.</li> </ul>	<p>online may not always be who they say they are.</p> <ul style="list-style-type: none"> <li>- I understand not to share any personal information online.</li> <li>- I can explain the importance of keeping my password secret.</li> <li>- I know how to follow our school's acceptable use policy to stay safe online.</li> <li>- I know what to do if I see something I do not like online.</li> <li>- I can open a web browser and search online safely.</li> <li>- I can navigate to a website by entering a simple web address into a browser.</li> <li>- I know how to send and receive an online message.</li> </ul>	<p>communications via mobile phone, text, IM, email or chat rooms.</p> <ul style="list-style-type: none"> <li>- I understand that school some computers are networked so that they can share information – e.g. a class shared area.</li> <li>- I can add websites to bookmark / favourites.</li> <li>- I can copy and paste images/text from the internet.</li> <li>- I can upload a file onto the school MLE.</li> <li>- I understand the difference between publishing on the school MLE and an open public site.</li> <li>- I understand that taking lots of text from websites is stealing other people's work.</li> <li>- I understand that the Internet contains fact, fiction and opinion and begin to distinguish between them.</li> <li>- I know how to respond online if I am asked for personal details.</li> </ul>	<p>gather information safely for my own work</p> <ul style="list-style-type: none"> <li>- Identifies a range of ways to report concerns about content</li> <li>- Recognises acceptable/unacceptable behaviour</li> </ul>	<p>school computer/network</p> <ul style="list-style-type: none"> <li>- I understand and can explain how search results are selected and ranked</li> <li>- I understand that the internet is a global computer network</li> <li>- I understand the importance of appropriate online behaviour and that online (cyber-) bullying is unacceptable</li> <li>- I am aware that file sharing is usually illegal due to copyright laws and can also spread viruses</li> <li>- I know the importance of not deleting inappropriate electronic communications</li> <li>- I understand that you should not publish other peoples' material on the Internet without their permission but you can hyperlink to their websites</li> <li>- I can select appropriate images and information for my own personal page on the MLE</li> </ul>	<p>offer for collaboration</p> <ul style="list-style-type: none"> <li>- I can evaluate the effectiveness of digital content</li> </ul>
<b>IT</b>	<ul style="list-style-type: none"> <li>- I can independently open a program and</li> </ul>	<ul style="list-style-type: none"> <li>- I can insert basic punctuation using</li> </ul>	<ul style="list-style-type: none"> <li>- I can use a range of programs</li> </ul>	<ul style="list-style-type: none"> <li>- I can select from a range of software</li> </ul>	<ul style="list-style-type: none"> <li>- I can plan and design a simple app</li> </ul>	<ul style="list-style-type: none"> <li>- I can combine a variety of software to</li> </ul>

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	<p>save my work.</p> <ul style="list-style-type: none"> <li>- I am beginning to type with two hands.</li> <li>- I can use the shift, space and enter key correctly.</li> <li>- I can use a paint program to create a picture using different sized brushes and colours.</li> <li>- I can enter data into a simple pictogram</li> </ul>	<p>the shift key including: commas, speech marks, question and exclamation marks.</p> <ul style="list-style-type: none"> <li>- I can insert a text box and an image into a word processing program.</li> <li>- I can edit and correct my own work by using the spell check function.</li> <li>- I can cut, copy and paste text.</li> <li>- I can use presentational software e.g. PowerPoint to present information to an audience.</li> <li>- I can import images and sounds into a presentation.</li> <li>- I can create and modify pictures using a paint program by selecting appropriate brush size, texture, spray, shape and palette.</li> <li>- I can print my own work independently.</li> </ul>	<p>independently.</p> <ul style="list-style-type: none"> <li>- I can create e-books using simple apps which include images text sound and video. E.g. Book Creator</li> <li>- I can independently present information using a presentational program.</li> <li>- I can create and edit text effectively with appropriate use of tools e.g. Spell-check, cut and paste.</li> <li>- I can contribute to my class page on a learning platform or e-safety blog.</li> <li>- I can create images using a range of paint programs using the select, draw, paint and repeat tools.</li> <li>- I can use music software to create a sequence of musical phrases.</li> <li>- I can shoot film, exploring a range of techniques e.g. long and close up shots.</li> <li>- I can upload, open and edit video files e.g. using Windows Movie Maker or iMovie.</li> <li>- I can collect data to enter into a spreadsheet/databa</li> </ul>	<p>applications independently.</p> <ul style="list-style-type: none"> <li>- I can present results of a research project in a presentation format. (PowerPoint)</li> <li>- I can use a variety of colours / texture and brush tools within an art &amp; design program to create an image.</li> <li>- I can import images into a desk top publisher.</li> <li>- I can create a comic strip layout using photos in a desk top publisher</li> <li>- I can record short video clips, combine and edit film, adding titles and credits</li> <li>- I can create a stop-frame animation</li> <li>- I can collate data using a database/spreadsheets</li> <li>- I can analyse data and present to audience graphically -including bar graphs and pie chart formats (Excel)</li> <li>- I can enter data and simple formulae +/- into cells (Excel)</li> <li>- I can use sum and sort functions (Excel)</li> </ul>	<p>to address a particular need</p> <ul style="list-style-type: none"> <li>- I can use software to create my own sounds by recording, editing and playing.</li> <li>- I can use software to create and present digital content for a radio podcast or jingle.</li> <li>- I can create film footage independently to include title screen, text, transitions and a soundtrack.</li> <li>- I can use a graphical modelling package to inform my decisions and design e.g. use of Purple Mash D&amp;T program</li> <li>- I can input formulae to create a results table (Excel)</li> <li>- I can use spreadsheets to solve problems by using the filter and sort functions (Excel)</li> </ul>	<p>accomplish given goals</p> <ul style="list-style-type: none"> <li>- I can select, uses and combines software on a range of digital devices</li> <li>- I can analyse and evaluate data</li> <li>- I can design and creates systems</li> </ul>
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			<ul style="list-style-type: none"> <li>– I can select and change cell colour, size, text and number format appropriately (Excel)</li> <li>– I can use and explain terminology associated with spreadsheets e.g. columns, rows, cells, cell reference (Excel)</li> </ul>			
<b>Computer Science</b>	<ul style="list-style-type: none"> <li>– I understand that an algorithm is a set of instructions which a program/computer needs to work.</li> <li>– I can follow a set of spoken instructions (an algorithm) accurately when 'playing robot'.</li> <li>– I can program a floor robot to follow a sequence of instructions.</li> <li>– I can write a simple algorithm.</li> <li>– I can give simple directional instructions to move an on screen character (sprite).</li> <li>– I can explain what the term 'debugging' means.</li> <li>– I can predict the behaviour of simple programs.</li> <li>– I can give explanations for what I think a</li> </ul>	<ul style="list-style-type: none"> <li>– I can create an algorithm to move or rotate an on screen character (sprite).</li> <li>– I can explain the function of the repeat command.</li> <li>– I can create an efficient algorithm using the repeat function.</li> <li>– I can write an algorithm to add sound to my program.</li> <li>– I can test and evaluate a partner's algorithm.</li> <li>– I can use logical reasoning to predict the behaviour of simple programs.</li> <li>– I can compare the efficiency of different sets of instructions.</li> <li>– I can edit and debug programs to change or improve</li> </ul>	<ul style="list-style-type: none"> <li>– I can create and debug an algorithm using the move, rotate and repeat commands.</li> <li>– I can explain a simple sequence-based algorithm in my own words.</li> <li>– I can program multiple on screen characters to move and interact, using a sequence of commands.</li> <li>– I can create an algorithm to draw a 2D shape.</li> <li>– I can input a range of variables including wait, sound and change of costume.</li> <li>– I can use logical reasoning to detect errors in my program.</li> <li>– I can predict what will happen when I input an algorithm,</li> </ul>	<ul style="list-style-type: none"> <li>– I can design programs that accomplish specific goals</li> <li>– I can design and creates programs</li> <li>– I can debugs programs that accomplish specific goals</li> <li>– I can use repetition in programs</li> <li>– I can control or simulate physical systems</li> <li>– I can use logical reasoning to detect and correct errors in programs</li> <li>– I understand how computer networks can provide multiple services, such as the World Wide Web</li> </ul>	<ul style="list-style-type: none"> <li>– I can use sequence, selection and repetition in programs e.g. repeat...until...if... blocks</li> <li>– I can design and program a character game</li> <li>– I can add point-scoring and levels to game code</li> <li>– I can write a program that accepts keyboard and mouse input and output</li> <li>– I can use logical reasoning to explain a rule based algorithm in my own words</li> <li>– I can use logical reasoning to detect errors in algorithms.</li> </ul>	<ul style="list-style-type: none"> <li>– I can solves problems by decomposing them into smaller parts</li> <li>– I can use selection in programs</li> <li>– I can work with variables</li> <li>– I can uses logical reasoning to explain how some simple algorithms work</li> <li>– I can use logical reasoning to detect and correct errors in algorithms</li> <li>– I understands computer networks, including the internet</li> <li>– I understand how search results are ranked</li> </ul>

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	program will do.	the outcome.	giving reasons for my answers. – I can save, retrieve, edit and debug my program.			
<b>Vocabulary</b>	KS1 subject related vocabulary <ul style="list-style-type: none"> <li>• Algorithm</li> <li>• Implemented</li> <li>• Executed</li> <li>• Program</li> <li>• Instructions</li> <li>• Debug</li> <li>• Predict</li> <li>• Logical reasoning</li> <li>• Technology</li> <li>• Create</li> <li>• Organise</li> <li>• Store</li> <li>• Manipulate</li> <li>• Retrieve</li> <li>• Digital content</li> <li>• Personal information</li> <li>• Private</li> <li>• Internet</li> </ul>		KS2 subject related vocabulary <ul style="list-style-type: none"> <li>• Control</li> <li>• Simulate</li> <li>• Decompose</li> <li>• Sequence</li> <li>• Select</li> <li>• Selection</li> <li>• Repetition</li> <li>• Variables</li> <li>• Detect</li> <li>• Correct</li> <li>• Error</li> <li>• Computer networks</li> <li>• World wide web</li> <li>• Communication</li> <li>• Collaboration</li> <li>• Search engine</li> <li>• Evaluating</li> <li>• Analyse</li> <li>• Present</li> </ul>			

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