Hazelwood Schools

Computing

Curriculum Overview

Computing at Hazelwood

Intent

At Hazelwood Schools, we believe that our children should be equipped to participate in a rapidly changing world where work and leisure activities are increasingly reliant on technology. Through offering purposeful, relevant, practical experiences we enable our children to develop their understanding and use of technology, empowering them to become safe, respectful and effective users who communicate ideas well by utilising technology and devices throughout all areas of the curriculum.

The aims of our Computing curriculum are:

- To provide children with a high-quality, computing education that produces competent, confident computer users, who are digitally literate by the time they leave the school.
- To provide pupils with a range of opportunities to use a variety of different software and hardware.
- To develop skills in finding, selecting, using and presenting information with judgement.
- To ensure children know how to use technology respectfully and safely.
- To ensure that our children have a secure knowledge of online safety and have the skills to tackle inappropriate content they might encounter online.
- To develop children as computational thinkers to enable them to solve problems across the whole curriculum and life in general.
- To use technology to enhance teaching across all subject areas and to improve access to learning for pupils with a diverse range of individual needs.

Implementation

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 Hazelwood we use Purple Mash to guide our planning and assessment meeting the expectations of the computing national curriculum. Computing is explicitly taught once a week following our Hazelwood computing curriculum and is intricately woven into areas of the curriculum. Furthermore, we have a strong focus on nurturing responsible citizens, therefore online safety is taught through the 'Online safety' unit, as well as through the 'Keeping myself safe' unit in our PSHE curriculum. At the beginning of the year, all pupils sign an acceptable user document to ensure a shared understanding of how to stay safe online.

Hazelwood's Approach to Teaching and Learning

At Hazelwood you will see a range of real, relevant, immersive and purposeful learning opportunities within a nurturing, enabling environment, including the following approaches to teaching and learning:

- Children **exploring and answering big questions** which allow them to think deeply about their learning
- Children **hearing and using key vocabulary** in a range of contexts
- Children **speaking in full sentences** using the key vocabulary taught
- **Cold calling** - supporting all children in engaging in their learning and believing they can achieve
- **Adaptive teaching** - responding to the needs of all children
- **Retrieval practise** – allowing children to know more, remember more and do more
- **Positive relationships and quality interactions** that nurture our responsible citizens
- **Spaced and sequential learning** over time to help children learn more quickly and remember learning better.

In a typical Computing lesson, you will see:

- Children **using chrome books responsibly**
- **Responsible digital citizens** that are conscious of their digital footprint
- Teacher modelling and children using **computational thinking** to develop problem solving skills that can be applied to the wider curriculum beyond computing.
- A lesson purposefully placed in a sequence in order to link learning across the **three strands in the computing curriculum.**
- Children are given ownership of **celebrating and sharing** their computing learning with their peers.

Impact

How do we assess?

We assess our children using a range of methods:

- Routine, embedded, informal formative assessment is built into every lesson.
- Questioning is a large part of our assessment. We use a range of questions to constantly check children's knowledge is secure and that children are learning to think computationally with their new knowledge
- Assessment for Learning is exercised through identifying the correct use of vocabulary. Links between prior and/or upcoming learning are made explicit to allow the children to demonstrate an understanding of the continuum of skills that are woven into the units.
- Teachers are provided with the PurpleMash Assessment Tool spreadsheet that aligns the strand, National Curriculum objective and the unit of work, making it easy to assess whether each child is working towards, has met, or has exceeded that particular objective.
- At the end of each unit, children are asked to complete a quiz specifically around the key vocabulary taught.
- Summative assessment is recorded termly on Scholar Pack, identifying those working at ARE, as well as those below and above ARE.

How do we know that children are at age-related expectation?

- Children are able to meet the learning objective by completing tasks provided.
- Children are able to use the key vocabulary to demonstrate their understanding of lessons taught.
- Children are able to demonstrate computational thinking in their responses to big questions that are written for each unit.
- Children are able to produce or replicate functional programmes, discuss and demonstrate digital literacy and competently use devices in the correct way.
- Children achieve the Purple Mash end of unit outcomes.

Children are working at greater depth if they are able to independently innovate and apply learning in wider contexts to solve more challenging problems.

"How do our children feel about Computing?"

- "I enjoy coding because I man make my characters do what I want."
- "Learning new things that I can do with my computer or tablet is exciting."
- "Computing is fun because we get to create our own games and think about what it can include"
- "I feel safer using the internet because my teacher showed me what to do

EYFS	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
	Children have the opportunity to play and explore a range of Technology through their enabling environments and child led learning. There is no longer an Early Learning Goal for Technology. Computing can be linked to Personal, Social Emotional Development, Understanding the World and Expressive Arts and Design.					
Nursery	● Operate a mechanical toy ● Swipe an iPad using the touch screen		● Learn to use remote control to turn on IWB ● Operate a mechanical toy ● Take a photograph on an iPad		● Make toys move or work by pressing switches ● use a simple programme on an interactive whiteboard	
Big questions	How does it work?		How does it work? How do you turn it on? How do you take a picture?		How does it work? How can you make a mark on the IWB?	
Vocabulary	iPad, operate, swipe		Remote control, photo app, view photo, zoom, capture picture album		Switches, movement, interactive, operate	

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	● Operate simple equipment ● Use a remote control ● Use touch screen devices		**Keeping Myself safe (PSHE)** ● Share ideas about activities that are safe to do on electronic devices. ● What to do and who to talk to if they feel unsafe online. ● Knowing information can be retrieved from digital devices and the internet ● Complete a simple programme ● Interact with age-appropriate computer software ● Create a video recording or draw a picture on a screen		● Using the internet with adult supervision to find and retrieve information of interest to them. ● Developing digital literacy skills by being able to access, understand, and interact with a range of technologies computer, phone, camera, iPad, laptop and tv) ● Selecting and use technology for different purposes ● Develop basic understanding of action and reaction ● Knows how to cause things to happen in computer software (beblots)	
Big questions	How does it work?		How can you be safe when using technology? Who can you talk to if you feel unsafe online? How do you draw a picture? How do you record a video?		How can you find information online? What can you do with technology? How can you make it move?	
Vocabulary	Internet, volume up, volume down, apps, select		Safe, worried, tell, trust, tummy feelings, uncomfortable Video, record, paint, tools, shapes, delete, save		on/off switch, Beebot, instructions, forwards, backwards, turn, rest, memory	

4

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 1	**Information technology** PM – Intro to Purple Mash – 3 lessons **NCCE - Teach computing** Computing systems and networks – Technology around us L2 – 4 lessons **Digital literacy** PM - **Online Safety & Exploring** Number of lessons – 4 Programs – Various	**Information technology** PM – Creative Computing – 3 lessons **Information Technology** PM – Data explorers – 4 lessons	**Information Technology** PM - Unit 1.6 Animated stories – 6 lessons	**Computer Science** PM – Creating & following instructions - 3 lessons	**Keeping myself safe** (PSHE) How our feelings can keep us safe – including online safety Know age-appropriate ways to stay safe online. **Computer Science** PM - Coding – 6 lessons	**Digital Literacy** PM – Tech outside school – 4 lessons **Information Technology** PM – Making Beats – 3 lessons
Big questions	How do I log in to my chrome book account? What is a password and why should we keep them safe? What is a digital avatar? Where is my work stored on Purple Mash? How do I use a Chromebook? How do I use the trackpad successfully?	How can I make digital art? How can I make and share jigsaws? How can I make a drag and drop game? How can I sort and group in quizzes? How can I understand what data is? How can I represent data electronically?	How can I create digital art and text? How can I add animation to images? How can I add sound?	How can I follow instructions? How can I create instructions? How can I understand simple algorithms?	How can I use blocks to code? How can I understand objects, actions, and events? How can I plan and design a program?	What is technology? How can I recognise technology in the local environment and wider world? What is 2Explore and how can I create sounds using it? How can I combine instruments using 2Beat? How can I compose digital music?
Vocabulary	Log in, username, password, avatar, my	Arrow keys, Digital Art, Drag and Drop, Hotspot, Touchscreen Gestures	Animation, font, E-book, sound effect, file, display board	Rewind, direction, left turn, challenge, forward, debug, arrow, backwards,	Action, command, code, event, algorithm, input, execute, background,	Technology

	work, Topics, log out, save, notification, tools	Algorithm, Criteria, Data, Group, Pictogram, Sort		instruction, undo, right turn, algorithm	bugging, debugging, instructions, properties, scene, object, run, sound, output, scale, when clicked	Instruments, Digital Music, Sound, Compose

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks(	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 2	**Digital Literacy** PM - Unit 2.2 **Online Safety** Number of lessons – 3 Programs – Various **Computer Science** PM -.Data explorers – 4 lessons	**Information technology** PM – The internet – 2 lessons **Information technology** PM – Creating pictures - 5 lessons	**Information technology** PM – **Spreadsheets** – 6 lessons **Online Safety Day**	**Rights and Responsibilities (PSHE)** Online Safety- Name ways to stay safe when using the internet. **Information technology** PM – Questioning – 4 lessons	**Computer Science** PM – Coding – 6 lessons	**Information Technology** PM – Presenting ideas – 4 lessons **Information Technology** PM – Making music – 3 lessons
Big questions	Why is a search bar useful? What is an email? What is meant by my Digital Footprint? How can I consider direction and distance? How can I create commands? How can I build an algorithm?	What is the World Wide Web? How can I recognise browsers and websites? How can I connect to the internet? How can I use 2Paint a Picture templates? How can I explore the features of each template? How can I compile an online art portfolio? How can I compare digital art effects to non-digital effects?	How can I understand cells and columns? How can I insert images with values? How can I use totalling tools? How can I create graphs?	How can I ask the right questions to collect or present data? How can I keep a tally? How can I use 2Count to present data? How can I use a branching database?	How can I understand algorithms? What is sequencing and how can I introduce it? How can I code interaction between objects? How can I use timers? How can I debug code?	How can I use and make mind maps? How can I use a mind map as a presentation tool? How can I understand a digital music tool? How can I relate the functions to musical terms? How can I compose music digitally?
Vocabulary	Internet, search, search engine Algorithm, Coding, Computer Bug, Command, Debugging, Direction	Browser, Home Page, Internet, Search Engine, Smart Device, Webpage, Wi-Fi, World Wide Web Arts and Crafts, De Stijl, Digital Portfolio, Fill Tool, Image Picker, Import, Impressionism, Outline, Palette, Pointillism, Repeating Pttern, Resize	Calculations, Data, Row, Cell, Data Table, Spreadsheet, Equals tool, Column, Drag, Graph, Total	Binary Tree, Field, Record, Data, Pictogram, Search, Database, Question, Sort	Action, Bug, Collision Detection, Algorithm, Button, Command, Event, Background, Click Events, Debug, Execute	E-book, Mind map, Presentation Fact File, Node, Quiz, Fiction, Non-fiction Instrument, bpm, soundtrack, composition, sound effects (SFX), volume, tempo

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks(	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 3	**Digital Literacy** **PM** - Unit 3.2 Online safety Number of lessons – 3 Programs – Various **Digital Literacy** **PM** – Email – 6 lessons	**Computer Science** PM – Route planners- 5 lessons	**Information Technology** **NCCE** – Branching databases 4 lessons **Online Safety Day** **(D&T) Technical skill**: Structures -Shell structures with computer aided design using TinkerCAD **Design Brief:** Design and make a Desk Tidy to store all those 'easy to lose' desk items**.** **(Using Wacom drawing tablet)**	**Information Technology** **PM** – Spreadsheets – 6 lessons	**Keeping myself safe (PSHE)** Staying safe online – recognising potential risks associated with browsing online. **Computer Science** **PM** – Coding – 6 lessons	**Information Technology** **PM** – Presenting ideas- 5 lessons **Information Technology** **PM** – Touch typing – 4 lessons
Big questions	What is a password and why should we keep them safe? Is everything I read on the Internet true? How do I know if I am old enough to play a computer game? How can I compose and reply to emails? How can I open and send attachments? How can I use email safely?	How can I write commands using rotation? How can I create algorithms and write code? How can I plan routes? How can I use repetition in 2Go?	How can I ask binary questions? How can I complete branching databases in 2Question? How can I create and test branching databases?	How can I create graphs? How can I understand cell addresses? How can I use the formula bar? How can I combine 2Calculate functions to analyse data?	How can I use flowcharts in 2Chart? How can I use timers? How can I introduce repetition? How can I test and debug?	How can I add media? How can I customise with animation and timings? How can I design an effective presentation? How can I recognise keyboard locations? How can I understand correct finger positioning? How can I improve accuracy and speed?
Vocabulary	Password, blog, website, internet, concept map, webpage, spoof website, PEGI rating, username Columns, cells, delete key, spin key, rows, advance mode, copy and paste, equals tool, spread sheet Address Book, Attachment, Communication, Compose, Email, Email simulation, Inbox, Password, Personal information, Recipient, Trusted Contact	Algorithm, Angle, Command, Degrees, Route, Turtle Object, Repeat, Rotation	Binary Choice, Binary Tree, Branching Database, Data, Database, Debug, Record	Graph, bar chart, pie chart, field, data, block graph, row, column, line graph, Animation, presentation, text book, design themes, presentation program, text formatting, transition, slide, font, media, slide show, word art	Risk, browsing, phishing search engine, fake news internet safety	Keys, Top Row, Home Row, Bottom Row, Posture, Fingers

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks(	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 4	**Digital Literacy** PM - Unit 4.2 **Online safety** Number of lessons – 4 Programs – Various **Information Technology** PM – Unpacking hardware & software – 4 lessons	**Information Technology** PM – Microbit	**Computer Science** PM – Logo – 4 lessons **Digital Literacy** PM – Effective searching **–** 2 lessons **Online Safety Day**	**Information Technology** PM – Animation – 6 lessons	**Keeping Myself Safe (PSHE)** Managing risk, including online safety - strategies for safe online sharing. - implications of sharing images online without consent **Computer Science** PM – Coding – 6 lessons	**Information Technology** PM – Introduction to AI – 4 lessons
Big questions	What is meant by a digital footprint? What is SPAM? What is meant by plagiarism? What is a search engine? What are the different types of technology? How do systems work together? How can I identify hardware? How can I understand software?	Coming soon	How can I use Logo commands? How can I write commands in a sequence? How can I refine code using repetition and procedures? How can I use a search engine? What are search rankings? How can I perform reliable searching? What are search algorithms?	What are the types of animation? How can I understand onion skinning? How can I explore animation features? How can I use storyboarding?	How can I introduce selection? How can I explore design properties? How can I introduce loops? How can I code number variables?	How does AI work? What are the positive and negative impacts of AI? How can I consider the future of AI?
Vocabulary	Computer virus, digital footprint, phishing, cookies, email, plagiarism, copyright, malware, identity theft, malware, spam Easter egg, internet, internet browsing, search, search engine, spoof website, website	Microbit	Debugging, LOGO, COMMANDS FD BK RT LT, Pen up, grid, Prediction, LOGO, Pen Down, Procedure Balanced View, Easter Eggs, Internet, Key Words, Reliability, Results Page, Search Engine	Animation, Animation Software, Background, Copy Frame, Frames per second, Onion Skinning, Sharing Controls, Sound effect, Stop Motion, Storyboard	Privacy, privacy settings, security, consent, implications Action, button, debug, debugging, alert, code block, execute, background, co-ordinates, command, if, flowchart, If/else, prompt, selection, prompt for input, timer, nesting, number variable, repeat, object types, variable value, properties, predict, repeat until	Algorithm, Artificial Intelligence, Data

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks(	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 5	**Digital Literacy** PM - Unit 5.2 Online safety Number of lessons – 3 Programs - Various **Information Technology** PM – Quizzing – 5 lessons	**Valuing Differences (PSHE)** Influence and pressure of social media **Computer Science** PM – Spreadsheets – 6 lessons	**Information technology** NCCE **Teach computing** Creating media: Intro to vector graphics Number of lessons – 6 **Online Safety Day** **(D&T) Technical skill:** Structures, Mechanical systems and Electrical & Computer Program Systems. **(Using crumble)**	**Computer Science** PM – Game Creator – 5 lessons	**Keeping Myself Safe (PSHE)** Managing risk, including online safety - consequences of not keeping personal information private and the risks of social media. **Computer Science** PM – Coding – 6 lessons	**Information Technology** PM - Word processing – 6 lessons
Big questions	How can I evaluate the features of a good quiz? How can I choose appropriate question types? How can I make use of feedback and titles? How can I test and edit quizzes?	How can I use formulae? How can I explore measurement conversions? How can I carry out numerical investigations? How can I create computational models**?**		How can I explore the features of a good game? How can I design and make sprites and the game world? How can I evaluate the playability of games?	How can I code efficiently by refining code? How can I simulate a physical system? How can I explore decomposition and abstraction? How can I use functions and variables?	How can I create documents? How can I use images? How can I enter and edit text? How can I use tables and templates?
Vocabulary	Quiz, Simple, Interactive, Advanced, Features, Debug	Sharing, acquaintances, Influence, pressure	Computer aided design (CAD), viewpoint, 3D printing, modelling, 2D, points, Polygon, 3D, net, template	2D Game, 3D Game, Game Design, Game Environment, Game Feedback, Game genre, Playability, Sprite, Sprite Animation	Consequences, reactions, cyberbullying dare, pressure, resist pressure, assessing risk, Assertive, personal information	Copyright, in-built styles, text formatting, cursor, merge cells, text wrapping, document, paragraph formatting, textbox, font, readability, template, word processing tool

	Autumn 1 (6 weeks)	Autumn 2 (7 weeks)	Spring 1 (6 weeks)	Spring 2 (5 weeks)	Summer 1 (6 weeks)	Summer 2 (7 weeks)
Year 6	**Digital literacy** PM - Unit 6.2 Online safety Number of lessons – 2 Programs – Various **Information Technology** PM – **Blogging** – 4 lessons	**Computer Science** PM – Spreadsheets – 4 lessons **Computer Science** PM – Data detectives – 3 lessons **(D&T) Technical skill:** Textiles **Design Brief:** Design and Make a Designer Waistcoat for the Class Fashion Show. **(Using Wacom drawing tablet)**	**Information Technology** PM – Networks – 4 lessons **Online Safety Day**	**Rights and Responsibilities (PSHE)** Understanding media bias, including social media **Information Technology** PM - Spreadsheets – 5 lessons **(D&T) Technical skill:** Textiles & Computer Program Systems **(using micro:bit)** **Design Brief:** Design and make a sample soft toy that has an electronic display for the MAGIC toy company.	**Keeping Myself Safe (PSHE)** Staying safe online - risks and legality of communicating and sharing online. **Computer Science** PM - Coding – 6 lessons	**Growing and Changing (RSHE)** Keeping Safe – Risks of sharing images online and how online influences can cause people to take unsafe risks. **Computer Science** Introduction to Python
Big questions	Why do I need to be aware of the dangers of being online? What is meant by my digital footprint? Why is it important to think about how much time use a screen for? How can I plan the theme, content, and structure? How can I write, edit, and publish a blog post? What is blog moderation and how can I understand it? How can I review and comment on blog posts?	How can I perform calculations? How can I enter and use formulae? How can I present data? How can I solve real-life problems? How can I filter and sort data? How can I group data? How can I link tables?	How can I identify examples of networks? What are the different types of networks? How can I understand internet services? What are the positive and negative uses of networks?	How can I perform calculations? How can I enter and use formulae? How can I present data? How can I solve real-life problems?	How can I use functions? How can I understand flowcharts and control simulations? How can I code for user input?	How can I compare block and text code views? How can I code for text output? How can I work with different datatypes? How can I code repetition in Python?
Vocabulary	Digital footprint, PEGI rating, screen time, password, phishing, spoof website Approval, Blog, Blog Post, Commenting, Draft, Edit, Hyperlink, Moderation,	Auto Fit, Chart, Conditional Formatting, Formulae, Horizontal Axis. Spreadsheets, Cell, Column Data, Formula Bar, Range, Vertical Axis, Cell reference, Computational Model, Delimiter, Graph, Row, Text wrapping	Email, Internet, Internet Chat, LAN, Network, Router, Video Call, WAN, Web Broswer, Website, Wi-Fi, WWW	Biased, social media, unbiased profile, fact, image opinion online safety stereotype sharing Audience, collaboration, concept map, database, quiz	right to privacy, sharing online, permission, illegal, sexual images Action, button, debug, alert, called, decomposition, algorithm, background, button, called, command, co-ordinates, developer, nested, event, scene, flowchart,	Internet, network, router, local area network (LAN), network cables, world wide web, Wide area Network (WAN), wireless

	Netiquette, Plan, Publish, Revise, Vlog				object, selection, simulation, predict, string, procedure, get input, properties, tab, timer, user input, launch command, repeat, variable, run,	

*PSHE links to online safety

*D&T links to CAD and programming