



# Curriculum Overview Computing



# Intent

## We teach Computing:

To ensure that children become digitally literate where they are able to use and express themselves and develop their ideas through information and communications technology, at a level suitable for the future workplace and as active participants in a digital world.

Building on their knowledge of computer science they are equipped to use information technology to create programs, systems and a range of content. Furthermore, to use their computational thinking and creativity to understand and change the world.

## Our curriculum aim is for children to:

Experience an inspiring, practical and motivational computing environment. We aim for all children to have access to a computing curriculum which meets the needs of all learners and equips them with the computational skills necessary for them to succeed, whichever path they follow in an ever changing world.

We want all children to develop a positive, 'can do' attitude to computing and support all children to become logical problem-solvers, with a solid understanding of the technology that they encounter in their daily lives, at school and at home.



## How is Computing taught at Heatherside Infants?

At Heatherside Infant School, all of our children will experience computing through discrete weekly computing lessons. All learning in computing is broad and balanced, links to learning in other subject areas and is underpinned by the national curriculum of study, linked by themes and planned to reflect and promote diversity and equality.

The Heatherside computing curriculum address the three interconnected areas of computer science, information technology and digital literacy, all whilst developing children's computational thinking.

Lessons are well-structured providing exciting problem-solving opportunities that enable our children to learn, revisit and progressively develop their knowledge and skills in computing at an age-appropriate level.



## Computer Science

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.
- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

## Information Technology

- Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

## Digital Literacy

- 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.



# The Computational Thinkers

## concepts



### Logic

Predicting & analysing



### Evaluation

Making judgements



### Algorithms

Making steps & rules



### Patterns

Spotting & using similarities



### Decomposition

Breaking down into parts



### Abstraction

Removing unnecessary detail



## approaches



### Tinkering

Changing things to see what happens



### Creating

Designing & making



### Debugging

Finding & fixing errors



### Persevering

Keeping going



### Collaborating

Working together

We're all computational thinkers here!

When you think about it, whether we're parents, pupils or teachers - we're all natural computer scientists, capable of computational thinking.

Our brains, like computers, process, debug and make simple algorithms every day!

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# Vocabulary

|      | E-safety                          | Programming   | Multimedia  | Information Technology   | Data                            |
|------|-----------------------------------|---|---|--|---------------------------------|
| EYFS | Choices, internet, website, safe, | Equipment, program, buttons, movement, instructions, follow | Screen, mouse, image, keyboard, paint, text, save, enter, space bar | Technology, share, create, internet, television, tablet, computer, interactive, whiteboard | Collect, photo, count, organise |

|                            | KS1  |
|----------------------------|--|
| Multimedia Text and Images | paint, colour, brush, tools, settings, undo, redo, text, image, size, poster, launch, application, software, window, minimise, restore, size, move, screen, close, click, drag, log on, log off, keyboards, keys, mouse, click, button, double click, drag, present. |



# Vocabulary

| KS1                         |  |
|-----------------------------|--|
| Multimedia Sound and Motion | Record, animation, edit, cursor, video, camera stills, commands, add sound, image bank, word bank, file,   |
| Technology In Our Lives     | filter, Google, search engine, image, keyboard, email, internet, subject, address, communicate, sender, safe, secure, sources, content, network, voice recognition, cursor   |
| Coding and Programming      | algorithm, instruction, order, debug, program, turn, left, right, clockwise, anticlockwise, blocks, sequence, project, repeat, repeat forever, invisible, grow, shrink, right angle  |
| Online Safety               | safe, meet, accept, reliable, tell, online, trusted, adult, information, safety, personal, key, question, tell, safe, share, stranger, danger, internet, password, cyber-bullying, social media, offline, world wide web (www) |



# Progression map / end points

| Theme / area         | Year 1   | Year 2  |
|----------------------|--|---|
| <b>Online Safety</b> | <ul style="list-style-type: none"> <li>• To create, name and date my digital creative work</li> <li>• To safely search for images online.</li> <li>• To understand how to communicate safely online.</li> <li>• To understand what personal information I need to keep safe.</li> <li>• To explore how to use email to safely communicate.</li> <li>• To apply my online safety knowledge to help others make good choices online.</li> </ul>  | <ul style="list-style-type: none"> <li>• To understand that the information I put online leaves a digital footprint.</li> <li>• To use keywords in an online search to find out about a topic.</li> <li>• To recognise whether a website is appropriate for children.</li> <li>• To rate and review informative websites.</li> <li>• To be able to identify kind and unkind behaviour online.</li> <li>• To apply our knowledge of safe and sensible online activities to different situations.</li> </ul>  |
| <b>Programming</b>   | <p><b><u>Beebots</u></b></p> <ul style="list-style-type: none"> <li>• To create instructions using pictures.</li> <li>• To say why it is important to be precise when writing an algorithm.</li> <li>• To write instructions to program a person like a computer.</li> <li>• To program a Bee-Bot to move.</li> <li>• To debug a Bee-Bot</li> <li>• I can program a sequence to make a Bee-Bot move.</li> </ul>  | <p><b><u>Preparing for Turtle Logo and Scratch</u></b></p> <ul style="list-style-type: none"> <li>• To give and follow an algorithm to turn right or left.</li> <li>• To give and follow an algorithm to make half and quarter turns.</li> <li>• To give and follow an algorithm using the commands right 90 and left 90.</li> <li>• To give, follow and complete an algorithm.</li> <li>• To use recognised language in an algorithm.</li> <li>• To create, test and debug an algorithm.</li> </ul>  |
| <b>Programming</b>   | <p><b><u>Scratch Jnr</u></b></p> <ul style="list-style-type: none"> <li>• To describe and use instructions to program a character.</li> <li>• To program a character to grow and shrink.</li> <li>• To use instructions to make characters move at different speeds and distance.</li> <li>• To use a repeat instruction to make a sequence of instructions run more than once.</li> <li>• I can create programs that play a recorded sound.</li> <li>• I can create programs with a sequence of linked instructions.</li> </ul> | <p><b><u>Turtle Logo and Scratch</u></b></p> <ul style="list-style-type: none"> <li>• I can create an algorithm to move or rotate using Turtle Logo.</li> <li>• To create an algorithm and use the repeat command using Turtle Logo.</li> <li>• To create an algorithm and add sound using Scratch.</li> <li>• To create an algorithm and use the repeat and say command using Scratch.</li> <li>• To create an algorithm and use the green flag to start using Scratch.</li> <li>• I can create an algorithm and use the commands to change the backdrop and add sprites using Scratch.</li> </ul> |





# Progression map / end points

| Theme / area                           | Year 1   | Year 2   |
|--|--|--|
| <b>Digital Painting</b>                | <ul style="list-style-type: none"><li>• To use painting software to create a picture, using a variety of brushes.</li><li>• To use painting software to create a picture, using a variety of colours.</li><li>• To use painting software to draw a variety of shapes and to fill a shape with colour.</li><li>• To erase and undo actions to change a digital painting.</li><li>• To add text to a digital painting.</li><li>• To use painting software to paint a self-portrait.</li></ul>              | <ul style="list-style-type: none"><li>• N/A</li></ul>  |
| <b>Computing / Presentation Skills</b> | <ul style="list-style-type: none"><li>• To identify and label the main parts of a PC device.</li><li>• To explore and understand the functions of a computer mouse and a laptop trackpad.</li><li>• To explore and understand the main keys on a computer or laptop keyboard.</li><li>• To understand how to launch an application and adjust the window.</li><li>• To save, find and open a file in a folder.</li><li>• To apply the computing skills I have learnt to show my understanding.</li></ul> | <ul style="list-style-type: none"><li>• I can use basic computer skills and use folder.</li><li>• I can organise ideas for a presentation.</li><li>• I can create a simple presentation with text.</li><li>• I can add and format an image.</li><li>• I can reorder slides and present a presentation.</li><li>• I can search and print.</li></ul> |



# Progression map / end points

| Theme / area                     | Year 1  | Year 2  |
|----------------------------------|---|---|
| <b>Using and applying skills</b> | <ul style="list-style-type: none"><li>• I can demonstrate a range of basic skills to use a computer and its software.</li><li>• I can type and format text, then save my work.</li><li>• I can open saved work and edit text.</li><li>• I can use shapes to create a particular image.</li><li>• I can use different brush tools to create a particular image.</li><li>• I can create text and pictures about a shared theme.</li></ul> | <ul style="list-style-type: none"><li>• I can use a specific computer skill to reproduce a style of art.</li><li>• I can use a specific computer skill to create and compare styles of art.</li><li>• I can create a presentation including text and images.</li><li>• I can retrieve, edit and organise a presentation.</li><li>• I can create precise instructions for a character on a particular theme.</li><li>• I can create code for a pair of characters involving speech and movement.</li></ul> |