



# Computing

## Portfolio



# Computing at Hove Junior School



The purpose of our curriculum is to equip pupils to use computational thinking and creativity to understand and change the world. Through deep links with Maths, Science and Design Technology, children are provided with insights into both natural and artificial systems.

The core of the Computing curriculum is Computer Science. Children are taught the principles of information and computation, how digital systems work and how to use this knowledge within programming.

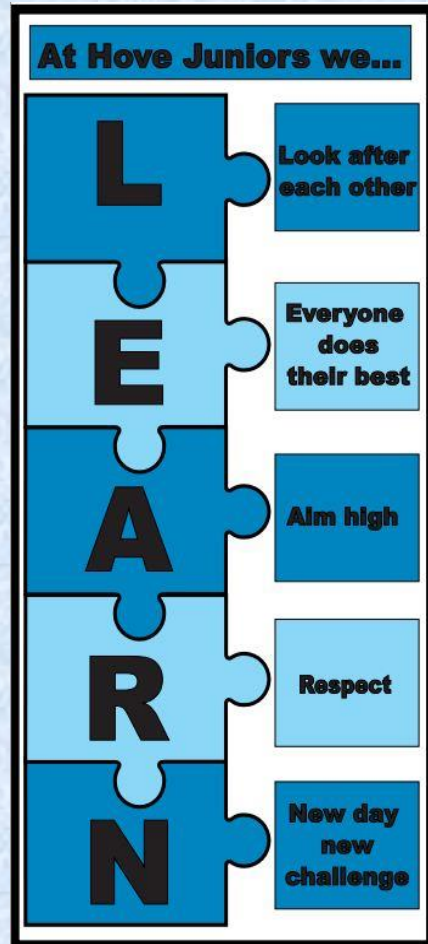


## Our Aims:

Pupils will become digitally literate at a suitable level for their age and needs. They will have the skills to analyse and solve computational problems, evaluate and apply Information Technology and become responsible, competent, confident and creative users of ICT.

Children at Hove Juniors are active, safe participants of the digital world.



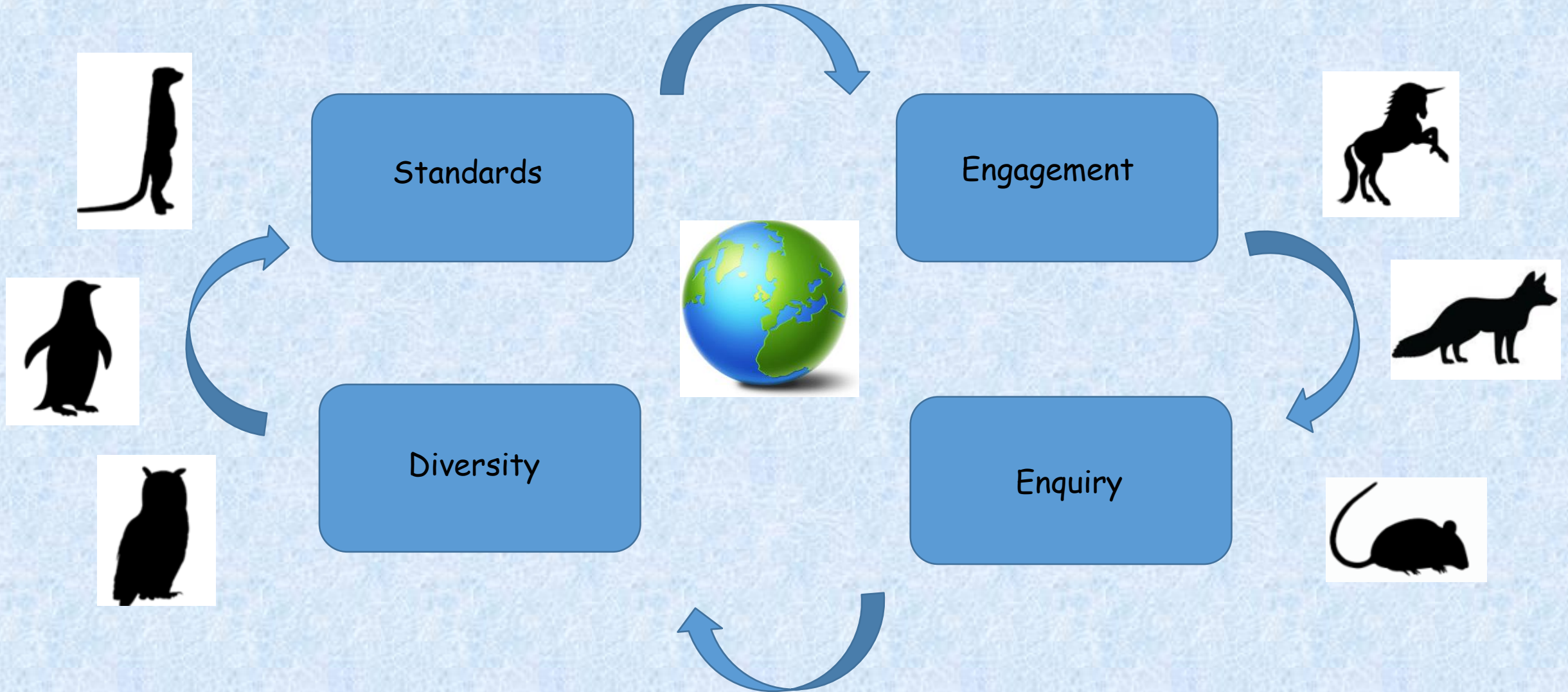


	Question
	Collaborate
	Reflect
	Take Risks
	Independence
	Perseverance

Our LEARNING CHARACTERISTICS support and define how the children become successful learners.



# Curriculum Drivers

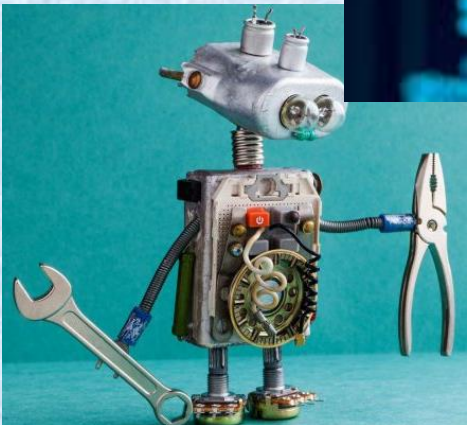




# Curriculum

The children at Hove Junior School are passionate about Computing. Our curriculum aims to inspire children's curiosity to know more about Computing and its applications to the world around them.

Underpinning everything we teach in Computing is a strong vein of e-safety understanding.



The Switched on Computing that we use programme provides teachers with the skills and resources to confidently and effectively deliver the computing curriculum.

# Curriculum Overview

## Lower KS2

### Year 3

Unit	Expectations	Computing PoS	Software/Apps	Hardware
<b>3.1</b> <b>We are programmers</b> Programming an animation	<ul style="list-style-type: none"> <li>Create an algorithm for an animated scene in the form of a storyboard.</li> <li>Write a program in Scratch to create the animation.</li> <li>Correct mistakes in their animation programs.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals; solve problems by decomposing them into smaller parts.</li> <li>Use sequence ... in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to detect and correct errors in algorithms and programs.</li> <li>Select, use and combine a variety of software ... to design and create ... content that accomplish(es) given goals, including ... presenting ... information.</li> </ul>	<b>Software:</b> Scratch (recommended), Snap!, Microsoft PowerPoint®, Tux Paint, Scratch Jnr <b>Apps:</b> Pyonkee	Laptop or desktop computers (recommended) or tablets, cameras (optional), microphones (optional)
<b>3.2</b> <b>We are bug fixers</b> Finding and correcting bugs in programs	<ul style="list-style-type: none"> <li>Develop a number of strategies for finding errors in programs.</li> <li>Build up resilience and strategies for problem solving.</li> <li>Increase their knowledge and understanding of Scratch.</li> <li>Recognise a number of common types of bug in software.</li> </ul>	<ul style="list-style-type: none"> <li>Debug programs that accomplish specific goals.</li> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul>	<b>Software:</b> Scratch, Snap!, Screencast-o-matic (if appropriate) <b>Apps:</b> Snap! in the web browser (Scratch requires Adobe Flash® Player, which is not available on iPad), Pyonkee	Laptop/desktop computers, microphone (if appropriate)
<b>3.3</b> <b>We are presenters</b> Videoing performance	<ul style="list-style-type: none"> <li>Gain skills in shooting live video, such as framing shots, holding the camera steady, and reviewing.</li> <li>Edit video, including adding narration and editing clips by setting in/out points.</li> <li>Understand the qualities of effective video, such as the importance of narrative, consistency, perspective and scene length.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Work with various forms of input and output.</li> <li>Use technology safely, respectfully and responsibly.</li> </ul>	<b>Software:</b> Microsoft Windows Movie Maker® or iMovie, Kinovea/Dartfish <b>Apps:</b> iMovie/Coach's Eye	Digital cameras, flip cameras (or similar), tablet computers/iPod Touch or similar
<b>3.6</b> <b>We are opinion pollsters</b> Collecting and analysing data	<ul style="list-style-type: none"> <li>Understand some elements of survey design.</li> <li>Understand some ethical and legal aspects of online data collection.</li> <li>Use the web to facilitate data collection.</li> <li>Gain skills in using charts to analyse data.</li> <li>Gain skills in interpreting results.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<b>Software:</b> Web browser, Google Forms, Google Sheets and Google Slides/InspireData®/Microsoft Excel® and Microsoft Word®/Freemind <b>Apps:</b> Google Drive/web browser	Laptop or desktop computer with internet connection

Our Curriculum Maps detail all of the opportunities for the teaching and learning of **Computing** throughout each year.

### Year 4

Unit	Expectations	Computing PoS	Software/Apps	Hardware
<b>4.1</b> <b>We are software developers</b> Developing a simple educational game	<ul style="list-style-type: none"> <li>Develop an educational computer game using selection and repetition.</li> <li>Understand and use variables.</li> <li>Start to debug computer programs.</li> <li>Recognise the importance of user interface design, including consideration of input and output.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals.</li> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul>	<b>Software:</b> Scratch/Snap! <b>Apps:</b> Pyonkee	Laptop/desktop computer, microphones (not essential)
<b>4.2</b> <b>We are toy designers</b> Prototyping an interactive toy	<ul style="list-style-type: none"> <li>Design and make an on-screen prototype of a computer-controlled toy.</li> <li>Understand different forms of input and output (such as sensors, switches, motors, lights and speakers).</li> <li>Design, write and debug the control and monitoring program for their toy.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems.</li> <li>Use sequence, selection, and repetition in programs; work with various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul>	<b>Software:</b> Scratch/Snap! <b>Apps:</b> Pyonkee	Laptops/computers, microphones and speakers, BBC micro:bit and Raspberry Pi
<b>4.4</b> <b>We are HTML editors</b> Editing and writing HTML	<ul style="list-style-type: none"> <li>Understand some technical aspects of how the internet makes the web possible.</li> <li>Use HTML tags for elementary mark up.</li> <li>Use hyperlinks to connect ideas and sources.</li> <li>Code up a simple web page with useful content.</li> <li>Understand some of the risks in using the web.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Use technology safely, respectfully and responsibly; know a range of ways to report concerns and unacceptable behaviour.</li> <li>Use and combine a variety of software (including internet services) to accomplish given goals, including presenting information.</li> </ul>	<b>Software:</b> Firefox, Brackets, Chrome developer tools <b>Apps:</b> Safari, Koder	Laptop/desktop computers
<b>4.5</b> <b>We are co-authors</b> Producing a wiki	<ul style="list-style-type: none"> <li>Understand the conventions for collaborative online work, particularly in wikis.</li> <li>Be aware of their responsibilities when editing other people's work.</li> <li>Become familiar with Wikipedia, including potential problems associated with its use.</li> <li>Practise research skills.</li> <li>Write for a target audience using a wiki tool.</li> <li>Develop collaboration skills.</li> <li>Develop proofreading skills.</li> </ul>	<ul style="list-style-type: none"> <li>Solve problems by decomposing them into smaller parts.</li> <li>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.</li> <li>Use search technologies effectively.</li> <li>Use ... a variety of software (including internet services) ... to ... create ... content ... including ... presenting information.</li> <li>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<b>Software:</b> Learning platform/wiki tools/ MediaWiki/Google Sites/ other hosted wiki <b>Apps:</b> Web browser (e.g. Safari), Wikipedia app	Computers and internet connection, web server (if hosting MediaWiki)





# Curriculum Overview

## Lower KS2

### Year 5

Unit	Expectations	Computing PoS	Software/Apps	Hardware
<b>5.1</b> <b>We are game developers</b> Developing an interactive game	<ul style="list-style-type: none"> <li>Create original artwork and sound for a game.</li> <li>Design and create a computer program for a computer game, which uses sequence, selection, repetition and variables.</li> <li>Detect and correct errors in their computer game.</li> <li>Use iterative development techniques (making and testing a series of small changes) to improve their game.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.</li> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> <li>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...</li> </ul>	<b>Software:</b> Scratch/ Snap! (or Kodu) <b>Apps:</b> Pynkee	Desktop/laptop computers, microphones
<b>5.3</b> <b>We are artists</b> Fusing geometry and art	<ul style="list-style-type: none"> <li>Develop an appreciation of the links between geometry and art.</li> <li>Become familiar with the tools and techniques of a vector graphics package.</li> <li>Develop an understanding of turtle graphics.</li> <li>Experiment with the tools available, refining and developing their work as they apply their own criteria to evaluate it and receive feedback from their peers.</li> <li>Develop some awareness of computer-generated art, in particular fractal-based landscapes.</li> </ul>	<ul style="list-style-type: none"> <li>Use sequence, selection, and repetition in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> <li>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.</li> </ul>	<b>Software:</b> Inkscape/ Adobe Illustrator/ CorelDRAW, Scratch/ Snap!, Terragen, Logo <b>Apps:</b> Adobe Ideas/neu. draw, Pynkee, i-Logo	Laptop or desktop computers/tablets
<b>5.4</b> <b>We are web developers</b> Creating a website about cyber safety	<ul style="list-style-type: none"> <li>Develop their research skills to decide what information is appropriate.</li> <li>Understand some elements of how search engines select and rank results.</li> <li>Question the plausibility and quality of information.</li> <li>Develop and refine their ideas and text collaboratively.</li> <li>Develop their understanding of online safety and responsible use of technology.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>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.</li> <li>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<b>Software:</b> Google, Bing, Google Sites/wiki tool in the school's learning platform/WordPress/ Adobe Slate <b>Apps:</b> Google Search app, Google Sites via browser/WordPress/ Adobe Slate	Desktop or laptop computers/tablets
<b>5.5</b> <b>We are bloggers</b> Sharing experiences and opinions	<ul style="list-style-type: none"> <li>Become familiar with blogs as a medium and a genre of writing.</li> <li>Create a sequence of blog posts on a theme.</li> <li>Incorporate additional media.</li> <li>Comment on the posts of others.</li> <li>Develop a critical, reflective view of a range of media, including text.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> <li>... be discerning in evaluating digital content.</li> </ul>	<b>Software:</b> WordPress/ Blogger/learning platform blogging tool or similar, GIMP, Audacity®, Microsoft Windows Movie Maker® <b>Apps:</b> WordPress, Camera, Snapseed	Computers, digital cameras, audio recorders/tablets

Our Curriculum Maps detail all of the opportunities for the teaching and learning of **Computing** throughout each year.

### Year 6

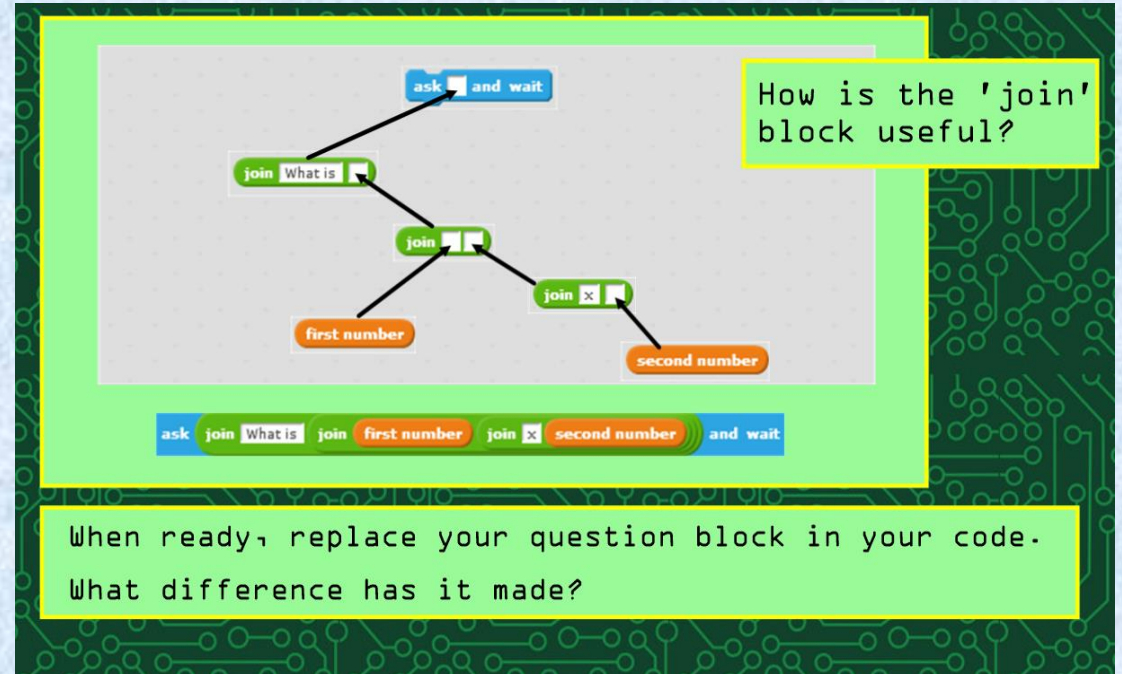
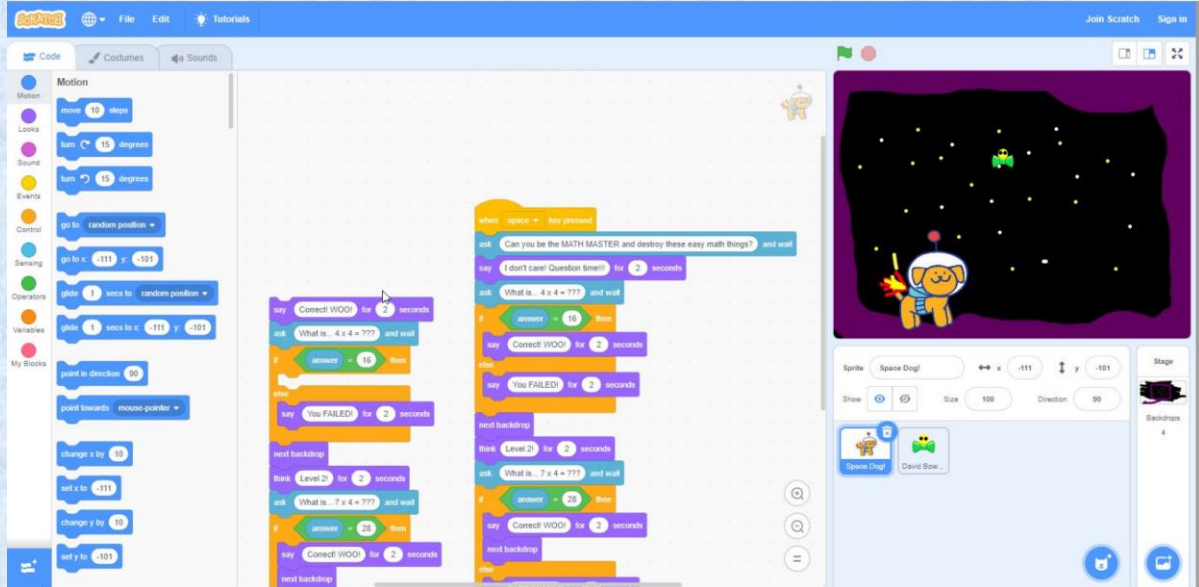
Unit	Expectations	Computing PoS	Software/Apps	Hardware
<b>6.2</b> <b>We are computational thinkers</b> Mastering algorithms for searching, sorting and mathematics	<ul style="list-style-type: none"> <li>Develop the ability to reason logically about algorithms.</li> <li>Understand how some key algorithms can be expressed as programs.</li> <li>Understand that some algorithms are more efficient than others for the same problem.</li> <li>Understand common algorithms for sorting and searching.</li> <li>Appreciate algorithmic approaches to problems in mathematics.</li> </ul>	<ul style="list-style-type: none"> <li>Design, write and debug programs that accomplish specific goals.</li> <li>Use sequence, selection and repetition in programs; work with variables and various forms of input and output.</li> <li>Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.</li> </ul>	<b>Software:</b> Scratch and Snap! <b>Apps:</b> Pynkee, and Snap! using Safari	Laptop/desktop computers; some 'unplugged' resources.
<b>6.3</b> <b>We are advertisers</b> Creating a short television advert	<ul style="list-style-type: none"> <li>Think critically about how video is used to promote a cause.</li> <li>Storyboard an effective advert for a cause.</li> <li>Work collaboratively to shoot suitable original footage and source additional content, acknowledging intellectual property rights.</li> <li>Work collaboratively to edit the assembled content to make an effective advert.</li> </ul>	<ul style="list-style-type: none"> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>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.</li> <li>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<b>Software:</b> Movie Maker®/iMovie <b>Apps:</b> iMovie	Desktop/laptop computers; digital video cameras/digital cameras/tablet computers.
<b>6.5</b> <b>We are travel writers</b> Using media and mapping to document a trip	<ul style="list-style-type: none"> <li>Research a location online using a range of resources appropriately.</li> <li>Understand the safe use of mobile technology, including GPS.</li> <li>Capture images, audio and video while on location.</li> <li>Showcase shared media content through a mapping layer.</li> </ul>	<ul style="list-style-type: none"> <li>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.</li> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>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.</li> <li>Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.</li> </ul>	<b>Software:</b> Google Maps/Google Earth, Ptxlr, Movie Maker®, Audacity, Google Sites <b>Apps:</b> Google Earth, Snapseed, iMovie, Garageband, TrackRec	Tablet computers and/or smartphones, desktop/laptop computers, web server or online hosting.
<b>6.6</b> <b>We are publishers</b> Creating a yearbook or magazine	<ul style="list-style-type: none"> <li>Manage or contribute to large collaborative projects, facilitated using online tools.</li> <li>Write and review content.</li> <li>Source digital media while demonstrating safe, respectful and responsible use.</li> <li>Design and produce a high-quality print document.</li> </ul>	<ul style="list-style-type: none"> <li>Understand computer networks including the internet and the opportunities they offer for communication and collaboration.</li> <li>Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.</li> <li>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.</li> <li>Use technology safely, respectfully and responsibly.</li> </ul>	<b>Software:</b> Microsoft Publisher/Scribus/ iBook Author, Ptxlr, Microsoft Word/ Google Docs, Adobe Acrobat, Google Drive <b>Apps:</b> Pages/Book Creator, Snapseed, Google Drive	Laptop/desktop computers, digital cameras, iPads.



# Standards in Computing

The standard of work produced in Computing is very high at Hove Junior School. Through Years 3 - 6 children build their own e-portfolio of work, allowing them to critically reflect on their own progress.

Class teachers continuously assess and monitor the children to identify misconceptions and address these during the lesson. Children are encouraged to challenge themselves with additional activities to stretch their learning.





# Key Skills

## Year 3

- ✓ I can log-on and log-off independently.
- ✓ I can open a program.
- ✓ I can save my work.
- ✓ I can open saved work.
- ✓ I can safely use the internet.



## Year 4

- ✓ I can change the font size and style.
- ✓ I can use spellcheck.
- ✓ I can copy and paste information and media.
- ✓ I can sequence a code.
- ✓ I can use a search engine effectively and safely.



# Key Skills

## Year 5

- ✓ I can create, organise and rename folders.
- ✓ I can choose an appropriate program for a purpose.
- ✓ I can debug my own code.
- ✓ I can report unsafe internet activity.
- ✓ I can explain the importance of e-safety.

## Year 6

- ✓ I can use program shortcuts.
- ✓ I can publish my work in a range of media.
- ✓ I can independently write basic code.
- ✓ I can use digital equipment effectively.
- ✓ I can explain how to stay safe on social media.






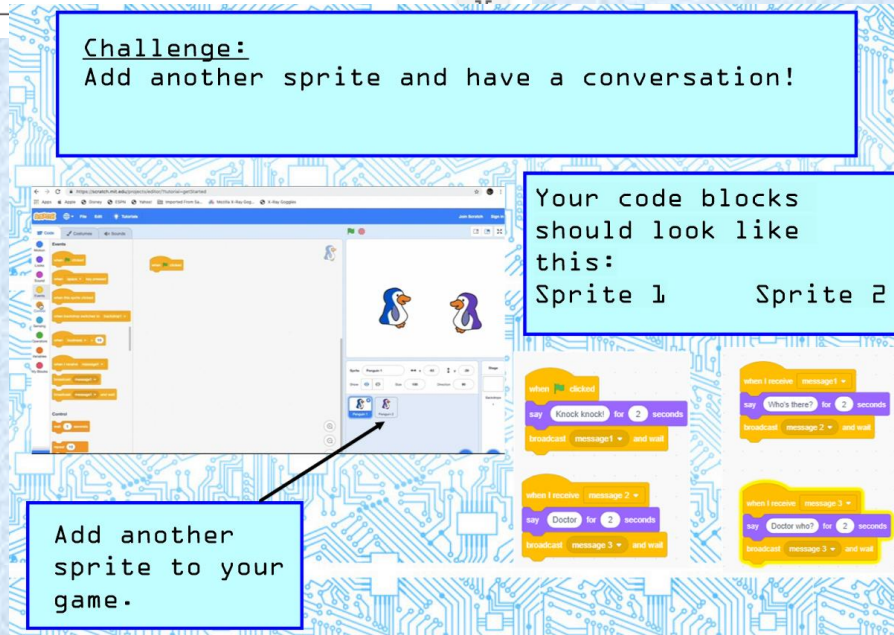
# Greater Depth Opportunities



## Now try this ...

- Can you change the three questions to other numbers adding up to 10 and the answer in the **if answer =** block so the quiz still works?
  - Can you add another two questions so there are five questions in the quiz?
  - Can you add in **change color effect by 25** blocks so when the answer is wrong, the cat turns red? Make sure you program the cat to change back afterwards though, so it doesn't continue to look like all the answers are wrong!
  - Can you program the cat so when the answer is correct, the cat turns green? As before, make sure you program it to turn back to its original colour.
-  Set up a quiz with a partner. Can you come up with your own conditional actions to show whether the answer is right or wrong? How could you signal this?

Challenge:  
Add another sprite and have a conversation!



## Digital Leaders

Each year, children are invited to apply to become Digital Leaders – these are the children who love technology and see how much difference it can make in their learning.

They are involved in creating and developing IT policies, providing training and support for others and trialling new ideas. They are an essential part of our Computing lessons at Hove Juniors.

