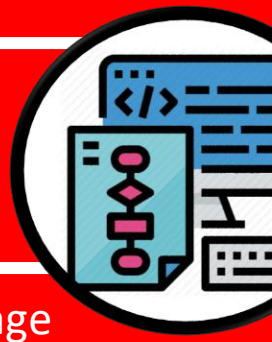

COMPUTING



PORTSWOOD PRIMARY SCHOOL

KEY INFORMATION

COMPUTING INTENT



In Computing at Portswood Primary School we encourage children to become **confident** and **creative** users of information and communication technology, **understanding** its **importance** in their lives and in the ever-changing world around them.

We ensure that pupils **understand** how to act as **responsible** online citizens, staying **safe** online to protect their own **wellbeing** and that of those around them.

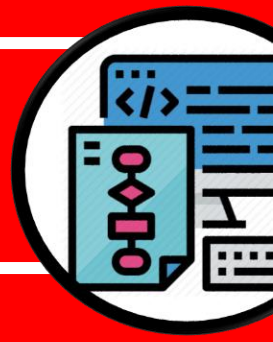
Our **aims** for computing reflect the aims of the National Curriculum.

It is our intention to enable children to **find, explore, analyse, exchange and present** information. Our curriculum enables pupils to **explore and develop** a range of skills, **solving problems** and **presenting information** using different equipment and software.

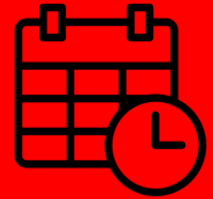
We **equip** pupils with the **key digital literacy skills** they need to **express** themselves and **develop their ideas** through information technology and computer science. Pupils use **computational thinking** and **creativity** to solve problems, and to **understand** and **change the world**. They should leave school **computer literate**.

Pupils at Portswood Primary School should be able to **use a range of technologies** to **enrich** their learning across the curriculum. Their **knowledge and skills** should be at a level suitable for the next stage in their computing education.

COMPUTING IMPLEMENTATION



The computing curriculum at Portswood Primary School reflects the aims set out in the National Curriculum Programme of Study.



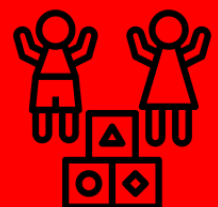
Units of learning are either planning termly or half-termly, based on the content and the software used. These may be taught as discrete lessons each week or delivered in blocked units of time to allow larger projects to be completed.



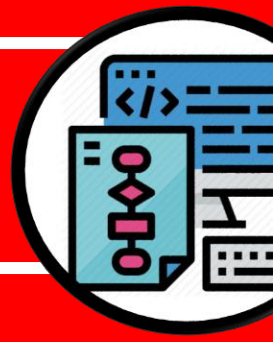
Teaching is mostly whole-class based, supported by appropriate differentiation. At times, small group work is also used for children to practise or apply their computing skills in other subject areas across the curriculum.



Within the curriculum there are lots of opportunities for collaboration, specifically pair programming, peer instruction, and structured group tasks. This allows the skills of communication and co-operation to be promoted.



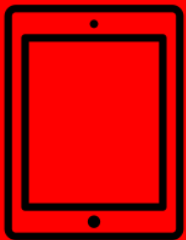
COMPUTING IMPLEMENTATION



Early Years Stage

In Early Years, computing is taught through explicit modelling of using technology as well as child-initiated discovery.

In Reception children use the Smart board to select games, songs and dances they would like to join in with; keeping them engaged whilst supporting their physical development. iPads and walkie talkies are used as part of Discovery Time to provide children with opportunities to express themselves and communicate with one another.



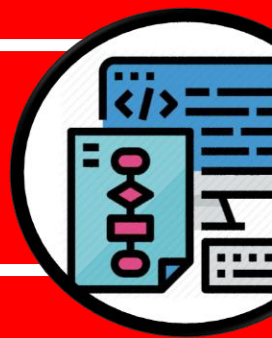
Pupils also enjoy experimenting with cameras and BeeBots. They are taught how to stay safe with technology by telling an adult if they have any problems.

Computing is assessed across multiple strands of the Early Years Framework including Understanding the World and and Personal, Social and Emotional Development.



Computing in the Early Years provides pupils with exposure to different types of technology and gives them the opportunity to use them in play for a purpose. They are introduced to the key concepts that are developed further later in KS1 and KS2 which sets them up for success in later years.

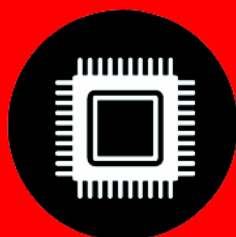
COMPUTING IMPLEMENTATION



Long term curriculum planning for computing is created so that each Programme of Study (POS) strand is taught and revisited each academic year.



The strands of computing are:



Computer
Systems and
Networks



Creating
media



Programming



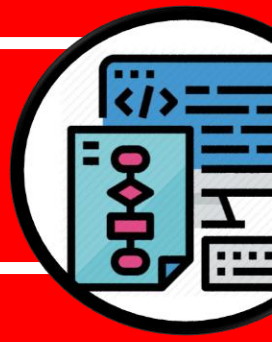
Data and
information

Our computing curriculum is organised so that pupils have the opportunity to develop skills using a wide range of software and hardware. This is set out in our Long Term Planning (LTP), and in greater detail in the school's Medium Term Planning (MTP).



COMPUTING

E-Safety - IMPLEMENTATION



A secure understanding of E-safety is vital for our pupils to be responsible, respectful, digital citizens. E-safety is taught in dedicated units through the PSHE curriculum and is woven into the computing curriculum to allow E-safety concepts to be taught in context.

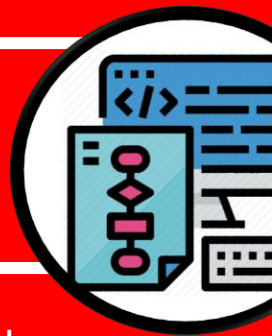


Specific key days, such as Safer Internet Day, are used as opportunities to further emphasise key E-safety messages that are relevant to our school community.



COMPUTING

E-Safety - IMPLEMENTATION



Our 'E-safety across the school' document maps out where this knowledge is directly taught.

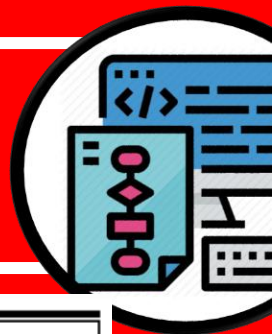
This interlinks with the PSHE curriculum and is supplemented by the Cyber Ambassador work and the emphasis of specific key days, as explained previously.

Internet Safety across the school		
	<i>PSHE</i>	<i>Computing</i>
THREADED THROUGH UNITS		
Year 1		
Autumn 1	New beginnings - Privacy and security	I can identify technology around me and how it can be used to help us (Computer Systems and Networks L1)
Autumn 2	Being a good friend - Self image and identity	
Spring 1	Keeping healthy and safe - Health, wellbeing and lifestyle strand	
Summer 1	Staying safe - Health, wellbeing and lifestyle strand	
Year 2		
Autumn 1	Privacy and security	I can identify technology around me and explain how it can be used in different ways. (Computer Systems and Networks L2) I can identify information technology beyond school and talk about its uses. (Computer Systems and Networks L3) I can explain how information technology helps us. (Computer Systems and Networks L4) I can recognise that different choices can be made when using information technology. (Computer Systems and Networks L6)
Autumn 2	Looking after myself - On line bullying	
Spring 2		I can identify which photos are real and which have been changed. (Creating Media L6)
Summer 1		I can give simple examples of why information should not be shared. (Data and information L6)

Continued on following page.

COMPUTING

E-Safety - IMPLEMENTATION



Year 3		
Autumn 1	New beginnings - Online relationships	I can explain how I use digital devices for different activities. (Computer systems and networks L1)
Spring 2	Bullying, rules, medicines and keeping safe - Online bullying	
Summer 1	Friends - Online relationships	
Year 4		
Autumn 1	Looking forward - Online relationships	I can explain that there are rules to protect content online and suggest who owns the content on websites. (Computer Systems and Networks L5) I can explain that not everything on the World Wide Web is true. I can explain why I need to think carefully before I share or reshare content. I can explain why some information I find online may not be honest, accurate, or legal. (Computer Systems and Networks L6)
Spring 1	Assertiveness - Online relationships	
Spring 2	Friendships - Online bullying	
Summer 2	Peer pressure - Online relationships	
	SPECIFIC DEDICATED UNITS	THREADED THROUGH UNITS
Year 5		
Autumn 1		I can recognise the role of computer systems in our lives (Computer Systems and Networks L2) I know how search engines select results. (Computer Systems and Networks L4) I can describe some of the ways that search results can be influenced. I can explain how search engines make money. (Computer Systems and Networks L6)
Spring 2	Online wellbeing – Health, well-being and lifestyle	
Year 6		
Autumn 1		I recognise that working together on the internet can be public or private. (Computer Systems and Networks L4)
Spring 1	Keeping safe online - Online reputation - Online relationships - Self-image and identity	

COMPUTING IMPLEMENTATION



Whole School provision for computing

Computing at Portswood

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	Computing delivered through continuous provision, enhancement and enabling environments.					
Year 1	Computer systems and networks - Technology around us (Online - Paintz.app)	Programming A: Moving a robot (Beebots)	Creating media: Digital painting (Online - Paintz.app)	Data and information: Grouping data (Powerpoint)	Creating media: Digital writing (Word)	Programming B: Programming animations (iPads ScratchJr)
Year 2	Computer systems and networks - Information technology around us (Powerpoint)	Creating media - Digital music (Online Chrome Music Lab)	Programming A - Robot algorithms (Beebots)	Creating media - Digital photography (iPad cameras and apple photo software)	Data and information - Pictograms (Online - J2Data Pictogram)	Programming B: Programming quizzes (iPads Scratch Jr)
Year 3	Computer systems and networks – Connecting computers (Online – Paintz.app)	Programming A – sequencing sounds. (Scratch)	Creating media - stop-frame animation (iPads – I can animate)	Programming B – Events and actions in programs (Scratch)	Data and information – Branching databases (Online – J2Data Branch and Pictogram)	Creating media – Desktop publishing (Publisher)
Year 4	Computer systems and networks – The Internet (Online – various websites)	Creating media – audio production (Audacity)	Programming – repetition in shapes (FMSLogo)	Programming – Repetition in games (Scratch)	Data and information – data logging (Data loggers)	Creating media: Photo editing (Paint.NET)
Year 5	Computer systems and networks: sharing information (Powerpoint)	Creating media: introduction to vector graphics (Powerpoint)	Programming A: Selection in physical computing (Physical computing crumble controllers)	Programming B: Selection in quizzes (Scratch)	Data and information: Flat file database (Online - J2Data Database)	Creating media: Video production (iPads – iMovie)
Year 6	Computer systems and networks – communication and collaboration (Powerpoint)	Data and information – Introduction to spreadsheets. (Excel)	Creating media – 3D Modelling (Online – Tinkercad)	Programming A – Variables in games (Scratch)	Programming B – Sensing movement (Physical computing Micro:bits Online – Makecode microbit)	

Vocabulary

There should be an emphasis on the teaching and modelling of key terminology for computer science, digital literacy and information technology in order for children to be able to understand and articulate their knowledge and understanding.



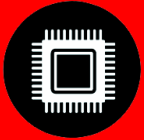
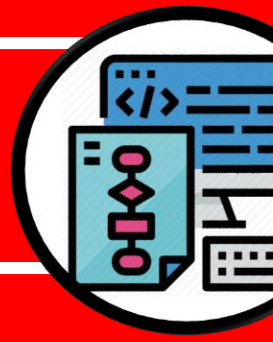
Portswood Cyber Ambassadors

Our Cyber Ambassadors are a selected group of UKS2 students who work to promote and support E-safety across the school, sharing key messages and enacting positive change.



COMPUTING

Key Skills - IMPLEMENTATION



Skills progression: Computer systems and networks

Year 1

- Identify the parts of a computer.
- Identify technology in the classroom.
- Use a keyboard and a mouse to type on a computer.
- Create and agree on rules to use technology responsibly.

Year 2

- Manage files and folders to save and open work.
- Identify technology in the school and beyond.
- Explain how technology helps people.
- Explain how to use technology safely.
- Discuss the choices we can make when using technology.

Year 3

- Identify different input and output devices.
- Recognise how digital devices can change the way we work.
- Explain how a computer network can be used to share information.
- Explain the role of a switch, server and wireless access point in a network.
- Identify the computer network in the school and explain how devices are connected together.

Year 4

- Describe how information is shared across the internet.
- Recognise how networked devices make up the internet.
- Describe how content is accessed and added to websites on the World Wide Web WWW.
- Recognise that not everything on the WWW is true.
- Recognise that I should think carefully before sharing or resharing content online.

Year 5

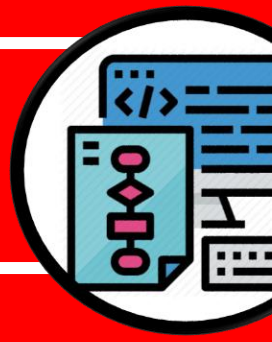
- Explain that computers can be connected to form systems.
- Describe how search engines select results and rank them.
- Describe some of the ways that search results can be influenced.

Year 6

- Describe how computers use addresses to access websites.
- Explain that data transferred over the internet and networks is in packets.
- Evaluate different methods of online communication.

COMPUTING

Key Skills - IMPLEMENTATION



Skills progression: **Creating media**

Year 1

- Use digital tools to create pictures.
- Use letter, number, space, backspace and enter keys on a keyboard to manipulate text.
- Use different tools to change the appearance of text.
- Create a simple piece of digital content for a purpose.
- Explain why I have chosen to use certain digital tools.

Year 2

- Use a camera to take photographs.
- Use tools to alter an image.
- Use a computer to create a musical pattern.
- Create music for a purpose using a computer program.

Year 3

- Explain what an animation is.
- Use a camera to create a stop motion animation.
- Explain the difference between text and images.
- Change font style, size, and colours in a document for a given purpose.
- Choose a suitable layout for a document for a given purpose.

Year 4

- Identify input and output devices that are used to record and play sound.
- Use a computer to record audio.
- Record and edit a podcast.
- Combine audio to enhance a podcast project.
- Use tools including cloning and cropping to edit images.
- Combine images for a purpose.

Year 5

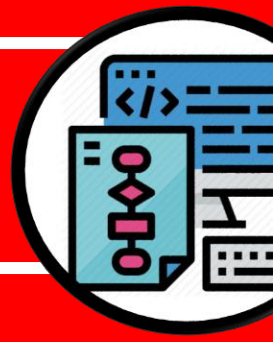
- Capture video using a range of techniques.
- Edit a video and make improvements using reshooting.
- Create a vector drawing by combining shapes.
- Use layering to create an image.
- Group objects in a drawing to make them easier to work with.

Year 6

- Recognise that you can work in three dimensions on a computer.
- Manipulate 3D objects including lift, lower, recolour, resize, duplicate, group and rotate in three dimensions.
- Create a 3D model for a given purpose.
- Plan and create a digital 3D model.

COMPUTING

Key Skills - IMPLEMENTATION



Skills progression: **Programming**

Year 1

- Explain what a command will do.
- Combine commands to make a sequence.
- Design and execute a simple program.
- Begin to use the word 'algorithm' to describe a set of instructions.
- Begin to use the word 'debug' when correcting mistakes in programming.

Year 2

- Describe a series of instructions as a sequence.
- Explain that a sequence of commands has an outcome.
- Begin to explain what will happen when the order of instructions changes.
- Predict what will happen for a short series of instructions.
- Design a simple program and explain what it should achieve.
- Test and debug different parts of a program I have written.

Year 3

- Explain what will happen when the order of instructions changes.
- Apply knowledge of sequencing to a different programming language.
- Explain the relationship between an event and an action in Scratch.
- Adapt a program to suit a new context.
- Design a maze based challenge using Scratch.

Year 4

- Write an algorithm for a given purpose.
- Create a program using an algorithm that I have designed.
- Recognise the purpose of count-controlled and infinite loops in programs.
- Design a program in Scratch that includes repetition.

Year 5

- Control a simple circuit connected to a computer.
- Design and use a conditional loop, explaining that a loop can stop when a condition is met.
- Design a program that controls a physical computing project.
- Identify the condition and outcomes in an 'if... then... else...' statements.
- Design and create a program which uses selection.

Year 6

- Describe what a 'variable' is in programming.
- Use variables to improve a game.
- Design, create and evaluate a project that includes variables.
- Create a program to run on a controllable device.
- Design and create a project that uses inputs and outputs on a controllable device.

COMPUTING

Key Skills - IMPLEMENTATION



Skills progression: Data and information

Year 1

- Use labels to group objects.
- Describe the properties of objects.
- Group objects with similar properties.
- Identify that objects can be counted.
- Compare groups of objects.

Year 2

- Use tally charts to count and compare objects.
- Recognise that objects can be represented as pictures.
- Recognise that objects and people can be described by attributes.
- Create a pictogram.
- Present information in different ways.

Year 3

- Explore the features of branching databases.
- Arrange objects by attributes into a tree structure.
- Explain why it is helpful for a database to be well structured.
- Design and create a branching database.

Year 4

- Identify that data can be gathered over time.
- Use a datalogger to collect information.
- Propose a question that can be answered using logged data.
- Use collected data to answer questions.

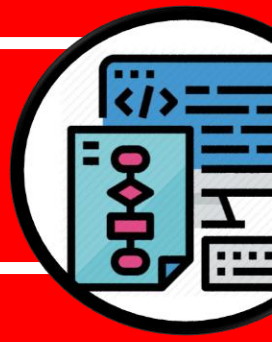
Year 5

- Create a database.
- Explain what a field and a record is in a database.
- Use tools to select specific data in a database.
- Use a real-world database to answer questions.

Year 6

- Collect data and enter it into a spreadsheet.
- Construct a formula in a spreadsheet to produce calculated data.
- Create a spreadsheet to plan an event.
- Choose suitable ways to present data.

COMPUTING IMPACT



At Portswood Primary School we ensure that our computing planning and teaching is high quality, providing variety and promoting interest in the subject.

Children enjoy computing. When speaking with pupils across the school, they are enthusiastic about their learning and are able to articulate why the subject is important.

Pupils of all ages can explain how to stay safe online and what to do if they encounter any issues.

Computing allows children to develop skills which are relevant to their everyday life and they are able to use their own knowledge and understanding to enhance their learning.

As the strands of computing are revisited throughout Key Stage 1 and 2, there is a clear skills progression within the subject. Pupils become adept at using specific software, such as Scratch, but are also given ample opportunity to explore a range of programmes. This allows them to use and apply their skills with confidence.

Within Programming, for example, pupils explore algorithms using BeeBots in Year 1. They then progress to writing simple code using Scratch Junior in Year 2. In LKS2, pupils develop their skills to create a simple maze game and in UKS2 they apply their knowledge to use hardware including crumble controllers and micro:bits to create programs for a purpose.

COMPUTING IMPACT



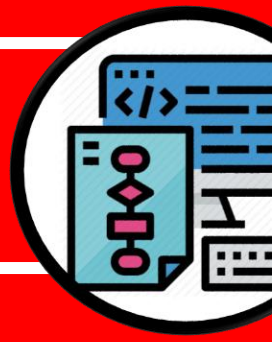
The quality of teaching is high. Teachers use their subject knowledge to engage and inspire pupils.

As a school, we strive to use IT across the curriculum to support and enhance learning experiences, too. For example, in Year 5 pupils use their Digital Literacy skills to create CVs linked to the novel they study. In Year 1, BeeBots are programmed to move around the model streets of Portswood which are created in their Geography study of the local area.

Planning for each computing unit is adapted from the MTP. The short term planning is either taught as a block or in a series of sessions over a half-term or term.

In computing, pupils show enthusiasm and very good attitudes to their learning. They are proud of their outcomes and are able to discuss the relevance of their learning, both across the curriculum and within their lives outside of school. Well planned units mean pupils are shown clear models and they make good progress learning and using skills.

COMPUTING IMPACT



By the time pupils leave Portswood Primary School, they are **aware** of how to be **safe**, **responsible** users of information technology. Pupils know what to do if they encounter any issues online.



Be smart on the internet

S SAFE Keep safe by being careful not to give out personal information when chatting or posting online. Personal information includes your email address, phone number and password. **ZIP IT**

M MEETING Meeting someone you have only been in touch with online can be dangerous. Only do so with your parents' or carers' permission and even then only when they can be present. Remember online friends are still strangers even if you have been talking to them for a long time. **PEOPLE**

A ACCEPTING Accepting emails, IM messages, or opening files, pictures or texts from people you don't know or trust can lead to problems – they may contain viruses or nasty messages! **BLOCK IT**

R RELIABLE Someone online might lie about who they are, and information on the internet may not be true. Always check information with other websites, books or someone who knows. **QUESTION MARK**

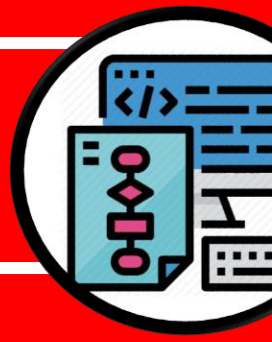
T TELL Tell your parent, carer or a trusted adult if someone or something makes you feel uncomfortable or worried, or if you or someone you know is being bullied online. You can report online abuse to the police at www.thinkuknow.co.uk. **THINK UK KNOW**

www.kidsmart.org.uk

KidSMART Visit Childnet's Kidsmart website to play interactive games and test your online safety knowledge. You can also share your favourite websites and online safety tips by Joining Hands with people all around the world. **FLAG IT**

Childnet International
www.childnet.com

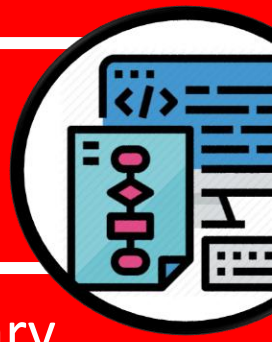
COMPUTING IMPACT



By the time pupils leave Portswood Primary school, they are **computer literate**. They can use technology to **find, share** and **present** information.

For examples of excellent work, please see the Subject Lead and class teachers.

COMPUTING IMPACT

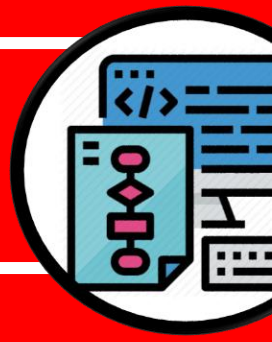


By the time pupils leave Portswood Primary School, they are able to use **technology confidently and creatively** to design programmes and **solve** problems.



COMPUTING

IMPACT – Pupil Voice



What our pupils say about computing:

I enjoy computing because it is so exciting.

I loved using the BeeBots and we gave them instructions so they move. You call it a code.

I learn how to do things I couldn't do before and it's really fun exploring.

Computing is definitely my favourite lesson at school because I can practise typing and then you can type anything.

Computing is great because it is interesting and I like using the internet to research. It's useful because things I learn can help me in all my lessons.

I love coding. It's cool that we get to make games and you can design it and make it look however you want. The teachers let you be creative. I like coding at home, too.

I'll always remember the projects we did, especially on Scratch because they were so much fun. We use research to help us with all of our learning and I like presenting my work using the computer too.