

Computing Policy Document



Updated: May 2021 (JS)

To be reviewed, evaluated and updated: May 2022

Introduction

At Burnside Primary School, we aim to prepare our children to be lifelong learners who can draw on a range of skills when meeting new challenges. Our computing curriculum prepares our children for the digital world which is becoming an increasingly important part of everyday life. We aim to equip them with the skills and confidence to use different technologies to enhance and extend their learning through motivating, creative and contextualised activities.

We view the internet as an amazing place where our children can play, learn, create and connect - opening up a whole world of exciting possibilities. However, with the digital world changing all of the time, we have a responsibility to teach our children how to be safe and use technology appropriately. Across school, we dedicate a discreet block of teaching time to online safety, as well as taking other opportunities to promote internet safety throughout the year including parent workshops, celebrating *Safer Internet Day* and also through the JIGSAW resources delivered in PSHE.

We have invested in this important area of the curriculum by providing a class set of iPads and laptops to be used across the school, ensuring that children have technology at their fingertips. Additionally, the Year 5 class are trialling a Chromebook initiative whereby they have access to technology throughout the day to enhance their learning. We regularly review and source new technologies to enhance the curriculum and ensure that it is current and relevant. Ultimately, we view technology as a way of enhancing all curriculum subjects and endeavour to bring topics to life with engaging technologies – our aim is for technology to permeate our curriculum, as it does our lives, and in so doing, create digitally literate, confident pupils.

Should any issues arise regarding the safety of our children online, staff are aware that one of the named teachers below, who are responsible for online safety and safeguarding, should be notified:

- Mrs K. Charlton (Head teacher)
- Mrs R. Pattison (Safeguarding lead)
- P. Renwick (Deputy head teacher)
- R. Thompson (SENCO and Year 4 teacher)

1. Computing Curriculum Intent

It is intended that by the end of Key Stage 2, our children will be equipped with the computing skills to confidently and safely participate in and contribute to an ever expanding digital world. We recognise how quickly the online world develops and changes; we therefore intend to focus on the underpinning knowledge and behaviours¹ that can help pupils navigate the online world safely and confidently regardless of the device, platform or app.

The Computing Curriculum is divided into three main strands:

1. Online Safety
2. Digital Literacy & ICT
3. Computer Science

Through these strands, we provide coverage of the objectives set out in the National Curriculum. At Burnside Primary School, we recognise the inextricable links between skills and knowledge and will develop the two strands side by side. Our children will leave our school as computational thinkers, able to program their own apps and games. They will be able to navigate the internet confidently and efficiently, being risk aware rather than risk averse, with the skills and knowledge in order to respond appropriately to what they see online. Furthermore, our children will be able to express themselves, develop and present their ideas through information and communication technology whether that be using an app on an iPad or via a more formal piece of software.

2. Key Stages

In the **Early Years**, the emphasis is on pupils developing their understanding of the world and their environment. In relation to computing, they will become increasingly familiar with computers and every day familiar devices. It is hoped that they will be able to complete a simple computer program; perform simple functions using mouse and keyboard; and use appropriate internet-based games and activities to support their learning.

At **Key Stage 1**, computer science will be taught discreetly. Pupils will begin to understand algorithms; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. They will also create and debug simple programs, using logical reasoning to predict the behaviour of the same.

Digital literacy and ICT will begin to permeate the curriculum in Key Stage 1. Pupils will use technology purposefully to create, organise, store, manipulate and retrieve digital content.

The underpinning knowledge and behaviours will be explored and discussed frequently in KS1 to ensure technology is used safely and respectfully. (Appendix 2)

At **Key Stage 2**, computer science will continue to be taught discreetly. Children will design, write and debug programs that achieve specific goals, including controlling or simulating physical systems. They will use sequence, selection and repetition in programs, working with variables and various forms of input and output. Furthermore, they will use logical reasoning to explain how some simple algorithms work and detect and correct errors in algorithms and programs.

'Teaching Online Safety in School, DfE (June 2019)

In this key stage, children will begin to understand computer networks, including the Internet; how they can provide multiple services, such as the worldwide web; and the opportunities they offer for communication and collaboration. Additionally, pupils will begin to use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content.

Pupils will select, use and combine a variety of software 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.

The underpinning knowledge and behaviours will continue to be explored and discussed frequently in KS2 to ensure technology is used safely and respectfully. (Appendix 2)

3. Implementation

Equality and Diversity

It is the responsibility of all teachers at Burnside Primary School to ensure that all pupils, irrespective of ability, race, gender, age, faith, sexual orientation and disability are given full access to the computing curriculum and make the greatest possible progress in accordance with recent legislation.

Teaching and Learning

Although each of the three main strands of the Computing curriculum will be taught discreetly throughout the year, the unique nature of the subject will allow the underpinning skills and knowledge to be reinforced in the teaching of all subjects. In fact, pupils will be exposed to technology across the curriculum as it is used to enhance many of the other subjects taught at Burnside.

Children will be given the opportunity to work independently on their own device and collaboratively when programming.

4. Impact

Recording and Evidencing

- Earlier programming skills (developed on floor devices for instance) are evidenced with an annotated photograph.
- Floor books are compiled to record work completed in the online safety and computer science strands of the computing curriculum and will showcase children's work, drawings and photographs of activities completed in relation to the topic. Speech bubbles are added to reflect the children's comments and/or observations.
- Digital literacy is evidenced across the curriculum where technology has been used purposefully to create, organise, store, manipulate and retrieve digital content. This will be visible in pupils' exercise books and in their electronic folders.

Assessment

At Burnside Primary School, assessment is integral to the teaching process. Assessment allows us to judge the progress that pupils have made in their programming journey. In order to make an assessment of an activity, we need to be clear about the purpose of the activity and of the evidence that we expect to see in order to know whether pupils have achieved the expected aim. Assessment also allows us to identify those pupils who need additional support, evaluate the effectiveness of our strategies and improve our teaching.

In order that we can make accurate assessments of our pupils, it is important that teachers build up knowledge of the progression of the key concepts and processes in computing as expectations for what pupils can achieve will be different for pupils in different year groups.

Assessment is best judged over time. Teachers therefore need to identify opportunities within their planning that allow pupils to demonstrate their understanding.

At the end of each unit, the teacher will make an overall assessment based on the key concepts and processes identified in his/her planning. Pupils will be assessed as having met the intended objectives, working towards them or exceeding them.

Role of the Subject Co-ordinator

The computing co-ordinator will monitor the implementation of this policy and review and amend it as necessary. Monitoring of standards in computing will be undertaken through:

- Scrutiny of floor books
- Discussion with pupils

The computing co-ordinator will also be responsible for reporting to the Governing Body on standards and developments in computing on an annual basis. A subject improvement plan will detail steps needed to progress standards in computing. This will be updated termly and reviewed annually.

<p>1. How to evaluate what they see online This will enable pupils to make judgements about what they see online and not automatically assume that what they see is true, valid or acceptable.</p>
<p>2. How to recognise techniques used for persuasion This will enable pupils to recognise the techniques that are often used to persuade or manipulate others. Understanding that a strong grasp of knowledge across many areas makes people less vulnerable to these techniques and better equipped to recognise and respond appropriately to strongly biased intent or malicious activity.</p>
<p>3. Online behaviour This will enable pupils to understand what acceptable and unacceptable online behaviour looks like. The same standard of behaviour and honesty apply on and offline, including the importance of respect for others. It is important pupils are also able to recognise unacceptable behaviour in others.</p>
<p>4. How to identify online risks This will enable pupils to identify possible online risks and make informed decision about how to act. This should not be about providing a list of what not to do online. The focus should be to help pupils assess a situation, think through the consequences of acting in different ways and decide on the best course of action.</p>
<p>5. How and where to seek support This will enable pupils to understand safe ways in which to seek support if they are concerned or upset by something they have seen online.</p>

Underpinning knowledge and behaviours

End of year expectation summary

By the end of Year EYFS children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none">• Explain which apps/sites/programs they are allowed to use and which they are not.
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none">• Know that they should not click on pop-ups, in-app purchases etc.
3. Online behaviour	<ul style="list-style-type: none">• Use kind vocabulary online as they would face to face.
4. How to identify online risks	<ul style="list-style-type: none">• Use the dolphin function or tell an adult if they get that 'uh-oh' feeling when online.
5. How and where to seek support	<ul style="list-style-type: none">• Tell a teacher if they come across something unexpected/inappropriate online.

By the end of Year 1 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none">• Evaluate, is this person who they say they are?
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none">• Identify ways in which games try to make you play for longer.
3. Online behaviour	<ul style="list-style-type: none">• Explain how unkind words can be as harmful online as they are in person.
4. How to identify online risks	<ul style="list-style-type: none">• Explain how they may put themselves at risk online and how to prevent this from happening (e.g. using an avatar instead of a photograph).
5. How and where to seek support	<ul style="list-style-type: none">• Identify who their trusted adults are.• Click on the dolphin on the school laptops when they feel content is inappropriate.

By the end of Year 2 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none">• Evaluate, is this person who they say they are?• Consider, why does someone want me to see this?• Consider, why does someone want me to send this?

2. How to recognise techniques used for persuasion	<ul style="list-style-type: none"> Identify ways in which games and social media companies try to keep users online for longer.
3. Online behaviour	<ul style="list-style-type: none"> Explain how kindness should be shown online as it would face-to-face.
4. How to identify online risks	<ul style="list-style-type: none"> Explain how they may put themselves at risk online and how to prevent this (e.g. using an avatar and knowing what personal information not to share).
5. How and where to seek support	<ul style="list-style-type: none"> Identify who their trusted adults are and provide examples of when it would be necessary to refer to them for help. Click on the dolphin on the school laptops when they feel content is inappropriate.

By the end of Year 3 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none"> Consider, why does this person want my personal information?
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none"> Identify ways in which games and social media companies try to keep users online for longer (with consideration made to the increasing number of games/platforms children will be engaging with).
3. Online behaviour	<ul style="list-style-type: none"> Discuss why people behave differently online, e.g. how anonymity and invisibility affect what people do.
4. How to identify online risks	<ul style="list-style-type: none"> Explain what a digital footprint is. Discuss the ways in which someone might put themselves at risk online.
5. How and where to seek support	<ul style="list-style-type: none"> Identify who their trusted adults are and provide examples of when it would be necessary to refer to them for help. Navigate to the CEOP link on the school website and provide examples of when using this would be appropriate.

By the end of Year 4 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none"> Consider, is this too good to be true?
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none"> Identify ways in which games and social media companies try to keep users online for longer (with consideration

	made to the increasing number of games/platforms children will be engaging with).
3. Online behaviour	<ul style="list-style-type: none"> Identify unacceptable online behaviours, particularly in online gaming, that would never be tolerated offline e.g. negative language.
4. How to identify online risks	<ul style="list-style-type: none"> Explain what a digital footprint is and consider their own. Discuss the ways in which someone might put themselves at risk online.
5. How and where to seek support	<ul style="list-style-type: none"> Screen shot unacceptable behaviour/bullying in order to report to a trusted adult. Identify different ways to access support from the school, police, CEOP and third sector organisations such as Childline.

By the end of Year 5 children will be able to:

By the end of Year 5 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none"> Evaluate, is this fact or opinion? Use search technologies effectively and appreciate how results are selected and ranked. Be discerning in evaluating digital content.
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none"> Identify techniques that companies use to persuade people to buy something. Identify potential grooming indicators.
3. Online behaviour	<ul style="list-style-type: none"> Identify unacceptable online behaviours, particularly in online gaming, that would never be tolerated offline e.g. swearing.
4. How to identify online risks	<ul style="list-style-type: none"> Discuss their own digital footprint and show an awareness of how past online behaviours can have an impact on their future.
5. How and where to seek support	<ul style="list-style-type: none"> Identify different ways to access support from the school, police, CEOP and third sector organisations such as Childline. Recognise that various platforms and apps will have ways in which inappropriate contact or content can be reported and provide examples.

By the end of Year 6 children will be able to:	
Underpinning knowledge and behaviours	
1. How to evaluate what they see online	<ul style="list-style-type: none"> • Identify if a website/URL/email is fake. • Consider, why would someone want me to believe this? • Consider, what does this cookie do and what information am I sharing?
2. How to recognise techniques used for persuasion	<ul style="list-style-type: none"> • Recognise when online content tries to make people believe something false is true and/or mislead. • Identify potential grooming indicators.
3. Online behaviour	<ul style="list-style-type: none"> • Identify unacceptable online behaviours often passed off as so-called social norms or just banter, e.g. swearing, homophobic and racist language.
4. How to identify online risks	<ul style="list-style-type: none"> • Discuss their own online reputation and digital footprint and show an awareness of how past online behaviours can have an impact on their future when applying for a place at university or a job for example. • Discuss risks posed by another person's online behaviour.
5. How and where to seek support	<ul style="list-style-type: none"> • Identify different ways to access support from the school, police, CEOP and third sector organisations such as Childline. • Recognise that various platforms and apps will have ways in which inappropriate contact or content can be reported and provide examples.

APPENDIX 3

Computer Science

End of year expectation summary

By the end of EYFS children will be able to:	
Skills	Knowledge
To press something (i.e. button or key) to make it start.	Understand that when instructions are input into a device, something will happen.
To use directional and positional language.	

By the end of Year 1 children will be able to:	
Skills	Knowledge
To give instructions to make objects on the screen move when the program starts.	Understand that when a computer does something, it is following instructions called 'code'.
To use code to make objects move when they are clicked on.	Understand that programs respond to inputs to do different things.
To use code to write a computer program where objects in a space scene move when they are clicked on.	
To combine start events and click events to make a simple game.	
Debug simple programs.	

By the end of Year 2 children will be able to:	
Skills	Knowledge
To write code that makes an object move around the screen when keys are pressed.	Understand that programs respond to different sorts of inputs and that the keyboard can be used to control objects on screen, not just by clicking them directly.
To make objects perform different actions when keys are pressed on the keyboard.	Know that one object can be used to control another object, e.g. writing code so clicking a button gives an instruction to make a lorry move.
To write code that makes an object change direction when different keys on the keyboard are pressed.	
To write code that makes an object change direction when the pointer is pressed and released.	
To write code where different inputs can be used to make objects move and disappear.	
To write code where buttons can be used to make an object move around the screen.	

To write the code for a simple game where buttons are used to move an object around.	
To write the code for a simple game where buttons are used to move an object around and cast a magic 'disappearing spell'	
To write code where buttons are used to move a monster around and eat (hide) fruit.	
Debug a variety of programs.	
By the end of Year 3 children will be able to:	
Skills	Knowledge
To write a computer program where different pieces of code execute in a particular sequence.	Understand 'if statements' which select different pieces of code to execute depending on what happens to other objects.
To create a program that uses sequences for two different objects moving on the screen.	Know how to make things happen in a sequence, creating simple animations and simulations.
To write code that uses a timer to create a sequence of events.	
To write code that uses a timer to create a sequence of traffic lights turning on and off.	
To use 'hit events' to program a space maze game in which an object reacts to particular conditions.	
To use conditional hit events to control the movement of a car on the screen.	
To make a simple game that uses conditional hit events to check if one object has hit another.	
To program a simple game where conditional events are used to check whether objects have collided.	
Debug a variety of programs.	

By the end of Year 4 children will be able to:	
Skills	Knowledge
To understand how a variable can be used to keep track of the score in a game.	Understand how computers use variables to count things and keep track of what is going on.
To use variables to keep track of the score in a game that uses conditional events.	Understand how computers use repetition and loops to do things over and over again.
To learn how to use multiple different variables and to set the value of a variable.	
To use a variable to keep track of the score in a game where the score increases, decreases or resets when different conditions are met.	
Debug a variety of programs.	
To use a loop to do something repeatedly in a program.	

To write code that uses nested loops to create a car-driving program.	
Design simple algorithms using loops and selection, i.e. if statements.	
To write the code to program a rocket to orbit round the spinning Moon, using the concepts of loops, regular or infinite repetition, and 'if statement' blocks.	
To use loops, a variable and if statements to create an animated scene of hot air balloons performing a repeating pattern in the sky.	

By the end of Year 5 children will be able to:	
Skills	Knowledge
To set values in code to control the speed of an object.	Understand how computers use numbers to represent things such as how fast things are moving and where they are.
To use object properties (speed, heading and angle) to create a driving simulation.	Understand how computers can generate random numbers and how these can be used in simulations.
To create a sailing game where a boat's position on the screen is controlled by making changes to its co-ordinates.	
To write code including if statements to make an object rotate and combine this with conditional events to make a game.	
Debug a variety of programs.	
To be able to generate and display random numbers and use these within the program.	
To write code for a game that uses random numbers to move objects in different directions.	
To write code that uses random numbers to move objects at random speeds and headings and use this to create a game.	
To create a ping-pong game using random headings in specific ranges.	
To use random numbers in combination with variables and conditional hit events to create a realistic pinball game.	

By the end of Year 6 children will be able to:	
Skills	Knowledge
To write code that prompts the user to input the value of a variable and use this to create an interactive block chart.	Understand how variables can be used in more complex ways and to manipulate inputs to create useful outputs.

To use knowledge of variables to make a balloon pop game that gets harder as users score more points.	Understand more about how computers use property values and parameters to store information about objects.
To write the code for a shopping till using variables to store and calculate values.	
To create a stopwatch with stop, start and reset buttons and both digital and analogue displays.	
Debug a variety of programs.	
To create a game where players stop objects moving by changing their properties.	
To write code that detects the properties of an object and passes the value of these properties (or a set of parameters) to other objects and to use this to create a space game.	
To make a football game that passes the speed and heading of the pointer's movement to a ball on the screen.	
To make a game that moves objects around by getting information from events and passing object properties.	
To learn how to pass properties from one object to a second in order to make the second object move relative to the first.	
To create a golf game by writing code that accesses and uses object properties, including passing the value of these properties to other objects (passing a set of parameters).	

APPENDIX 4

End of Unit Assessment Sheet

Unit title:		
Key objectives:		
Key skills:		
Working towards	Age related expectations	Working above age related

Next Steps:

Burnside Primary School Computing Vocabulary Ladder

Computer Science

Digital Literacy & ICT

Online Safety

Reception

up, down, sideways, start, stop, login, close, move, objects, password, safe, stranger

Year 1

instruction/s, direction, up, down, left, right, run, object, start, stop, keyboard, mouse, enter, return, backspace, scroll bar, delete, program, icon, internet, online, stranger, profile, personal details, sharing, private, avatar

Year 2

code, program, programming, run, object/s, action/s, click event, start event, decompose, debug, search engine, save, RM Explorer, links, persuasion, trusted adults, personal details i.e. name, address, school, bank details, website

Year 3

algorithm, control, input device, input, execute, debug, keypress, clockwise, anticlockwise, year, store, organise, anonymity, invisibility, digital footprint

Year 4

sequence, before, after, between, timer event, hit event, condition, conditional statement, collide, input, debug, retrieve, digital folders, save as, negative language, screenshot, CEOP, digital footprint

Year 5

variable, score, start, click, time, alert, value, negative, event, repetition, loop, efficient, repeat, if statement, always, manipulate, computer networks, communication, collaboration, search technology, digital content

Year 6

speed, property, value, accelerate, decelerate, heading, angle, iteratively, object properties, simulation, decomposition, coordinates, negative numbers, y-axis, x-axis, generate, random, degrees, range, search technology, selected, ranked, URL, email, cookie, mislead, grooming, online reputation