BURFORD PRIMARY & NURSERY

SUBJECT: COMPUTING

LEADER: AARON RUBRA

INTENT

At Burford, we aim to deliver a computing curriculum which enriches our learners' lives, providing them with technology-driven experiences that they may not be able to access elsewhere. We understand that our children may be preparing for career paths that do not yet exist; our curriculum, therefore, is based on skills with information technology and positive attitudes towards I.T. and the internet. By developing these skills in tandem with our e-Safety curriculum, we aim to ensure our learners become 'digital citizens'.

As much as possible, we make meaningful links between children's developing computing skills and the real world. This ensures our learning has purpose and interest for our learners. In some cases, we link our computing curriculum to other areas of our curriculum, but only when it is desirable and meaningful.

IMPLEMENTATION

By the end of our learners' time at Burford, they should be able to communicate, code and create using information technology. Our three curriculum strands are 'Computer science', 'Information technology' and 'Digital literacy'. We aim to provide learners with an awareness of the technology that is available to them, and build an understanding of how different results can be achieved by using different technology.

We know that using software and online platforms safely and sensibly is a priority, so we ensure that e-Safety is embedded throughout our curriculum. We provide children with advice and guidance for accessing the internet, as well as tools children can use if they have come across something that concerns them. E-Safety is our first unit of the year, and is revisited throughout either in lessons, collective worships or themed events and days.

Our curriculum is progressive: children's skills build on each other throughout and between year groups. This allows for retrieval of previous skills, building children's confidence with technology. Knowing that our learners will use digital technology an increasing amount in the future, we take every effort to ensure our learners can achieve success in computing and understand that they can aspire to careers which involve communicating, coding and creating with digital technology.

COMPUTING CURRICULUM COVERAGE MAP

Computer science	Information technology	Digital Literacy

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Y1	e-Safety: The SMART crew rules; online and offline.	Moving a robot: Sphero Indis	Technology around us	Digital artwork	Digital Writing: Pages	Programming animations: Scratch Jr
Y2	e-Safety: The SMART crew rules; technology and relationships.	Robot algorithms: Sphero Indis	IT around us	Digital photography	Digital music: GarageBand	Programming quizzes: ScratchJr
Y3	e-Safety: Think before you share	Sequencing: Lego WeDos	Connecting computers	Stop-frame animation	Creating media: Canva	Branching databases: j2Data
Y4	e-Safety: Respect each other	Repetition in shapes: Turtle Academy	The Internet	Audio production	Loops and repetition: Lego WeDos	Data logging: Arduino Science Journal
Y5	e-Safety: When in doubt, discuss	Selection in programs: Sphero bolts	Systems and searching	Introduction to Vector Graphics: Google Drawings	Video production	Data handling: Micro-bits
Y6	e-Safety: Check it's for real	Variables in games: Scratch	Communication and collaboration with Sphero Bolts	Web page creation	3D modelling: Tinker CAD	Sensing movement: Micro-bits

LINKS TO LEARNING IN EYFS	
F1	Children show an interest in technological toys with knobs or pulleys or real objects such as cameras or iPads. They show skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. They know that information can be retrieved from computers.
F2	Foundation Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes. They complete a simple program on a computer and use ICT to interact with an age-appropriate computer

Computing progression map – Year 1 Teach Computing Planning from a different source

Curriculum aims:	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	Use technology to purposefully create, organise, store, manipulate and retrieve digital content	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.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **Online vs. offline**						✓	Verbally explain how to stay safe online, using the tips from the SMART crew.	
Unit 2 – **Moving a robot**	✓	✓	✓		✓		Program a robot to move by following an algorithm they have written.	Sphero Indis
Unit 3 – **Technology around us**				✓	✓	✓	Understand the components of a keyboard and develop keyboard and mouse skills.	Laptops with trackpads
Unit 4 – **Digital artwork**				✓			Create artwork using digital tools, inspired by different artists.	iPad: Free Paint
Unit 5 – **Digital writing**				✓		✓	Familiarise themselves with typing on a keyboard and use tools to change the look of writing.	iPad: Pages
Unit 6 – **Programming animations**	✓	✓	✓				Use blocks to create and test algorithms in order to generate their own animations.	iPads: Scratch Junior

Computing progression map – Year 2 Teach Computing Planning from a different source

Curriculum aims:	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	Use technology to purposefully create, organise, store, manipulate and retrieve digital content	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.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **Technology and relationships**				✓	✓	✓	Explain how to be kind online, following the advice from the SMART crew.	
Unit 2 – **Robot algorithms**	✓	✓	✓			✓	Retrieve their understanding of algorithms, and create clear, precise algorithms of their own.	Sphero Indis
Unit 3 – **IT around us**				✓	✓	✓	Explain how IT benefits society in places such as shops, libraries and hospitals.	
Unit 4 – **Digital photography**				✓	✓	✓	Capture and edit photos with filters, zoom and cropping tools. They will assess each other's digital photography.	iPad: Camera tool
Unit 5 – **Digital music**				✓			Explore pattern and rhythm in music, and create different rhythms using the movement of animals for inspiration.	iPad: Garage Band
Unit 6 – **Programming quizzes**	✓	✓	✓	✓			Use and modify designs to create their own quiz questions, and realise these designs using blocks of code.	Scratch Junior

Computing progression map – Year 3 | Teach Computing | Planning from a different source

Curriculum aims:	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	use sequence, selection, and repetition in programs; work with variables and various forms of input and output	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **Think before you share**							✓	Think deeply about why it is important not to share personal information online, and who is not safe to share information with.	
Unit 2 – **Sequencing**	✓	✓	✓			✓		Create sequences for programmable robots to follow, and debug programs when robots have been unable to follow a given sequence.	Lego WeDos iPads: Lego WeDo
Unit 3 – **Connecting computers**		✓		✓		✓		Identify that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	Computers, iPads, server room and WiFi hubs.
Unit 4 – **Stop-frame animation**						✓	✓	Capture and edit digital still images to produce a stop frame animation that tells a story.	iPads: iMotion
Unit 5 – **Desktop publishing**					✓	✓		Create documents and modify text, images and page layouts for a specific purpose.	iPads or laptops: Canva
Unit 6 – **Branching databases**						✓	✓	Build and use branching databases to group objects using yes/no questions.	j2Data

Computing progression map – Year 4 | Teach Computing | Planning from a different source

Curriculum aims:	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	use sequence, selection, and repetition in programs; work with variables and various forms of input and output	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **Respect each other**							✓	Explore and explain the importance of respect online, and understand that we all have a right to privacy and safety online.	
Unit 2 – **Repetition in shapes**	✓	✓	✓			✓		Use a text-based programming language to explore count-controlled loops when drawing shapes.	Laptops: Turtle Academy
Unit 3 – **The internet**				✓	✓	✓	✓	Recognise that the internet is a network of networks including the WWW, and why we should evaluate online content.	iPads Chrome Music Lab
Unit 4 – **Audio production**					✓	✓	✓	Capture and edit audio to produce a podcast, ensuring that copyright is considered.	GarageBand
Unit 5 – **Loops and repetition**	✓	✓	✓			✓		Use a block-based programming language and Lego WeDos to explore count-controlled and infinite loops when creating a game.	Lego WeDos Rodocodo
Unit 6 – **Data logging**		✓				✓		Recognise how and why data is collected over time, before using data loggers to carry out an investigation.	iPads: Arduino Science Journal

Computing progression map – Year 5 | Teach Computing | Planning from a different source

Curriculum aims:	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	Use sequence, selection, and repetition in programs; work with variables and various forms of input and output	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **When in doubt, discuss**							✓	Explain the importance of sharing with a trusted adult anything or anyone that concerns or upsets them online.	
Unit 2 – **Selection in programs**	✓	✓	✓			✓		Exploring conditions and selection using Sphero Bolts.	Sphero Bolts Sphero app
Unit 3 – **Systems and searching**				✓		✓	✓	Recognise IT systems in the world and how some can enable searching on the internet.	iPads
Unit 4 – **Introduction to vector graphics**						✓		Create images in a drawing program by using layers and groups of objects.	iPads: Google Drawing
Unit 5 – **Video production**					✓	✓	✓	Plan, capture, and edit video to produce a short film.	iMovie
Unit 6 – **Data handling**	✓			✓		✓		Write and evaluate algorithms and programs using selection and repetition to use the micro:bit as a temperature recorder, an automatic warning system and a digital assistant.	micro:bits Laptops

Computing progression map – Year 6 | Teach Computing | Planning from a different source

Curriculum aims:	design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	use sequence, selection, and repetition in programs; work with variables and various forms of input and output	use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	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	use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	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	use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	**Outcomes: Children will…**	**Digital technology, apps and software:**
Unit 1 – **Check it's for real**							✓	Examine what 'fake news' and AI-generated imagery might look like, and why it's important to be considerate of our online sources of information and content.	
Unit 2 – **Variables in games**	✓	✓	✓			✓	✓	Explore variables when designing and coding a game.	Scratch
Unit 3 – **Communication and collaboration**	✓			✓		✓		Explore how data is transferred by working collaboratively online.	Sphero Bolts iPads: Google Slides Padlet
Unit 4 – **Web page creation**					✓	✓	✓	Design and create webpages, giving consideration to copyright, aesthetics and navigation.	Laptops: Google Sites
Unit 5 – **3D modelling**						✓	✓	Plan, develop, and evaluate 3D computer models of physical objects.	Laptops: TinkerCAD
Unit 6 – **Sensing movement**	✓	✓	✓			✓		Design and code a project that captures inputs from physical devices.	Laptops micro:bits