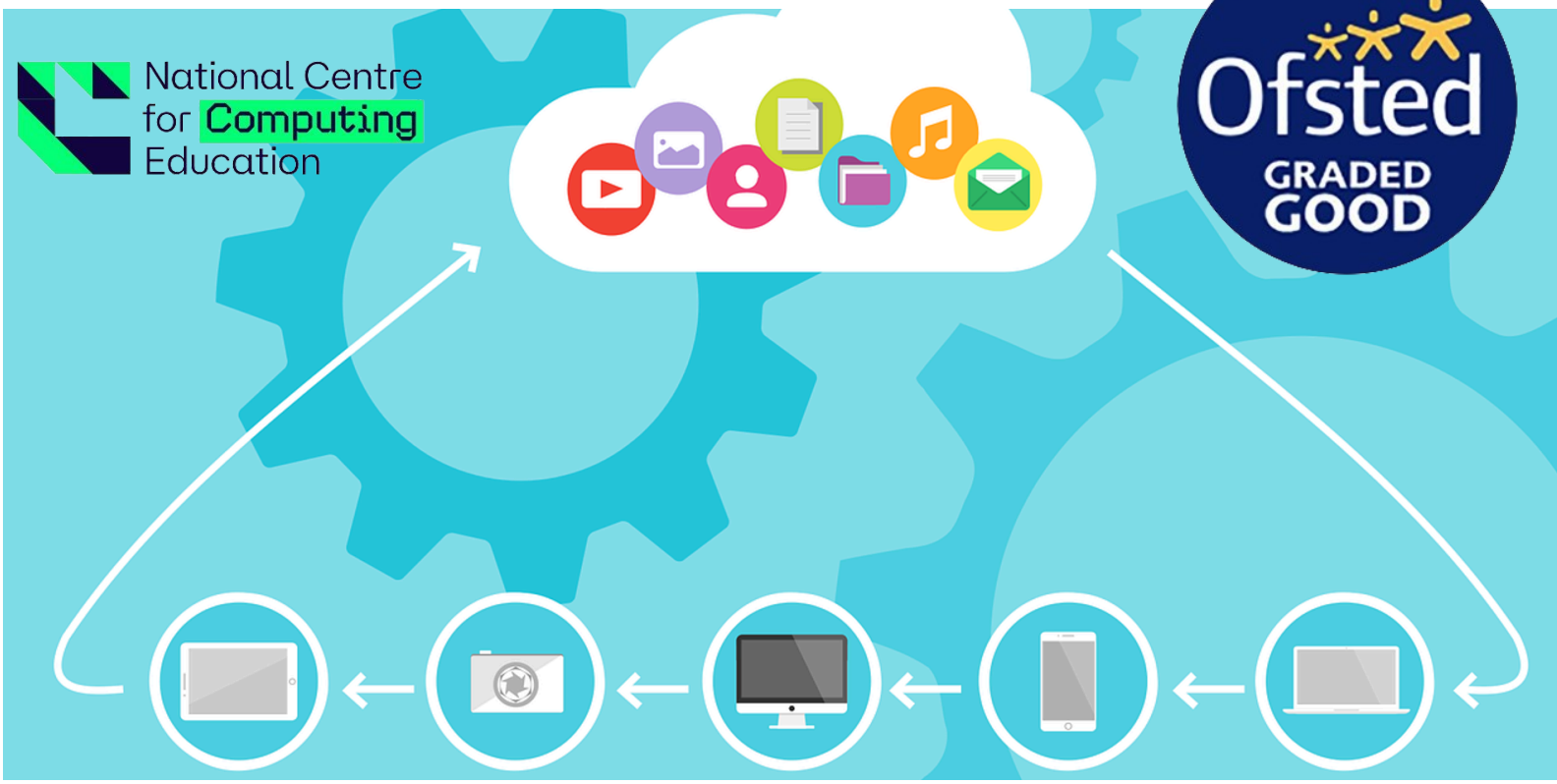
West Drayton Academy

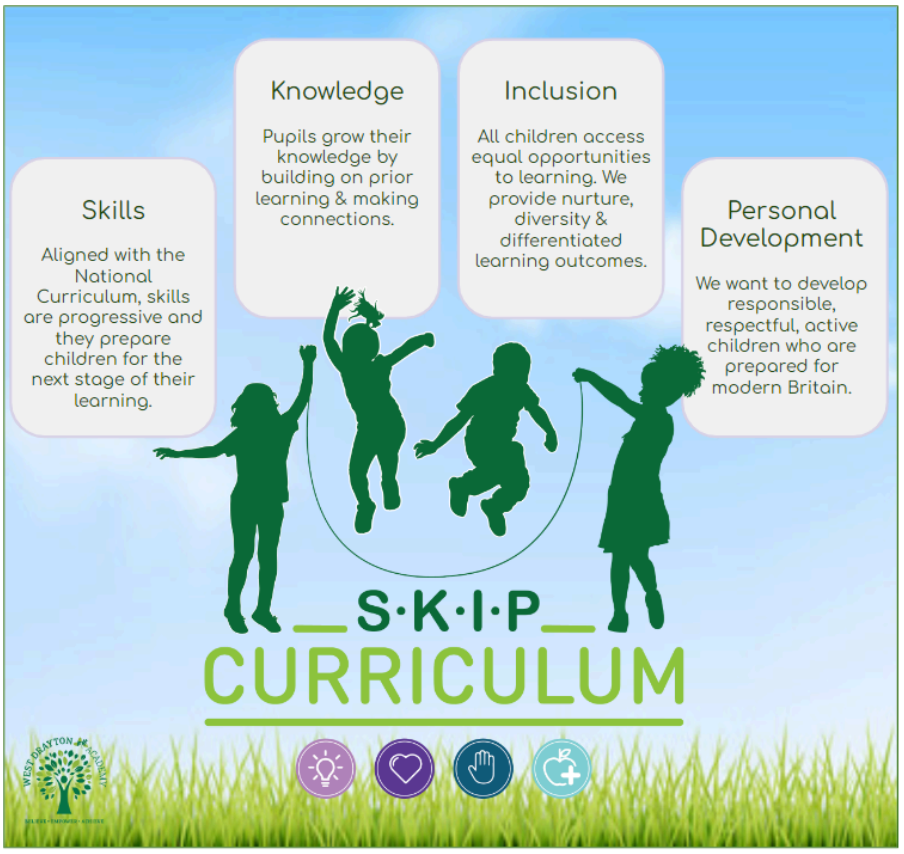
Believe • Empower • Achieve



COMPUTING CURRICULUM

INTENT

West Drayton Academy is dedicated to fostering forward-thinking education in computing, emphasising computational thinking, creativity, and responsible technology use. Our curriculum, driven by SKIP, provides broad and deep knowledge and opportunities to apply skills across various digital contexts. We integrate computing with the wider curriculum through our digital strategy, providing children with real-world scenarios to apply their learning. We prioritise quality software and hardware, stay updated with technological developments, and aim to instil confidence in using a wide variety of devices. Our goal is to prepare children as informed, responsible, and capable contributors to the digital world.



LONG TERM OVERVIEW

West Drayton Academy
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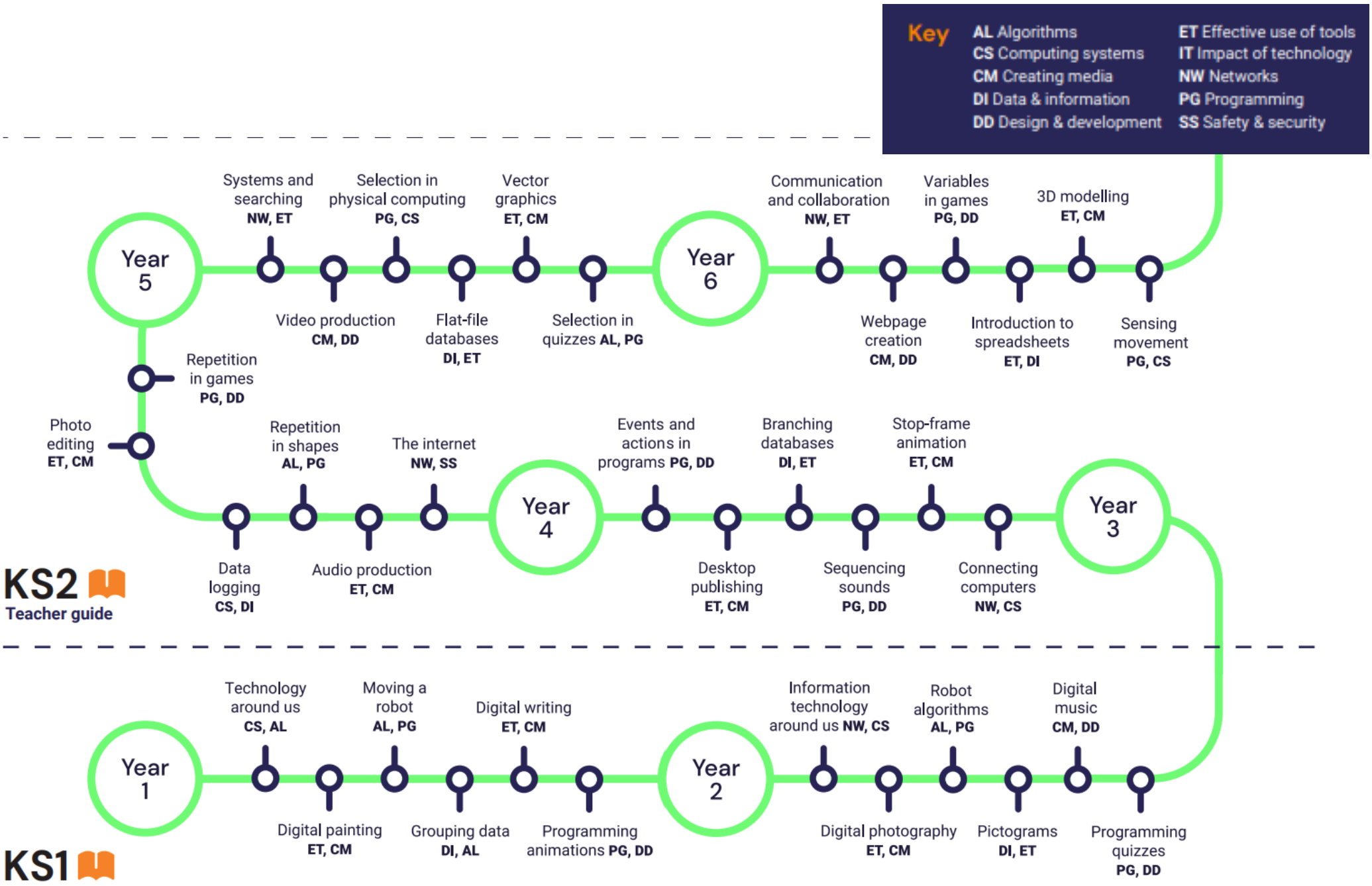
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Exploring technology - - Capturing images - Using smart board for digital reading - Tablets for maths intervention games. - How to treat technology - Being safe with technology - When is technology used, what is its purpose?	Computing systems and networks – Technology around us	Computing systems and networks – IT around us	Computing systems and networks – Connecting computers	Computing systems and networks – The Internet	Computing systems and networks - Systems and searching	Computing systems and networks - Communication and collaboration
Autumn 2		Creating media – Digital painting	Creating media – Digital photography	Creating media - Stop-frame animation	Creating media - Audio production	Creating media - Video production	Creating media – Web page creation
Spring 1		Programming A – Moving a robot	Programming A – Robot algorithms	Programming A - Sequencing sounds	Programming A – Repetition in shapes	Programming A – Selection in physical computing	Programming A – Variables in games
Spring 2		Data and information – Grouping data	Data and information – Pictograms	Data and information – Branching databases	Data and information – Data logging	Data and information – Flat-file databases	Data and information – Spreadsheets
Summer 1		Creating media – Digital writing	Creating media - Digital music	Creating media – Desktop publishing	Creating media – Photo editing	Creating media – Introduction to vector graphics	Creating media – 3D Modelling
Summer 2		Programming B - Programming animations	Programming B - Programming quizzes	Programming B - Events and actions in programs	Programming B – Repetition in games	Programming B – Selection in quizzes	Programming B - Sensing movement

Project Evolve online safety lessons

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Self image and identity - Lesson 1	Self image and identity - Lesson 2	Self image and identity - Lesson 3	Self image and identity - Lesson 4	Self image and identity - Lesson 1	Self image and identity - Lesson 2	Self image and identity - Lesson 3
Autumn 2	Online relationships - Lesson 1	Online relationships - Lesson 2	Online relationships - Lesson 3	Online relationships - Lesson 4	Online relationships - Lesson 1	Online relationships - Lesson 2	Online relationships - Lesson 11
Spring 1	Online reputation - Lesson 1	Online reputation - Lesson 2	Online reputation - Lesson 3	Online reputation - Lesson 4	Online reputation - Lesson 1	Online reputation - Lesson 2	Online reputation - Lesson 3
Spring 2	Online bullying - Lesson 1	Online bullying - Lesson 2	Online bullying - Lesson 3	Online bullying - Lesson 4	Online bullying - Lesson 1	Online bullying - Lesson 2	Online bullying - Lesson 3
Summer 1	Managing online information - Lesson 4	Managing online information - Lesson 5	Managing online information - Lesson 9	Managing online information - Lesson 1	Managing online information - Lesson 4	Managing online information - Lesson 5	Managing online information - Lesson 5
Summer 2	Health, Well-being and Lifestyle - Lesson 1	Health, Well-being and Lifestyle - Lesson 2	Health, Well-being and Lifestyle - Lesson 3	Health, Well-being and Lifestyle - Lesson 4	Health, Well-being and Lifestyle - Lesson 1	Health, Well-being and Lifestyle - Lesson 5	Health, Well-being and Lifestyle - Lesson 11 +12

In order to make sure we are explicitly teaching the children how to be safe online we use Project Evolve online safety lessons. The first lesson of every half term will be an online safety lesson with a different topic to discuss.


Key
AL Algorithms
CS Computing systems
CM Creating media
DI Data & information
DD Design & development
ET Effective use of tools
IT Impact of technology
NW Networks
PG Programming
SS Safety & security
Year 5
Systems and searching NW, ET
Selection in physical computing PG, CS
Vector graphics ET, CM
Video production CM, DD
Flat-file databases DI, ET
Selection in quizzes AL, PG
Year 6
Communication and collaboration NW, ET
Variables in games PG, DD
3D modelling ET, CM
Webpage creation CM, DD
Introduction to spreadsheets ET, DI
Sensing movement PG, CS
Repetition in games PG, DD
Photo editing ET, CM
Repetition in shapes AL, PG
The internet NW, SS
Year 4
Events and actions in programs PG, DD
Branching databases DI, ET
Stop-frame animation ET, CM
Year 3
Data logging CS, DI
Audio production ET, CM
Desktop publishing ET, CM
Sequencing sounds PG, DD
Connecting computers NW, CS
KS2
Teacher guide
Year 1
Technology around us CS, AL
Moving a robot AL, PG
Digital writing ET, CM
Digital painting ET, CM
Grouping data DI, AL
Programming animations PG, DD
Year 2
Information technology around us NW, CS
Robot algorithms AL, PG
Digital music CM, DD
Digital photography ET, CM
Pictograms DI, ET
Programming quizzes PG, DD
KS1

IMPLEMENTATION

At West Drayton Academy, we use a scheme of work created by NCCE (the National Centre for Computing Education) in order to achieve the aims of the national curriculum. We are also using Google for Education and use the range of software available to support and promote collaborative working with pupils.

Our exploration of computing begins in Early Years by introducing children to a variety of technologies, including digital reading on smart boards, engaging in maths games on tablets, and capturing images using cameras. Progressing from Years 1 to 6, we follow the Teach Computing scheme, providing consistent weekly lessons that cover the 10 computing skills throughout their academic journey.

S - Skills

10 Computing Skills

1. **Networks** - understand how networks can be used to retrieve and share, and how they come with associated risks.
2. **Creating Media** - select and create a range of media including text, images, sounds, and video.
3. **Data & Information** - Understand how data is stored, organised and used to represent real-world artefact and scenarios.
4. **Design & Development** - Understand the activities involved in planning, creating and evaluating computing artefacts.
5. **Computing Systems -** Understand how networks can be used to retrieve and share information, and how they come with associated risks.
6. **Impact of Technology** - Understand how individuals, systems, and society as a whole interact with computer systems.
7. **Algorithms** - Be able to comprehend, design, create and evaluate algorithms.
8. **Programming** - Create software to allow computers to solve problems.
9. **Effective Use of tools** - Use software tools to support computing work.
10. **Safety & Security** - Understand the risks when using technology, and how to protect individuals and systems.

For Key Stages 1 and 2, our curriculum adopts a spiral structure, ensuring the regular revisiting of each skill, with a minimum of at least one opportunity to revisit each of the 10 skills per year. Pupils engage with these skills through new units that both reinforce and expand upon their previous learning within each skill. This intentional design enhances retention whilst fostering seamless connections.

SKILLS PROGRESSION

Computing skills	EYFS	Year 1			Year 2			Year 3			Year 4			Year 5			Year 6		
		Aut	Spr	Sum	Aut	Spr	Sum	Aut	Spr	Sum	Aut	Spr	Sum	Aut	Spr	Sum	Aut	Spr	Sum
Computer Networks																			
Creating Media																			
Data & Information																			
Design & Development																			
Computing Systems																			
Impact of Technology																			
Algorithms																			
Programming																			
Effective Use of tools																			
Safety & Security																			

Primary themes	Computing systems and networks	Programming	Data and information	Creating media
Taxonomy strands	Computer systems Computer networks	Programming Algorithms Design and development	Data and information	Creating media Design and development
	Effective use of tools			
	Impact of technology			
	Safety and security			

	Computing Systems and networks	Creating media	Programming A	Data and Information	Creating media	Programming B
Year 1	**Technology around us** Recognising technology in school and using it responsibly	**Digital Painting** Choosing appropriate **tools** in a program to create art and making comparisons with working non digitally	**Moving a robot** Writing short **algorithms** and programs for floor robots and predicting program outcomes.	**Grouping Data** Exploring object labels, then using them to sort and group objects by properties.	**Digital writing** Using a computer to create and format text, before comparing to writing non-digitally.	**Programming animations** Designing and programming the movement of a character on screen to tell stories.
Year 2	**Information technology around us** Identifying IT and how its responsible use improves our world in school and beyond.	**Digital photography** Capturing and changing digital photographs for different purposes.	**Robot algorithms** Creating and debugging programs, and using logical reasoning to make predictions.	**Pictograms** Collecting data in tally charts and using attributes to organise and present data on a computer.	**Digital music** Using a computer as a tool to explore rhythms and melodies before creating a musical composition.	**Programming quizzes** Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz.

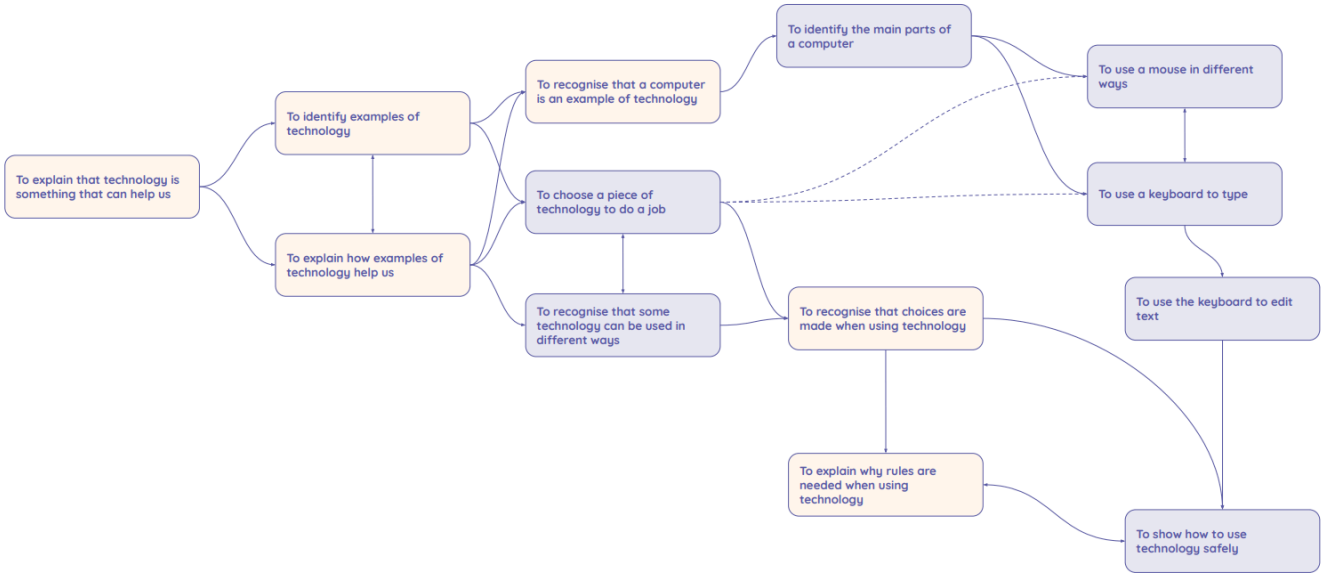
	Computing Systems and networks	Creating media	Programming A	Data and Information	Creating media	Programming B
Year 3	**Connecting computers** Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	**Stop frame animation** Capturing and editing digital still images to produce a stop-frame animation that tells a story.	**Sequencing sounds** Creating sequences in a block-based programming language to make music.	**Branching databases** Building and using branching databases to group objects using yes/no questions.	**Desktop publishing** Creating documents by modifying text, images, and page layouts for a specified purpose.	**Events and actions in programs** Designing **algorithms** and programs that use a range of events to trigger sequences of actions.
Year 4	**The internet** Recognising the internet as a network of networks	**Audio production** Capturing and editing audio to produce a	**Repetition in shapes** Using a text-based programming	**Data Logging** Recognising how and why data is	**Photo editing** Manipulating digital images, and reflecting	**Repetition in games** Using a block-based programming language to

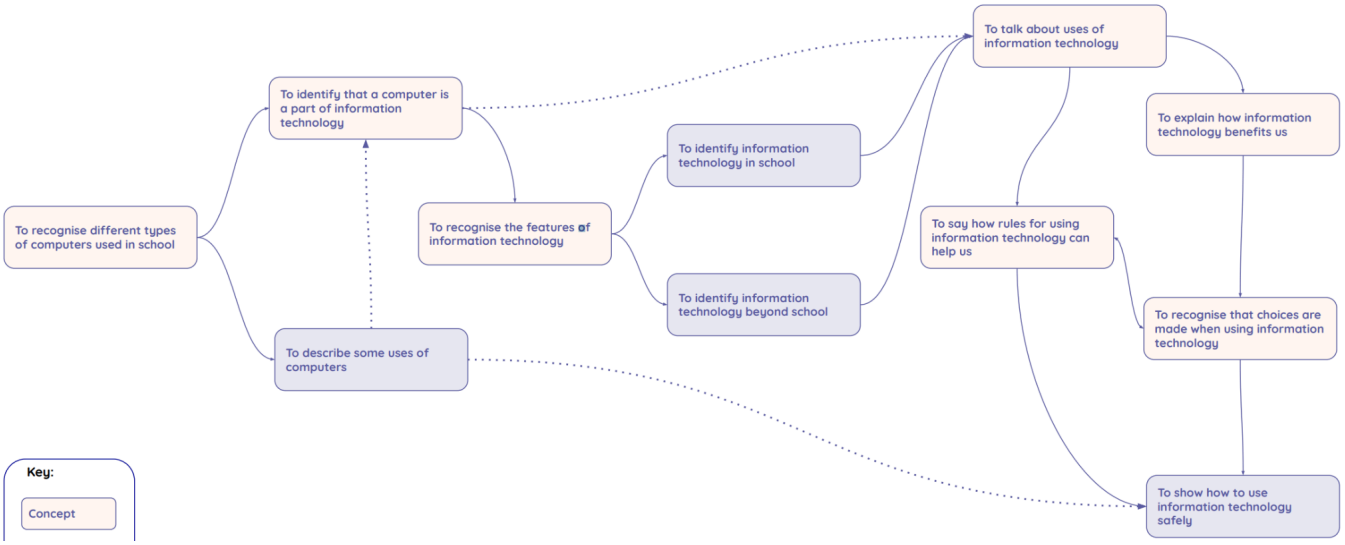
	including the WWW, and why we should evaluate online content.	podcast, ensuring that copyright is considered.	language to explore count - controlled loops when drawing shapes.	collected over time, before using data loggers to carry out an investigation.	on the impact of changes and whether the required purpose is fulfilled.	explore count-controlled and infinite loops when creating a game.

	Computing Systems and networks	Creating media	Programming A	Data and Information	Creating media	Programming B
Year 5	**Systems and searching** Recognising IT systems in the world and how some can enable searching on the internet.	**Video Production** Planning, capturing, and editing video to produce a short film.	**Selection in physical computing** Exploring conditions and selection using a programmable microcontroller.	**Flat-file databases** Using a database to order data and create charts to answer questions.	**Introduction to vector graphics** Creating images in a drawing program by using layers and groups of objects.	**Selection in quizzes** Exploring selection in programming to design and code an interactive quiz.
Year 6	Communication and collaboration Exploring how data is transferred by working collaboratively online.	**Webpage creation** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	**Variables in games** Exploring variables when designing and coding a game.	**Introduction to spreadsheets** Answering questions by using spreadsheets to organise and calculate data.	**3D modelling** Planning, developing, and evaluating 3D computer models of physical objects.	**Sensing Movement** Designing and coding a project that captures inputs from a physical device.

K - Knowledge

For each unit there is a given learning journey which tracks the knowledge across that unit.
E.g Year 1 Technology around us.





These can be found for each unit here:
https://teachcomputing.org/curriculum/key-stage-1/computing-systems-and-networks-technology-around-us

AFL
Each lesson has a plenary or end of lesson AFL to check the knowledge that the children have gained.

Each unit has an overview which outlines previous learning.
For example:

Progression

This unit progresses learners' knowledge and understanding of using digital devices to combine text and images building on work from the following units; Digital Writing Year 1, Digital painting Year 1, and Digital Photography Year 2.

Revisits

These progression statements are used to create revisits. Each lesson starts with a previous learning slide which allows the children to revisit previous learning

I -INCLUSION

At West Drayton Academy, we believe a high-quality computing education equips all children, including disadvantaged children and children with SEND, with the skills and knowledge in computational thinking and creativity to help them to understand the world that they live in and be able to be ambitious, successful young people.
In class you will see keyboard shortcut posters to help them navigate the chromebook. Step by step instructions are provided and printed if necessary. The teachers use ordinarily available provision to support children with SEN to access the curriculum e.g using widget for vocabulary mats.

VOCABULARY

Vocabulary is provided for the teachers for each key stage here.

Vocabulary Work Bank KS1

Year 1		
Computing systems and networks - Technology around us	**Creating media - Digital painting**	**Creating media - Digital writing**
technology, computer, mouse, trackpad, keyboard, screen, double-click, typing.	paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers	word processor, keyboard, keys, letters, type, numbers, space, backspace, text cursor, capital letters, toolbar, bold, italic, underline, mouse, select, font, undo, redo, format, compare, typing, writing.
Data and information – Grouping	**Programming A - Moving a robot**	**Programming B – Programming animations**
object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same	Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program.	ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design.

This vocabulary is shared with the children at the beginning of each lesson on a vocabulary slide (example pending)
These would be made SEN appropriate using visuals to depict each vocabulary word.

A glossary for each of these words is provided here.

Glossary

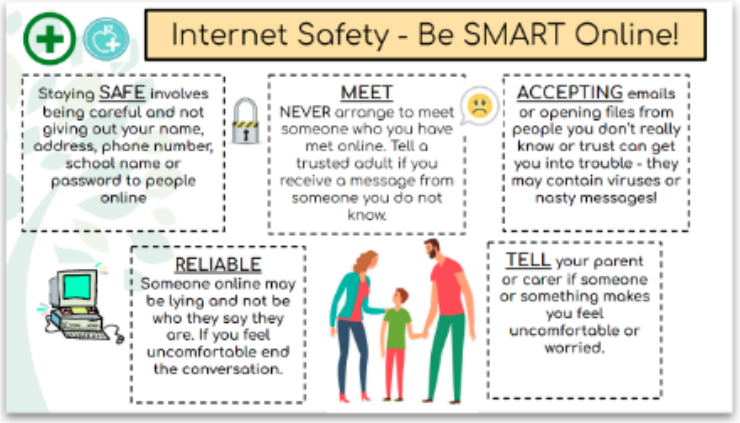
Term	Key Stage	Definition
Algorithm	1&2	A precise set of ordered steps that can be followed by a human and implemented on a computer to achieve a task
Attribute (property)	1&2	A word or a phrase that can be used to describe an **object** such as its colour, size, or price
Browser	2	SEE: Web browser
Code	1&2	The **commands** that a **computer** can **run**
Code snippet	1&2	A section of a **program** viewed in isolation
Command	1&2	A single instruction that can be used in a **program** to control a **computer**
Computer	1&2	A **programmable** machine that accepts and **processes inputs** and produces **outputs** (input, process, output; IPO)
Computer network	2	A group of interconnected computing devices
Computer system	2	A combination of **hardware** and **software** that can have **data input** to it, which it then **processes** and **outputs**. It can be **programmed** to perform a variety of tasks.
Condition	2	A statement that can be either True or False
Condition-controlled loop	2	SEE: Loop (condition-controlled)
Count-controlled loop	2	SEE: Loop (count-controlled)
Data	1&2	A letter, word, number etc. that has been collected for a purpose, but **stored** without context
Data set	2	A collection of related **data**
Debugging	1&2	The process of finding and correcting errors in a **program**
Decompose	2	To break down a task into smaller, more achievable steps
Digital device	2	A computer or a device with a computer inside that has been programmed for a specific task
Domain name	2	The part of a **website**'s **URL** that is user friendly and identifies that it is under the control of a particular person or organisation e.g. raspberrypi.org
Execute (run)	2	SEE: Run

P -Personal Development

Personal Development

To establish a culture of online safety, we integrate it into all aspects of our curriculum. We deliver termly online safety assemblies, share online safety tips with parents and children through our weekly newsletters, display online safety posters across the school, and ensure that all children have signed our usage agreement.

At WDA, we also have designed a bespoke Citizenship Programme which offers further opportunities to develop children's understanding of online safety. In addition to this, we hold parent workshops and online safety assemblies for children.



Assessment

Every lesson includes formative assessment opportunities for teachers to use. These opportunities are listed in the lesson plan and are included to ensure that misconceptions are recognised and addressed if they occur. They vary from teacher observation or questioning to marked activities.
There is a skills tracker for each year group so we can track the progress.
WIthin each unit there is also a rubric which helps the teacher to assess the children.

Assessment rubric: Year 4 – Photo editing

Learner:		Teacher:		Date:	

	Emerging [1]	Expected [2]	Exceeding [3]	Score
Task	• Outline the broad requirements of the task	• Explain the key requirements of the task	• Outline an approach to planning the task	
Design decisions	• Describe the scene they intend to create • Suggest words that relate to their chosen scene	• Identify the types of image needed in relation to their chosen theme • Outline how the images will be used together • Suggest colours and effects that might suit their scene	• Explain how images need to work together to create a realistic scene • Identify the steps needed to create their scene	
Implementation	• Make attempts to combine images using copy and paste • Add text to their publication	• Select images and combine them into one • Use a range of tools to create their image • Add relevant text to their publication	• Purposefully combine images • Fine tune their work using suitable editing tools and zoom • Make considered choices when positioning and formatting their text	
Evaluation	• Describe what was successful and unsuccessful in their work	• Evaluate how successful they were in meeting the task requirements	• Evaluate and reflect on the impact that changes have made on an image	

Skills and progress are tracked on a skills tacker for each year group. The teachers will look at the intention for each unit and assess using the rubric if each child has gained that skill. This is then used to inform units that teach the same skill in a different context. For example, there are 2 creating media units that build upon each other in each Year group