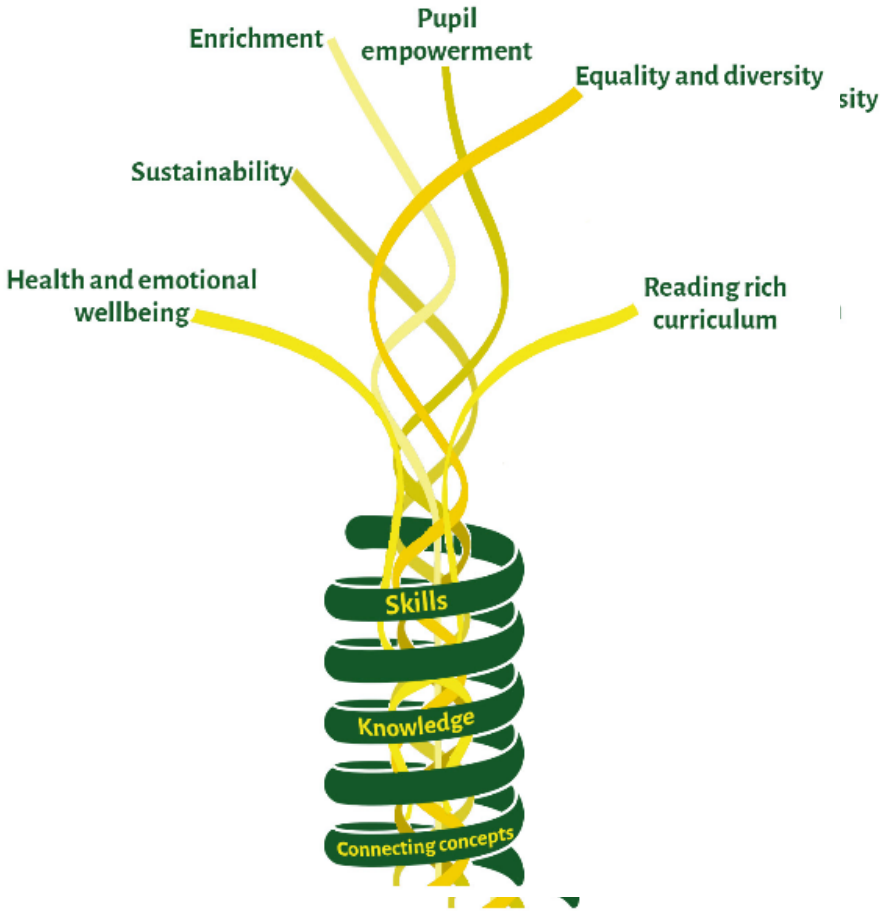
Computing at Kenton Primary School

Our Golden Threads



Computing Intent

‘A computer is like a violin; you can imagine it making beautiful music but you have to learn how to play it’.’ Bill Gates

At Kenton Primary School, our intent is to provide an aspirational computing curriculum that equips our children with the knowledge and skills needed to thrive in a digital world. We aim to inspire our children to become active and responsible participants in the digital society, promoting creativity, problem-solving, and critical thinking through the use of technology. Our computing curriculum is designed to ensure that pupils develop a solid foundation in computational thinking, information technology, and digital literacy, enabling them to excel in their future education and career prospects.

Computing Implementation

Our computing curriculum follows the National Curriculum guidelines, incorporating the three main strands of computational thinking, information technology, and digital literacy. We use the ‘Teach Computing curriculum’ to support teachers with subject knowledge and lesson sequences for Computing. Our curriculum is carefully sequenced, progressive, and spiral, building upon prior knowledge and skills while ensuring challenging and engaging learning experiences for all our pupils.

We provide a stimulating and safe learning environment with well-equipped computing facilities. We have a class set of laptops and also provide a range of digital devices, such as tablets and programmable robots, to enhance learning opportunities across the curriculum.

Computing is integrated into our wider curriculum, providing meaningful and purposeful opportunities for pupils to apply their computing skills in real-life contexts. We use Seesaw regularly as an online learning platform for children to share their learning with their families, on this platform children record and annotate learning as well as learning to edit what they present. We collaborate with other subject areas to ensure cross-curricular links are made, promoting a holistic and well-rounded learning experience.

Computing Impact

Our computing provision has a positive impact on pupil standards and achievement. Pupils make excellent progress in their computing skills, knowledge, and understanding throughout their primary school journey. We track their progress regularly, setting high expectations. Pupils leave Kenton with a solid foundation in computing, ready for the demands of the next stage of their education.

Our rich and engaging curriculum inspires and motivates pupils to become active participants in their own learning. Through collaborative activities, problem-solving tasks, and open-ended projects, pupils develop creativity, critical thinking, and resilience. They learn how to work independently and as part of a team, applying their computing skills in innovative and imaginative ways.

We place a strong emphasis on developing pupils' digital literacy skills and responsible online behaviour. Pupils are taught about online safety, cybersecurity, and the potential risks associated with digital technologies. They learn how to evaluate online information critically and ethically, becoming discerning users of technology. Pupils leave Kenton equipped with the knowledge and skills to navigate the digital world safely and responsibly.

Units for curriculum planning

Key Stage 1

Cycle A

Autumn 1 Marvellous Me/ Regal Royals	Autumn 2 Paws, Claws and Whiskers	Spring 1 Amazing Adventures	Spring 2 Dazzling Dragons	Summer 1 The Great fire of London	Summer 2 Beachcombers
Computing systems and networks		Creating Media (Art links)		Data and information (Maths – statistics links)	
Technology around us 1.1 Recognising technology in school and using it responsibly	Information technology around us 2.1 Identifying IT and how its responsible use improves our world in school and beyond	Digital Painting 1.2 Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Digital photography 2.2 Digital photography Capturing and changing digital photographs for different purposes.	Grouping data 1.4 Exploring object labels, then using them to sort and group objects by properties	Pictograms 2.4 Collecting data in tally charts and using attributes to organise and present data on a computer
2 lessons L1- 1(starter)2&3 L2- 4,5,6	**2 lessons** *All unplugged* L1- 1,2,3 L2- 4,5,6	**3 lessons** L1- 1,2 L2- 3,4 L3- 5,6	**3 Lessons** L1- 1(starter) 2,3 L2- 4,5 L3- 6 (unplugged)	**4 Lessons** L1- 1 (unplugged) L2- 2, 3 L3- 4,5 L4- 6	**4 Lessons** L1- 1,2 (teacher led) L2- 3 L3- 4,5 L4- 6
(Band 1) Recognise common uses of information technology in the home and school environment	(Band 2) Recognise common uses of information technology beyond school	(Band 1) Use technology purposefully to create digital content		(Band 2) Use technology purposefully to create, organise, store, manipulate and retrieve digital content	

(Band 1) Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

(Band2) Use technology safely and keep personal information private

Cycle B

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Creating Media (Writing link, Music Link)		Programming A		Programming B	
Digital Writing 1.5 Using a computer to create and format text, before comparing to writing non-digitally	Making Music 2.5 Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Moving a robot 1.3 Writing short algorithms and programs for floor robots, and predicting program outcomes.	Robot algorithms 2.3 Creating and debugging programs, and using logical reasoning to make predictions.	Programming animations 1.6 Designing and programming the movement of a character on screen to tell stories.	Programming quizzes 2.6 Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz
3 Lessons L1- 1 (starter), 2 L2- 3,4 L3- 5,6	**3 Lessons** L1- Starter 1, 2, 3 L2- 4,5 L3- 6	**3 Lessons** L1- 1 L2- 2,3,4 L3- 5,6	**4 Lessons** L1- unplugged- 1 (starter),2,3- L2- 4 L3- 5 L4- 6	**3 Lessons** L1- 1,2,3 L2- 4,5 L3- 6	**5 lessons** L1- 1,2 L2- 3 L3- 4 L4- 5 L5- 6
(Band 2)- Use technology purposefully to create digital content comparing the benefits of different programs		(Band 1) Predict the behaviour of simple programs (Band 2) Understand that programs execute by following precise and unambiguous instructions	(Band 2) Use logical reasoning to predict the behaviour of simple programs (Band 2) Create and debug simple programs	(Band 1) Understand what algorithms are and how they are implemented on digital devices (Band 2) Debug simple programs by using logical reasoning to predict the actions instructed by the code	(Band 2) Create simple programs

(Band 1) Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

(Band2) Use technology safely and keep personal information private

Lower Key Stage 2 Cycle A

Autumn 1 Stone Age to Iron Age	Autumn 2 Around the World	Spring 1 Stone Age to Iron Age	Spring 2 Costa Rica	Summer 1 The Victorians	Summer 2 Raging Rivers
Computing systems and networks		Creating Media *Please note- could be done as a day or outcome to present information*		Data and information (maths- statistics (NB- potential for Science/ data analysis)	
Connecting computers 3.1 Identifying that digital devices have inputs, processes, and outputs, and how devices can be connected to make networks.	The internet 4.1 Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Stop-frame animation 3.2 Capturing and editing digital still images to produce a stop-frame animation that tells a story	Audio editing 4.2 Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Branching databases 3.4 Building and using branching databases to group objects using yes/no questions.	Data logging 4.4 Recognising how and why data is collected over time, before using data loggers to carry out an investigation.
4 Lessons L1- 1,2 L2- 2,3 L3- 4 L4- 5,6	**3 Lessons** L1- 1,2 L2- 3,4 L3- 5,6	**3 Lessons** L1- 1 (teacher modelled starter- youtube clip),2 L2- 4 (skip 3- prepare examples) L3- 5,6	**5 Lessons** L1- 1,2 L2- 3 L3- 4 L4- 5 L5- 6	**3 Lessons** *L1- 1 (starter), 2,3- unplugged* L2- 4 L3- 5,6	**4 Lessons** L1- Unplugged (maths link) L2- 2, 3 L3- 4,5 L4- 6
Band3- Use simple search technologies Band 3- Use simple search technologies and recognise that some sources are more reliable than others	Band 3-Understand that the internet is a large network of computers and that information can be shared between computers	Band 4- With support select and use a variety of software on a range of digital devices		Band3- With support select and use a variety of software to accomplish goals	

(Band 4) Understand what servers are and how they provide services to a network	(Band 4) Understand how results are selected and ranked by search engines		

Band 3- Use technology safely and respectfully, keeping personal information private; Use technology safely and recognise acceptable and unacceptable behaviour Band 4- Use technology responsibly and understand that communication online may be seen by others; Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

Cycle B

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Creating Media		Programming A1 and B1		Programming A2 and B 2	
Desktop publishing 3.5 Creating documents by modifying text, images, and page layouts for a specified purpose. *Could use as a tool to present information from a wider unit*	Photo editing 3.6 Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled PSHE link- self-image	Sequencing sounds 3.3 Creating sequences in a block-based programming language to make music.	Events and actions in programs 3.6 Writing algorithms and programs that use a range of events to trigger sequences of actions	Repetition in shapes 4.3 Using a text-based programming language to explore count-controlled loops when drawing shapes..	Repetition in games 4.6 Using a block-based programming language to explore count-controlled and infinite loops when creating a game
2 Lessons L1- 1(starter), 2 L2- 3(starter), 4,5 *Optional L3- 6*	**4 Lessons** L1- 1,2 L2- 3,4 L3- 5 L4- 6	**4 Lessons** L1- 1(starter), 2 L2- 3,4 L3-5 L4- 6	**4 Lessons** L1- 1 L2- 2,3 L3- 4,5 L4- 6	**6 Lessons** L1-1 L2-2 L3-3 L4-4 L5-5 L6- 6	**5 Lessons** L1-1,2 L2-3 L3-4 L4-5 L5-6

(Band 3) Design, write and debug programs that control or simulate virtual events (Band 4) Select, use and combine a variety of software, systems and content that accomplish given goals	**(Band 3) Use logical reasoning to explain how some simple algorithms work**	(Band 4) Decompose programs into smaller parts	(Band 4) Use logical reasoning to detect and correct errors in algorithms and programs

Band 3- Use technology safely and respectfully, keeping personal information private

Band 3- Use technology safely and recognise acceptable and unacceptable behaviour

Band 4- Use technology responsibly and understand that communication online may be seen by others

Band 4- Understand where to go for help and support when he/she has concerns about content or contact on the internet or other online technologies

Upper Key Stage 2

Cycle A

Autumn 1 Mighty Mayans	Autumn 2 South America	Spring 1 Ancient Greeks	Spring 2 From Greenland to Panama	Summer 1 Keep Calm and Carry on	Summer 2 Rising Tides
Computing systems and networks		Creating Media		Data and information	
Sharing information 5.1 Identifying and exploring how information is shared between digital systems.	Internet communication 6.2 Recognising how the WWW can be used to communicate and be searched to find information.	Video editing 5.2 Planning, capturing, and editing video to produce a short film	Webpage creation 6.2 Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Flat-file databases 5.4 Using a database to order data and create charts to answer questions. *History, Geography and Maths Links*	Introduction to spreadsheets 6.4 Answering questions by using spreadsheets to organise and calculate data.

3 Lessons L1- 1,2 L2- 3,4 L3- 5,6 (1/2 unplugged)	**4 Lessons** L1- 1 L2- 2 L3- 3,4 L4- 5,6	**4 lessons** L1- 1,2 L2- 3,4 L3- 5 L4-6	**3 Lessons** L1- 1, 2- UNPLUGGED L2- 3(starter), 4 L3- 5,6	**5 Lessons** L1- 1 L2- 2,3 L3-4 L4-5 L5-6	**5 Lessons** L1- 1,2 L2- 3 L3-4 L4-5 L5- 6
• (Band 5) Begin to use internet services to share and transfer data to a third party • (Band 5) Use filters in search technologies effectively(• Band 6) Use filters in search technologies effectively and is discerning when evaluating digital content • (Band 6) Understand how computer networks enable computers to communicate and collaborate • (Band 6) Be discerning when evaluating digital content		• (Band 5) Independently select, use and combine a variety of software to design and create content for a given audience • (Band 6) Independently select, use and combine a variety of software to design and create content for a given audience, including collecting, analysing, evaluating and presenting data and information • (Band 5) Use filters in search technologies effectively and appreciates how results are selected and ranked • (Band 6)- Begin to use internet services within his/her own creations to share and transfer data to a third party		• (Band 5) Independently select and use appropriate software for a task • (Band 6)- Independently select, use and combine a variety of software to collect, analyse, evaluate and present data and information	

(Band 5) Understand the need to only select age appropriate content; (Band 6) Use technology respectfully and responsibly

(Band 6) Identify a range of ways to report concerns about content and contact in and out of school

Cycle B

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Creating Media *Art link, DT link*		Programming A1 and B1		Programming A2 and B2	
Vector drawing 5.5 Creating images in a drawing program by using layers and groups of objects	3D modelling 6.5 Planning, developing, and evaluating 3D computer models of physical objects.	Selection in physical computing 5.3 Exploring conditions and selection using a programmable microcontroller	Selection in quizzes 5.6 Exploring selection in programming to design and code an interactive quiz.	Variables in games 6.3 Exploring variables when designing and coding a game	Sensing 6.6 Designing and coding a project that captures inputs from a physical device

4 Lessons L1- 1,2 L2- 3,4 L3- 5 L4- 6	**4 Lessons** L1- 1,2 L2- 3 L3-4 L4- 5,6	**4 Lessons** L1-1,2 L2 -3,4 L3- 5 L4-6	**5 Lessons** L1-1,2 L2-3 L3-4 L4-5 L5-6	**6 Lessons** L1-1 L2-2 L3-3 L4-4 L5-5 L6-6	**6 Lessons** L1-1 L2-2 L3-3 L4-4 L5-5 L6-6
Band 6 Design and create a range of programs, systems and content for a given audience		• Band 5- Design, input and test an increasingly complex set of instructions to a program or device • Band 5- Design write and test simple programs with opportunities for selection, where a particular result will happen based on actions or situations controlled by the user • Band 5- Use logical reasoning to explain how increasingly complex algorithms work to ensure a program's efficiency • Band 6- Include use of sequences, selection and repetition with the hardware used to explore real world systems • Band 6- Solves problems by decomposing them into smaller parts		• Band 6 Create programs which use variables • Band 6- Use variables, sequence, selection, and repetition in programs • Band 6- Use logical reasoning to explain how increasingly complex algorithms work and to detect and correct errors in algorithms and programs efficiently • Band 5- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems • Band 5- Design, write and test simple programs that follow a sequence of instructions or allow a set of instructions to be repeated	

(Band 5) Understand the need to only select age appropriate content; (Band 6) Use technology respectfully and responsibly

(Band 6) Identify a range of ways to report concerns about content and contact in and out of school

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)

Term	Key Stage	Definition
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**

Term	Key Stage	Definition
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
Hardware	2	The physical parts of a **computer system**
HTML (HyperText Markup Language)	2	A standardised language used to define the structure of **web pages**

Term	Key Stage	Definition
Hyperlink	2	(Also: link, weblink) Text or media that when clicked, takes the user to another specified location (**URL**)
Infinite loop	2	SEE: Loop (infinite)
Information	1&2	**Data** put into a context that provides meaning
Information technology	1	The study, use, and development of **computer systems** for storing, processing, retrieving, and sending information
Input	2	**Data** that is sent to a **program** to be **processed**
Input device	2	A piece of **hardware** used to control, or send **data** to, a **computer**
Internet	2	The global system of interconnected **computer networks**

Term	Key Stage	Definition
Loop	2	(**Count-controlled**, **condition-controlled**, or **infinite**) **Commands** that repeatedly **run** a defined section of **code**
Loop (condition-controlled)	2	A **command** that repeatedly **runs** a defined section of **code** until a **condition** is met
Loop (count-controlled)	2	A **command** that repeatedly **runs** a defined section of **code** a predefined number of times
Loop (infinite)	2	A **command** that repeatedly **runs** a defined section of **code** indefinitely
Network	2	SEE: Computer network
Object	1	Something that can be named and has other **attributes** (**properties**), which can be labelled
Object	2	Something that is uniquely identifiable and has **attributes**

Term	Key Stage	Definition
Output	2	The result of **data processed** by a **computer**
Output device	2	A piece of **hardware that** is controlled by **outputs** from a **computer**
Procedure	2	A named set of **commands** that can be called multiple times throughout a **program**. This type of **subroutine** does not return a value.
Process	2	A **program**, or part of a **program**, that is running on a **computer**
Program	1&2	A set of ordered **commands** that can be **run** by a **computer** to complete a task
Property (attribute)	1	A word or a phrase that can be used to describe an **object** such as its colour, size, or price
Repetition	2	Part of a **program** where one or more **commands** are **run** multiple times in a **loop**

Term	Key Stage	Definition
Router	2	A device that manages the flow of data between **computer networks**
Run (execute)	1&2	To action the **commands** in a **program**
Selection	2	Part of a **program** where if a **condition** is met, then a set of **commands** is **run**
Server	2	A networked **computer** that manages, **stores,** and provides **data** such as files to other computers
Software	2	The **programs** used to control **computers** and perform specific tasks
Stored (data)	2	**Data** kept digitally so that it can be accessed by a computer
Subroutine	2	A named sequence of **commands** designed to perform a specific task
Switch (network switch)	2	A device that manages the flow of **data packets** within a **computer network**

Term	Key Stage	Definition
Technology	1	The use of scientific knowledge for practical purposes
URL (Uniform Resource Locator)	2	The address of a file on the **internet**
Variable	2	A named piece of **data** (often a number or text) **stored** in a computer's memory, which can be accessed and changed by a **computer program**
Web	2	SEE: WWW (World Wide Web)
Web address	2	SEE: URL (Uniform Resource Locator)
Web browser	2	A **program** used to view, navigate, and interact with **web pages**
Web page	2	A **HTML** document viewed using a **web browser**

Term	Key Stage	Definition
Website	2	A collection of interlinked **web pages**, stored under a single **domain**
WiFi	2	A technology that allows devices to wirelessly access a **network** and transfer **data**
WAP (Wireless Access Point)	2	A network device that allows wireless computing devices to connect to a wired **network**
WWW (World Wide Web)	2	A service provided via **the internet** that allows access to **web pages** and other shared files