Kessingland Church of England Primary Academy
Computing: Curriculum Overview

Long Term Plan

		Autumn	Spring	Summer
KS1 (A)		**Internet Safety** -Know why it is important to keep data safe and why passwords should be learned and not shared with others. -Know the difference between different types of communication and know that they should always behave in a polite and considerate way. **Technology Around Us** -Focusing on different components of a computer and to develop keyboard skills.	**Internet Safety Day** – 8th February 2022 -Respect and Responsibility **Data and Information** – Introduction to data and information. Labelling, grouping, and searching are important aspects of data and information.	**Moving a Robot** – Focusing on early programming concepts and the introduction of algorithms. **Programming** – Focusing on on-screen programming through Scratch Jr.
KS1 (B)		**Internet Safety** -Pupils to understand that they must let a trusted grown-up know if they encounter inappropriate material when they search the web. **IT Around Us** -Focusing on how information technology is being used for good in our lives.	**Internet Safety Day** **Digital Photography** – Exploring different devices and understanding how to gain experience capturing, editing and improving photos.	**Robot Algorithms** – Understanding instructions in sequences and the use of logical reasoning to predict outcomes.
LKS2 (A)		**Internet Safety** -Pupils to be reminded of logging on procedures and the importance of keeping passwords secret. **Connecting Computers** – Focusing on inputs, processes and outputs. **Desktop Publishing** – Focusing on the use of 'text' and 'images'.	**Internet Safety Day** – 8th February 2022 -Respect and Responsibility **Branching Databases** – Develop, create and evaluate the effectiveness of branching databases.	**Animation** – Using a range of techniques to create a stop-frame animation. **Events and Actions** – Focusing on the link between events and actions. Introduction to programming extensions
LKS2 (B)		**Internet Safety** -Understand what to do if they come across inappropriate material and about their responsibilities in using the internet.	**Internet Safety Day** **Audio Editing** – Exploring devices capable of recording digital audio.	**Repetition in Shapes** – Exploring repetition and loops within programming.

	The Internet – Applying prior knowledge and understanding of networks.	**Photo Editing** – Developing their understanding of how digital images can be changed and edited.	**Repetition in Games** – Exploring the concept of repetition in programming using Scratch.
UKS2 (A)	**Internet Safety** -Understand the importance of keeping their personal information safe. -Make pupils aware that anything they write or any photos they put online could be shared with anyone and could be there forever. **Sharing Information** – Develop their understanding of computer systems and how information is transferred between systems and devices. **Vector Drawing** – Introduction to vector images.	**Internet Safety Day** – 8th February 2022 -Respect and Responsibility **Flat-file Databases** – Focusing on how a flat-file dataset can be used to organise data in records. **Video Editing** – Creating short videos in groups.	**Selection in Quizzes** – Using prior knowledge to understand algorithms and constructing programs using Scratch.
UKS2 (B)	**Internet Safety** -Understand the good and bad effects of the internet on their own lives. -Understand that when meeting people online, they may not be who they say they are. Never arrange to meet a person met online. -Understand the importance of a balanced lifestyle and consider whether they are spending too much time online. **Communication** – Focusing on the World Wide Web as a communication tool. **Web Page Creation** - Introduction to the creation of website.	**Internet Safety Day** **Spreadsheets** – Introduction to spreadsheets; organising data into columns and rows to create their own data set.	**Variables in Games** – Exploring the concept of variables in programming through games in Scratch.

Vision Statement:

At Kessingland Church of England Primary Academy we recognise that we have a responsibility to prepare our children for their future by improving their knowledge, understanding and skills. As computing technology underpins today's modern lifestyle, it is essential that all pupils gain the confidence and ability that they need in this subject, to prepare them for the challenge of a rapidly developing and changing technological world. The spiral curriculum develops a deeper understanding of our curriculum and is built around the three main learning strands of Computer Science, Information Technology and Digital Literacy. The use of Computing also enhances and extends our children's learning across the whole curriculum whilst contributing to motivation and the development of social skills. We firmly believe in the importance of keeping our pupils safe online by delivering a high quality e-safety curriculum alongside the core values of computer science, information technology and digital literacy. As technology develops, so does the need for a better understanding of how to use it in a safe and responsible manner. At Kessingland, we will provide all of our children with the skills, creativity and enthusiasm to live and thrive in a world increasingly dependent on computing.

Our scheme of work:

National Curriculum Coverage — Key Stage 1 Computing Curriculum	1.1 Technology around us	1.2 Digital painting	1.3 Moving a robot	1.4 Grouping data	1.5 Digital writing	1.6 Programming animations	2.1 Information technology around us	2.2 Digital photography	2.3 Robot algorithims	2.4 Pictograms	2.5 Making music	2.6 Programming quizzes
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 purposefully to 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	✓				✓	✓	✓			✓		

National Curriculum Coverage — Years 3 and 4	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The Internet	4.2 Audio editing	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
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							✓	✓			✓	

National Curriculum Coverage — Years 5 and 6	5.1 Sharing information	5.2 Video editing	5.3 Selection in physical computing	5.4 Flat-file databases	5.5 Vector drawing	5.6 Selection in quizzes	6.1 Internet communication	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing
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	✓	✓							✓	✓	✓	

How do we meet the statutory guidance for Computing?

KS1 – **Computer Science**, **Information Technology**, **Digital Literacy**

KS2 - **Computer Science**, **Information Technology**, **Digital Literacy**

1. Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions

2. Create and debug simple programs

3. Use logical reasoning to predict the behaviour of simple programs

4. Use technology purposefully to create, organise, store, manipulate and retrieve digital content

5. Recognise common uses of information technology beyond school

6. 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.

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1. Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts

2. Use sequence, selection, and repetition in programs; work with variables and various forms of input and output

3. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

4. 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

5. Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

6. 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

7. Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact

Key Concepts:

Key Concept:	Explanation:
Logic	Computational logic is the process of working step-by-step to understand a problem and develop a solution. It describes the decision making process used in programming and writing algorithms.
Abstraction	Abstraction is an important part of computer programming. In computing, abstraction is the technique used to arrange computer systems and hide the complexity of programs to make it more accessible to the everyday user.
Machines	A computing machine is a device used to perform calculations and process data.
Algorithms	An algorithm is a process or set of rules followed in calculations or other problem solving operations, especially by a computer.
Program	A computing program is a collection of instructions that performs a specific task when executed by a computer.
Data	Data is any sequence of one or more symbols given meaning by a specific acts of interpretation. Computer data is information processed or stored by a computer.
Safety and security	Understand risks when using technology, and how to protect individuals and systems.
Creative media	Select and create a range of media including text, images, sounds and videos.
The impact of technology	Understand how individuals, systems, and society as a whole interact with computer systems.

Domains of Knowledge:

Computer networks	Understand how networks can be used to retrieve and share information, and how they come with associated risks
Computer systems	Understand what a computer is, and how its constituent parts function together as a whole
Creating media	Select and create a range of media including text, images, sounds, and video
Data and information	Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
Design and development	Understand the activities involved in planning, creating, and evaluating computing artefacts
Effective use of tools	Use software tools to support computing work
Impact of technology	Understand how individuals, systems, and society as a whole interact with computer systems
Programming	Create software to allow computers to solve problems
Algorithms	Be able to comprehend, design, create, and evaluate algorithms
Safety and security	Understand risks when using technology, and how to protect individuals and systems

End Points:

Computer Science: Design, write and debug programs using logical reasoning and explain how algorithms work to detect and correct errors.

Digital Literacy: Use technology safely, respectfully and responsibly to be able to recognise acceptable/ unacceptable behaviour, and identify a range of ways to report concerns about content and contact.

Information Technology: Understand computer networks and software to design and create a range of programs, systems and content on a range of digital devices suitable for communication and collaboration.