Toft Hill Primary School: Computing Long Term Plan

Year	The EYFS framework does not contain subjects, such as Computing, instead we have seven areas of learning and characteristics of effective learning which are the basis of everything we do. Within the updated 2021 EYFS Statutory Framework, the 'Technology' strand has been removed from 'Understanding the World' and has not been replaced with any updated guidance.
	The table below outlines the most relevant statements taken from the non-statutory 2021 Development Matters, which guide our curriculum but are non-compulsory and therefore are not designed to be a checklist. The Early Learning Goals are statutory end of year assessment, as shown in the EYFS statutory framework. Many of these skills are prerequisite skills for accessing Computing within the national curriculum ensures that children enter Year 1 with a strong foundation of knowledge.
	The most relevant statements for Computing are taken from the following areas of learning: • Personal, Social and Emotional Development • Physical Development • Understanding the World • Expressive Arts and Design

R	Transition to Reception	Reception	ELG
	PSED • Remember rules without needing an adult to remind them. **Physical Development** • Match their developing physical skills to tasks and activities in the setting. **Understanding the world** • Explore how things work.	**PSED** • Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time' **Physical Development** • Show resilience and perseverance in the face of a challenge. • Know and talk about the different factors that support their overall health and wellbeing: • - sensible amounts of 'screen time'.	**PSED** • Be confident to try new activities and show independence, resilience and perseverance in the face of challenge. • Explain the reasons for rules, know right from wrong and try to behave accordingly. **Expressive Arts and Design** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

		Expressive Arts and Design • Explore, use and refine a variety of artistic effects to express their ideas and feelings.	
	Autumn	**Spring**	**Summer**
1	Improving mouse skills (Computing systems) • Introducing pupils to logging in and using technology for a purpose **NC: Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** Algorithms unplugged (Programming) • Algorithms and debugging made relatable to familiar contexts **NC: understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions**	Rocket to the moon (Skills showcase) • Developing keyboard skills, using drawing software and developing computational skills through sequencing and debugging a set of instructions **NC: Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** Programming Bee-Bots (Programming) • Introduction of programming through a bee-bot. Exploring its functions **NC: Use logical reasoning to predict the behaviour of simple programs. Create and debug simple programs. Understand what algorithms are and how they are implemented**	Digital imagery (Creating Media) • Creating a story using photography skills and enhancing photos using a range of editing tools NC: **Use technology purposefully to create, organise, store, manipulate and retrieve digital content.** Introduction to data (Data Handling) • Learning what data is and the different ways that it can be represented, both with and without a computer before developing an understanding of why data is useful. How data can be gathered are recorded by humans and computers. NC: **Use technology purposefully to create, organise, store, manipulate and retrieve digital content.**
	Online Safety • Learning about online safety, including using useful tips to stay safe when online. How to manage feelings and emotions when someone or something has upset us online. **NC: 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.**		
2	What is a computer? (Computing systems) • Exploring what a computer is by identifying how inputs and outputs work and how computers are used in the wider world	Word processing (Computing systems) • Learning about word processing and developing typing skills. Introducing shortcuts and simple editing tools	Stop Motion (Creating Media) • Learning how to create simple animations from storyboard creative ideas

	NC: Recognise common uses of information technology beyond the school. understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions Algorithms and debugging (Programming) • Developing an understanding of what algorithms are, how to program them and how they can be developed to be more efficient **NC: understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions**	**NC: Use technology purposefully to create, organise, store, manipulate and retrieve digital content** ScratchJr (Programming) • Exploring block programming by carrying out a cycle of predict > test > review **NC: Use logical reasoning to predict the behaviour of simple programs. Create and debug simple programs. Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions**	**NC: Recognise common uses of information technology beyond the school. Use technology purposefully to create, organise, store, manipulate and retrieve digital content** International Space Station (Data Handling) • Understanding how data is collected, used and displayed. Using technology to create and label images and to put data into a spreadsheet. **NC: Use technology purposefully to create, organise, store, manipulate and retrieve digital content**
	Online Safety • Learning about online safety, including: what happens to information when it is posted online; how to keep things safe and private online; who we should ask before sharing things online; describing different ways to ask for, give, or deny permission online **NC: NC: 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.**		
3	Networks and the internet (Computing Systems) • Learning what a network is, how devices communicate, how information is shared and identifying components. **NC: Use search technologies effectively, appreciate how results are selected and ranked and be discerning in evaluating digital content** Scratch (Programming) • Exploring the programme Scratch, following the predict > test > review cycle. Learning about 'loops' and programming an animation, story and game.	Emailing (Computer systems) • Sending emails with attachments and learning how to be a responsible digital citizen. **NC: 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 technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**	Video Trailers (creating Media) • Developing digital video skills to create trailers, with special effects and transitions. **NC: 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** Comparison databases (Data Handling) • Learning what a database is and their key components, such as records, fields and

	NC: 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	Journey inside a computer (Computing Systems) • Understanding what different components of a computer do. Understanding that programs execute by following precise and unambiguous instructions. **NC: 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.**	data. Further developing the ability to sort and filter data. **NC: 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**
	Online Safety • Learning about 'faker news' and the difference between fact, opinion and belief. Finding out how to deal with upsetting online content, including showing it to a trusted adult. Discovering which devices share our personal information and why apps have privacy settings **NC: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**		
4	Collaborative learning (Computer systems) • Learning how to work collaboratively and exploring a range of collaborative tools including Google Docs, Slides, Forms and Sheets. **NC: 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.** Further coding with Scratch (Programming) • Exploring Scratch further by revisiting its key features and introducing the concept and execution of using 'variables' in code scripts. **NC: 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,**	Website Design (Creating Media) • Developing research, word processing and collaborative working skills whilst learning how web pages and sites are created. Learning to embed media and links. **NC: 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** HTML (Skills showcase) • Learning about the markup language behind a webpage; becoming familiar	Computational Thinking (Programming) • Solving problems effectively using the four areas of abstraction, algorithm design, decomposition and pattern recognition **NC: 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** Investigating Weather (Data Handling) • Researching and storing data using spreadsheets; designing a weather station which gathers and records data; learning how weather forecasts are made

	selection, and repetition in programs; work with variables and various forms of input and output	with HTML tags, changing HTML and CSS code to alter images and 'remix' a live website **NC: Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts**	and using green screen technology to present a weather forecast **NC: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**
	<u>Online Safety</u> • Searching for information within a wide group of technologies and making a judgement about the probable accuracy; learning how to recognise adverts and pop-ups; distinguishing fact from opinion online; recognising that technology can be distracting; being respectful to others online **NC: NC: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**		
5	<u>Search engines (Computer systems)</u> • Learning to search using keywords and phrases, to identify inaccurate information, how pagerank works and how to credit their sources. **NC: 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.** <u>Programming Music (Programming)</u> • Building-on programming and music skills to create different sounds, beats and melodies **NC: 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**	<u>Mars Rover 1 (Data Handling)</u> • Learning about the Mars Rover, exploring how and why it transfers data including instructions, and how messages can be sent using binary code. **NC: 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** <u>Microbit (Programming)</u> • Highlighting the meaning and purpose of programming. Creating algorithms and programs that are used in the real world. Predicting, testing and evaluating to create and debug programs with specific aims: a simple animation, a polling program, pedometer and scoreboard **NC: Design, write and debug programs that accomplish specific goals, including controlling or**	<u>Stop Motion Animation (Creating Media)</u> • Creating animations, storyboard ideas and decomposing a story into small parts before putting together to create the illusion of a moving image. **NC: 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** <u>Mars Rover 2 (Skills Showcase)</u> • Exploring how the Mars Rover moves, follows instructions, collects and sends data. Pupils deepen their understanding of how computers work, what data is and how it is transferred as well as developing 3D design skills. Examine

		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	images and learn how to reduce file sizes so they can be sent quickly. **NC: 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**
	<u>Online Safety</u> • Learning how to alter application permission; considering the positive and negative aspects of online communication; understanding that online information is not always factual; learning how to deal with online bullying; thinking about the effect that technology has on our health **NC: Learning how to alter application permissions; considering the positive and negative aspects of online communication; understanding that online information is not factual; learning how to deal with online bullying**		
6	<u>Bletchley Park (Computer systems)</u> • Discovering the history of Bletchley and learning about code breaking and password hacking. Demonstrating digital literacy skills by creating presentations **NC: Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 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** <u>Intro to python (Programming)</u> • Using the programming language 'Python' to create designs and art. Learning how to create loops and nested loops to make their code more efficient. **NC: Design, write and debug programs that accomplish specific goals, including controlling or**	<u>Big Data 1 (Data Handling)</u> • Identifying how barcodes and QR codes work. Learning how infrared waves are used for the transmission of data while recognising the uses of RFID. **NC: 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** <u>History of computers (Creating Media)</u> • Writing, recording and editing radio plays set during WWII, learning about how computers have evolved from being larger than a room to fitting into the palm of our hand. **NC: Understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the**	<u>Big Data 2</u> • Building upon knowledge of how networks and the Internet are able to share information. Learning how big data can be used to design smart buildings to improve efficiency, before designing a smart school. Explore the potential dangers of big data. NC: **NC: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact** **Inventing a product** <u>(Skills Showcase)</u> • Designing a product, pupils: evaluate, adapt and debug code to make it suitable for their needs and designing products in CAD and creating a website and video. **NC: Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by**

simulating physical systems; solve problems by decomposing them into smaller parts. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	opportunities they offer for communication and collaboration	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

Online Safety

- Learning to deal with issues online that can produce negative feelings and exploring ways to overcome this; learning about the impact and consequences of sharing information online; exploring how to develop a positive online reputation, combatting and dealing with online bullying and managing personal passwords effectively

NC: **NC: use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**