Computing curriculum EYFS – YEAR 6

Intention:

Our computing curriculum at Seething & Mundham Primary School intends to prepare children for a future with technology through a modern, ambitious and relevant education in computing. We want to equip pupils to use technological thinking and creativity that will enable them to become active participants in the digital world.

We want children to develop as respectful, responsible and confident users of technology, aware of measures that can be taken to keep themselves and others safe online.

Our aim is to provide a computing curriculum that is designed to balance acquiring a broad and deep knowledge alongside opportunities to apply skills in various digital contexts. Beyond teaching computing discreetly, we will give pupils the opportunity to apply and develop what they have learnt across wider learning in the curriculum.

EYFS - Foundational skills and knowledge

Personal, Social and Emotional Development

Self-regulation

- Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate.
- Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.

Managing self

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.

Building relationships

- Work and play cooperatively and take turns with others.

Communication and Language

Listening, Attention and Understanding

- Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions.
- Make comments about what they have heard and ask questions to clarify their understanding.

Speaking

- Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary.
- Offer explanations for why things might happen.

SEETHING & MUNDHAM PRIMARY SCHOOL

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	KS1	LKS2	UKS2
Computing systems and networks	**Technology around us** Children can - identify technology - identify a computer and its main parts - use a mouse in different ways - use a keyboard to type on a computer - use the keyboard to edit text - create rules for using technology responsibly - recognise and use features of technology - identify the uses of information technology in the school - identify information technology beyond school - explain how information technology helps us - explain how to use information technology safely - recognize that choices are made when using information technology Y1 Key vocabulary: technology, computer, mouse, trackpad, keyboard, screen, double-click, typing Y2 Key vocabulary: Information technology (IT), computer, barcode, scanner/scan	**Connecting computers** Children can - explain how digital devices function - identify input and output devices - recognize how digital devices can change the way we work - explain how a computer network can be used to share information - explore how digital devices can be connected - recognize the physical components of a network Y3 Key vocabulary: digital device, input, process, output, program, digital, non-digital, connection, network, switch, server, wireless access point, cables, sockets **The internet** Children can - describe how networks physically connect to other networks - recognize how networked devices make up the internet - outline how websites can be shared via the World Wide Web (WWW) - describe how content can be added and accessed on the WWW - recognize how the content of the WWW is created by people - evaluate the consequences of unreliable content Y4 Key vocabulary: internet, network, router, security, switch, server, wireless access point (WAP), website, web page, web address, routing, web browser, World Wide Web, content, links, files, use, download, sharing, ownership, permission, information, accurate, honest, content, adverts	**Systems and searching** Children can - explain that computers can be connected together to form systems - recognize the role of computer systems in our lives - experiment with search engines - describe how search engines select results - explain how search recognize why the order of results is important, and to whom Y5 Key vocabulary: system, connection, digital, input, process, storage, output, search, search engine, refine, index, bot, ordering, links, algorithm, search engine optimisation (SEO), web crawler, content creator, selection, ranking **Communication and collaboration** Children can - explain the importance of internet addresses - recognize how data is transferred across the internet - explain how sharing information online can help people to work together - evaluate different ways of working together online - recognize how we communicate using technology - evaluate different methods of online communication Y6 Key vocabulary: communication, protocol, data, address, Internet Protocol (IP), Domain Name Server (DNS), packet, header, data payload, chat, explore, slide deck, reuse, remix, collaboration, internet, public, private, one-way, two-way, one-to-one, one-to-many
Creating media	**Digital painting** Children can - describe what different freehand tools do - use the shape tool and the line tools - make careful choices when painting a digital picture - explain why I chose the tools I used	**Stop-frame animation** Children can - explain that animation is a sequence of drawings or photographs - relate animated movement with a sequence of images	**Video production** Children can - explain what makes a video effective - identify digital devices that can record audio - capture video using a range of techniques - create a storyboard

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	- use a computer on their own to paint a picture - compare painting a picture on a computer and on paper Y1 Key vocabulary: paint program, tool, paintbrush, erase, fill, undo, shape tools, line tool, fill tool, undo tool, colour, brush style, brush size, pictures, painting, computers **Digital writing** Children can - use a computer to write - add and remove text ona computer - identify that the look of text can be changed on a computer - make careful choices when changing text - explain why they used the tools they chose - compare typing on a computer to writing on paper Y1 Key vocabulary: 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 **Digital photography** Children can - use a digital device to take a photograph - make choices when taking a photograph - describe what makes a good photograph - decide how photographs can be improved - use tools to change an image - recognize that photographs can be changed Y2 Key vocabulary: device, camera, photograph, capture, image, digital, landscape, portrait, framing, subject, compose, light sources, flash, focus, background, editing, filter, format, framing, lighting **Digital music** Children can - say how music can make us feel - identify that there are patterns in music - experiment with sound using a computer - use a computer to create a musical pattern - create music for a purpose - review and refine our computer work	- plan an animation - identify the need to work consistently and carefully - review and improve an animation - evaluate the impact of adding other media to an animation Y3 Key vocabulary: animation, flip book, stop-frame, frame, sequence, image, photograph, setting, character, events, onion skinning, consistency, evaluation, delete, media, import, transition **Desktop publishing** Children can - recognize how text and images convey information - recognize that text and layout can be edited - choose appropriate page settings - add content to a desktop publishing publication - consider how different layouts can suit different purposes - consider the benefits of desktop publishing. Y3 Key vocabulary: text, images, advantages, disadvantages, communicate, font, style, landscape, portrait, orientation, placeholder, template, layout, content, desktop publishing, copy, paste, purpose, benefits **Audio production** Children can - identify that sound can be recorded - explain that audio recordings can be edited - recognize the different parts of creating a podcast project - apply audio editing skills independently - combine audio to enhance their podcast project - evaluate the effective use of audio Y4 Key vocabulary: audio, microphone, speaker, headphones, input device, output device, sound, podcast, edit, trim, align, layer, import, record, playback, selection, load, save, export, MP3, evaluate, feedback **Photo editing**	- identify that video can be improved through reshooting and editing - consider the impact of the choices made when making and sharing a video Y5 Key vocabulary: video, audio, camera, talking head, panning, close up, video camera, microphone, lens, mid-range, long shot, moving subject, side by side, angle (high, low, normal), static, zoom, pan, tilt, storyboard, filming, review, import, split, trim, clip, edit, reshoot, delete, reorder, export, evaluate, share **Introduction to vector graphics** Children can - identify that drawing tools can be used to produce different outcomes - create a vector drawing drawing by combining shapes - use tools to achieve a desired effect - recognize that vector drawings consist of layers - groups objects to make them easier to work with - apply what I have learned about vector drawings Y5 Key vocabulary: vector, drawing tools, object, toolbar, vector drawing, move, resize, colour, rotate, duplicate/copy, zoom, select, align, modify, layers, order, copy, paste, group, ungroup, reuse, reflection **Web page creation** Children can - review an existing website and consider its structure - plan features of a web page - consider the ownership and use of images (copyright) - recognize the need to preview pages - outline the need for a navigation path - recognize the implications of linking to content owned by other people Y6 Key vocabulary: website, web page, browser, media, Hypertext Markup Language (HTML), logo, layout, header, media, purpose, copyright, fair use, home page, preview, evaluate, device, Google Sites, breadcrumb trail, navigation, hyperlink, subpage, evaluate, implication, external link, embed **3D modelling** Children can

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	Y2 Key vocabulary: music, quiet, loud, feelings, emotions, pattern, rhythm, pulse, pitch, tempo, rhythm, notes, create, emotion, beat, instrument, open, edit	Children can - explain that the composition of digital images can be changed - explain that colours can be changed in digital images - explain how cloning can be used in photo editing - explain that images can be combined - combine images for a purpose - evaluate how changed can improve an image Y4 Key vocabulary: image, edit, digital, crop, rotate, undo, save, adjustments, effects, colours, hue, saturation, sepia, vignette, image, retouch, clone, select, combine, made up, real, composite, cut, copy, paste, alter, background, foreground, zoom, undo, font	- recognize that you can work in three dimensions on a computer - identify that digital 3D objects can be modified - recognize that objects can be combined in a 3D model - create a 3D model for a given purpose - plan their own digital 3D model - create their own digital 3D modelplan my own 3D model Y6 Key vocabulary: TinkerCAD, 2D, 3D, shapes, select, move, perspective, view, handles, resize, lift, lower, recolour, rotate, duplicate, group, cylinder, cube, cuboid, sphere, cone, prism, pyramid, placeholder, hollow, choose, combine, construct, evaluate, modify
Programming	**Moving a robot** Children can - explain what a given command will do - act out a given word - combine forwards and backwards commands to make a sequence - combine four direction commans to make sequences - plan a simple program - find more than one solution to a problem Y1 Key vocabulary: Bee-Bot, forwards, backwards, turn, clear, go, commands, instructions, directions, left, right, route, plan, algorithm, program **Animations** Children can - choose a command for a given purpose - show that a series of commands can be joined together - identify the effect of changing a value - explain that each sprite has its own instructions - design the parts of a project - use their algorithm to create a program Y1 Key vocabulary: ScratchJr, command, sprite, compare, programming, area, block, joining, start, run, program, background, delete, reset, algorithm, predict, effect, change, value, instructions, design	**Sequencing sounds** Children can - explore a new programming environment - identify that commands have an outcome - explain that a program has a start - recognize that a sequence of commands can have an order - change the appearance of their project - create a project from a task description Y3 Key vocabulary: Scratch, programming, blocks, commands, code, sprite, costume, stage, backdrop, motion, turn, point in direction, go to, glide, sequence, event, task, design, run the code, order, note, chord, algorithm, bug, debug, code **Events and actions in programs** Children can - explain how a sprite moves in an existing project - create a program to move a sprite in four directions - adapt a program to a new context - develop their program by adding features - identify and fix bugs in a program - design and create a maze-based challenge Y3 Key vocabulary: motion, event, sprite, algorithm, logic, move, resize, extension block, pen up, set up, pen, design, action, debugging, errors, setup, code,	**Selection in physical computing** Children can - control a simple circuit connected to a computer - write a program that includes count-controlled loops - explain that a loop can stop when a consition is met - explain that a loop can be used to repeatedly check whether a condition has been met - design a physical project that includes selection - create a program that controls a physical computing project Y5 Key vocabulary: microcontroller, USB, components, connection, infinite loop, output component, motor, repetition, count-controlled loop, Crumble controller, switch, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, action, debug, circuit, power, cell, buzzer **Selection in quizzes** Children can - explain how selection is used in computer programs - relate that a conditional statement connects a condition to an outcome - explain how a selection directs the flow of a program - design a program which uses selection - create a program which uses selection

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	Robot algorithms Children can - describe a series of instructions as a sequence - explain what happens when we change the order of instructions - use logical reasoning to predict the outcome of a program - explain that programming projects can have a code and artwork - design an algorithm - create and debug a program that they have written Y2 Key vocabulary: instruction, sequence, clear, unambiguous, algorithm, program, order, prediction, artwork, design, route, mat, debugging, decomposition **Programming quizzes** Children can - explain that a sequence of commands has a start and an outcome - create a program using a given design - change a given design - create a program using their own design - decide how a project can be improved Y2 Key vocabulary: sequence, command, program, run, start, outcome, predict, blocks, design, actions, sprite, project, modify, change, algorithm, build, match, compare, debug, features, evaluate, decomposition, code	test, debug, actions **Repetition in shapes** Children can - identify that accuracy in programming is important - create a program in a text-based language - explain what 'repeat' means - modify a count-controlled loop to produce a given outcome - decompose a task into small steps create a program that uses count-controlled loops to produce a given outcome Y4 Key vocabulary: Logo (programming environment), program, turtle, commands, code snippet, algorithm, design, debug, pattern, repeat, repetition, count-controlled loop, value, trace, decompose, procedure **Repetition in games** Children can - develop the use of count-controlled loops in a different programming environment - explain that in programming there are infinite looks and count controlled loops - develop a design that includes two or more loops which run at the same time - modify an infinite loop in a given program - design a project that includes repetition - create a project that includes a repetition Y4 Key vocabulary: Scratch, programming, sprite, blocks, code, loop, repeat, value, infinite loop, count-controlled loop, costume, repetition, forever, animate, event block, duplicate, modify, design, algorithm, debug, refine, evaluate	- evaluate their program Y5 Key vocabulary: Selection, condition, true, false, count-controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, task, design, input, implement, test, run, setup, operator **Variables in games** Children can - define a 'variable' as something that is changeable - explain why a variable is used in a program - choose how to improve a game by using variables - design a project that builds on a given example - use their design to create a project - evaluate their project Y6 Key vocabulary: variable, change, name, value, set, design, event, algorithm, code, task, artwork, program, project, code, test, debug, improve, evaluate, share, assign, declare **Sensing movement** Children can - create a program to run on a controllable device - explain that a selection can control the flow of the program - update a variable with a user input - use a conditional statement to compare a variable to a value - design a project that uses inputs and outputs on a controllable device - develop a program to use inputs and outputs on a controllable device Y6 Key vocabulary: Micro:bit, MakeCode, input, process, output, flashing, USB, trace, selection, condition, if then else, variable, random, sensing, accelerometer, value, compass, direction, navigation, design, task, algorithm, step counter, plan, create, code, test, debug
Data and information	**Grouping data** Children can - label objects - identify that objects can be counted - describe objects in different ways - count objects with the same properties	**Branching databases** Children can - create questions with yes/no answers - identify the attributes needed to collect data about an object - create a branching database	**Flat-file databases** Children can - use a form to record information - compare paper and computer-based databases - outline how you can answer questions by grouping and then sorting data

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	- compare groups of objects - answer questions about groups of objects Y1 Key vocabulary: object, label, group, search, image, property, colour, size, shape, value, data set, more, less, most, fewest, least, the same **Pictograms** Children can - recognize that we can count and compare objects using tally charts - recognize that objects can be represented as pictures - create a pictogram - select objects by attribute and make comparisons - recognize that people can be described by attributes - explain that we can present information using a computer Y2 Key vocabulary: more than, less than, most, least, common, popular, organise, data, object, tally chart, votes, total, pictogram, enter, data, compare, objects, count, explain, attribute, group, same, different, conclusion, block diagram, sharing	- explain why it is helpful for a database to be well structured - plan the structure of a branching database - independently create an identification tool Y3 Key vocabulary: attribute, value, questions, table, objects, branching, database, objects, equal, even, separate, structure, compare, order, organise, selecting, information, decision tree **Data logging** Children can - explain that data gathered over time can be used to answer questions - use digital device to collect data automatically - explain that a data logger collects 'data points' from sensors over time - recognize how a computer can help us analyse data - identify the data needed to answer questions - use data from sensors to answer questions - explain that tools can be used to select specific data - explain that computer programs can be used to compare data visually - use a real-world database to answer questions Y4 Key vocabulary: data, table, layout, input device, sensor, logger, logging, data point, interval, analyse, dataset, import, export, logged, collection, review, conclusion	Y5 Key vocabulary: database, data, information, record, field, sort, order, group, search, value, criteria, graph, chart, axis, compare, filter, presentation **Spreadsheets** Children can - create a data set in a spreadsheet - build a data set in a spreadsheet - explain that formulas can be used to produce calculated data - apply formulas to data - create a spreadsheet to plan an event - choose suitable ways to present data Y6 Key vocabulary: data, collecting, table, structure, spreadsheet, cell, cell reference, data item, format, formula, calculation, spreadsheet, input, output, operation, range, duplicate, sigma, propose, question, data set, organised, chart, evaluate, results, sum, comparison, software, tools