Nursery and Reception

EYFS is not part of the Teach Computing Curriculum. However, computing and technology are still vitally important in EYFS. Computing in EYFS ensures that pupils enter Year 1 with a strong foundation, builds problem-solving abilities, encourages resilience and supports other areas of learning. By integrating computing into EYFS, pupils also begin to build their digital literacy and their understanding of e-safety. Technology is about children understanding how things work. It is not about electronics but finding out how things work, cause and effect.

Katie Joyce a Primary Computing Subject Specialist summarises the following benefits (taken from an article dated 22/01/2024 on the STEM Learning platform)

1. Building a strong foundation - computing in EYFS doesn't have to mean creating a PowerPoint, or writing a Word document! It can be unplugged activities which don't use a computer. It can also be activities which familiarise pupils with technology they may use more formally in KS1. For example, computing in EYFS may look like taking photos with a tablet, tinkering with a Bee-bot, doodling on an iPad or including an old keyboard in the role play area.

2. Building problem solving skills - computing activities, especially those involving computational thinking, build problem solving skills. Pupils learn to break problems down into smaller pieces and focus on the important facts. They take big problems and turn them into smaller ones which can be solved. These problem-solving skills support pupils across the domains of the EYFS framework.

3. Encouraging resilience - computing tasks often require persistence to find a solution. There can be an element of trial and error, or tasks can need debugging. This process helps children develop their resilience as they learn to keep trying until they find a solution.

4. Supporting other areas of learning - technology can give a helping hand to other areas of learning. Using a drawing app like Doodle Buddy the Notes app on iPads can help develop fine motor skills, while educational games can reinforce numeracy and literacy skills. Computing activities often require children to follow instructions and explain their thinking, which is great for building communication skills. Plus, computational thinking activities also include pattern spotting and logical thinking, which are important mathematical skills.

5. Developing digital literacy - in this technological age, digital literacy is becoming an absolutely fundamental skill for all. Introducing computing in EYFS helps children get to grips with technology from a young age, preparing them for a world where digital skills are essential. Plus, it's a great way to teach early e-safety, ensuring pupils can use tech safely both in and out of school.

Statements from Development Matters 2021 that could proceed the programme of study for computing have been used to guide the teaching of technology in Nursery and Reception.

Concepts	Nursery	Reception
Following rules and instructions Making choices Exploring and investigating Construction and using tools appropriately and safely Resilience and perseverance	Remember rules without needing an adult to remind them (Personal, Social and Emotional Development) Match their developing physical skills to tasks and activities in the setting (Physical Development) Explore how things work (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' (Personal, Social and Emotional Development) Develop their small motor skills so that they can use a range of tools competently, safely and confidently (Physical Development) Explore, use and refine a variety of artistic effects to express their ideas and feelings (Expressive Arts and Design)

Relevant skills in EYFS which to technology and computing

- To investigate how things work
- To use construction blocks to build
- To use objects to create something new
- To match physical skills to tasks and activities in class
- To use technology to solve problems
- To use a variety of artistic effects to express your ideas and feelings
- To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- To recognise are a number of objects (up to five) without counting
- To count confidently

Skills Progression in Computing through each theme (concept) - Years 1-6

COMPUTER SYSTEMS AND NETWORKS (Autumn 1)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technology around us	Information technology around us	Connecting computers	The Internet	Systems and searching	Communication and collaboration
To describe some uses of computers	To describe some uses of computers	To identify input and output devices		To describe the input and output of a search engine	To outline methods of communicating and collaborating using the internet
To identify the main parts of a computer	To identify information technology in school	To explain that a computer system accepts an input and processes it to produce an output		To demonstrate that different search terms produce different results	To choose methods of internet communication and collaboration for given purposes
To use a mouse in different ways	To identify information technology beyond school	To explain how a computer network can be used to share information		To evaluate the results of search terms	To evaluate different methods of online communication and collaboration
To use a keyboard to type	To show how to use information technology safely	To explain the role of a switch, and wireless access point in a network			To decide what you should and should not share online
To use the keyboard to edit text		To identify network devices around me			
To show how to use technology safely		To explain how networks can be connected to other networks			

CREATING MEDIA (Autumn 2)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital painting	Digital photography	Stop-frame animation	Audio production	Video production	Web page creation
To create a picture using freehand tools	To capture a digital image	To plan an animation using a storyboard	To record sound using a computer	To use different camera angles	To review an existing website (navigation bars, header)
To use shape and line tools when precision is needed	To take photographs in both landscape and portrait format	To set up the work area with an awareness of what will be captured	To play recorded audio	To use pan, tilt and zoom	To create a new blank web page
To use a range of paint colours	To view photographs on a digital device	To capture an image	To import audio into a project	To identify features of a video recording device or application	To add text to a web page
To use the fill tool to colour an enclosed area	To decide which photographs to keep	To use the onion skinning too to review subject position	To delete a section of audio	To combine filming techniques for a given purpose	To set the style of text on a web page
To use the undo button to correct a mistake	To hold the camera still to take a clear photograph	To move a subject between captures	To change the volume of tracks in a project	To determine what scenes will convey your idea	To change the appearance of text
To combine a range of tools to create a piece of artwork	Touse zoom to change the composition of a photograph	To review a captured sequence of frames as an animation		To choose to reshoot a scene or improve later through editing	To embed media in a web page
	To consider lighting before taking a photograph	To remove frames to improve an animation		To decide what changes I will make when editing	To add web pages to a website
	Touse simple editing tools to change the appearance of a photograph	To add media to enhance an animation		To use split, trim and crop to edit a video	To preview a web page (different screen sizes)
	To improve a photograph by retaking it	To review a completed project			To insert hyperlinks between pages
					To insert hyperlinks to another site

PROGRAMMING A (Spring 1)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Moving a robot	Robot algorithms	Sequencing sounds	Repetition in shapes	Selection in physical computing	Variables in games
To enact a given word	To choose a series of words that can be enacted as a sequence	To build a sequence of commands	To list an everyday task as a set of instructions including repetition	To create a condition-controlled loop	To identify a variable in an existing program
To predict the outcome of a command on a device	To choose a series of instructions that can be run as a program	To combine commands in a program	To use an indefinite loop to produce a given outcome	To use a condition in an 'if...then...' statement to start an action	To experiment with the value of an existing variable
To list which commands can be used on a given device	To create a program	To order commands in a program	To use a count-controlled loop to produce a given outcome	To use selection to switch the program flow in one of two ways	To choose a name that identifies the role of a variable to make it easier for humans to understand it
To run a command on a floor robot	To trace a sequence to make a prediction	To create a sequence of commands to produce a given outcome	To plan a program that includes appropriate loops to produce a given outcome	To use a condition in an 'if...then...else...' statement to produce given outcomes	To decide where in a program to set a variable
To choose a command for a given purpose To choose a series of words that can be enacted as a program	To run a program on a device		To recognise tools that enable more than one process to be run at the same time (concurrency)		To update a variable with a user input
To choose a series of commands that can be run as a program	To debug a program that I have written		To create two or more sequences that run at the same time		To use an event in a program to update a variable
To build a sequence of commands in steps					To use a variable in a conditional statement to control the flow of a program
To combine commands in a program					To use the same variable in more than one location in a program
To run a program on a device					

DATA AND INFORMATION (Spring 2)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Grouping data	Pictograms	Branching databases	Data logging	Flat-file databases	Introduction to spreadsheets
To identify some attributes of an object	o show I can enter data onto a computer	To create questions with yes/no answers	To use a digital device to collect data automatically	To choose different ways to view data	To calculate data using a formula for each operation
To collect simple data	To recognise that people, animals and objects can be described by attributes	To choose questions that will divide objects into evenly sized subgroups	To choose an appropriate timeframe when collecting data automatically	To choose which attribute and value to search by to answer a given question (operands)	To use functions to create new data
To show that collected data can be counted	To use a computer to view data in different formats	To repeatedly create subgroups of objects	To use a set of logged data to find information	To ask questions that need more than one attribute to answer	To use existing cells within a formula
To describe the properties of an object	To use pictograms to answer single-attribute questions	To identify an object using a branching database	To use a computer program to sort data by one attribute	To choose which attribute to sort data by to answer a given question	To choose suitable ways to present spreadsheet data
To choose an attribute to group objects by	To use a computer to answer comparison questions (graphs, tables)	To retrieve information from different levels of the branching database	To export data in different formats	To choose multiple criteria to search data to answer a given question (AND and OR)	
To group objects to answer questions				To select an appropriate graph to visually compare data	
To explain that objects can be grouped by similarities (attribute)				To choose suitable ways to present information to other people	
To describe a group of objects (based on commonality)					

CREATING MEDIA (Summer 1)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Digital writing	Digital music	Desktop publishing	Photo editing	Introduction to vector graphics	3D modelling
To use letter, number, and Space keys to enter text into a computer	To experiment with musical patterns on a computer	To show that page orientation can be changed	To recognise that digital images can be manipulated	To add an object to a vector drawing	To position 3D shapes relative to one another
To use punctuation and special characters	To experiment with different sounds on a computer	To organise text and image placeholders in a page layout	To recognise that digital images can be changed for different purposes	To select one object or choices made multiple objects	To use digital tools to modify 3D objects
To select text	To use a computer to create a musical pattern	To add text to a placeholder	To choose the most appropriate tool for a particular purpose	To delete objects	To combine objects to create a 3D digital artefact
To change the appearance of text on a computer	To use a computer to compose a rhythm and a melody on a given theme	To add and remove images to and from placeholders	To consider the impact of changes made on the quality of the image	To move objects between the layers of a drawing	To use digital tools to accurately size 3D objects
To choose options to achieve a desired effect	To use a computer to play the same music in different ways (e.g. tempo)	To edit text in a placeholder		To duplicate objects using copy and paste	To construct a 3D model which reflects a real world object
To position the text cursor in a chosen location	To evaluate a musical composition created on a computer	To move resize and rotate images		To modify objects	
To use the Backspace key to remove text	To improve a musical composition created on a computer	To choose fonts and apply effects to text		To reposition objects	
To use Undo		To review a document		To group and ungroup selected objects	
				To combine options to achieve a desired effect	
				To create a vector drawing for a given purpose	

PROGRAMMING B (Summer 2)

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Programming animations	Programming quizzes	Events and actions in programs	Repetition in games	Selection in quizzes	Sensing movement
To choose a series of words that can be enacted as a program	To choose a series of words that can be enacted as a sequence	To build a sequence of commands	To list an everyday task as a set of instructions including repetition	To choose a condition to use in a program	To identify a variable in an existing program
To choose a series of commands that can be run as a program	To explain what happens when we change the order of instructions	To combine commands in a program	To use an indefinite loop to produce a given outcome	To create a condition-controlled loop	To experiment with the value of an existing variable
To run a program on a device	To choose a series of commands that can be run as a program	To order commands in a program	To use a count-controlled loop to produce a given outcome	To use a condition in an 'if... then…' statement to start an action	To choose a name that identifies the role of a variable to make it more usable (to humans)
	To trace a sequence to make a prediction	To create a sequence of commands to produce a given outcome	To plan a program that includes appropriate loops to produce a given outcome	To use selection to switch program flow	To decide where in a program to set a variable
	To test a prediction by running the sequence		To recognise tools that enable more than one process to be run at the same time (concurrency)	To use 'if... then... else…' to switch program flow in one of two ways	To update a variable with a user input
	To create and debug a program that I have written		To create two or more sequences that run at the same time		To use an event in a program to update a variable
	To run a program on a device				To use a variable in a conditional statement to control the flow of a program
					To use the same variable in more than one location in a program