IN UNITY WE SUCCEED

COMPUTING

2024 - 2025

N – 11 COMPUTING CURRICULUM





NURSERY - YEAR 11



Nursery (Early Years)					
• Seeks to	acquire basic skills in turning on and operating som	e digital equipment			
Operates mech	 Operates mechanical toys, e.g. turns the knob on a wind-up toy or pulls back on a friction car 				
• Plays wi	th water to investigate "low technology" such as wa	ashing and cleaning			
• Uses pipes,	funnels and other tools to carry/ transport water from	om one place to another			
Independent use of	Introduced to	Teacher modelling the use of			
-Cameras	MS Paint,	- Interactive whiteboards			
-Controllable Toys	-Programmable toys	- Vimeo			
	-lpads (ios)	-Websites			
		-E books			

	Nursery (Pre-school)					
 Shows an interest in technological toys with knobs or pulleys, real objects such as cameras, and touchscreen devices such as mobile phones and tablets. Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images. Knows how to operate simple equipment, e.g. turns on CD player, uses a remote control, can navigate touch-capable technology with support. With adult support, shows an awareness of the need to keep safe with technology.						
With adult st	ipport, snows an awareness of the need to keep	safe with technology.				
Independent use of	Supported use of	Teacher modelling the use of				
-Cameras	MS Paint,	- Interactive whiteboards				
-Ipads (ios)	Beebot app	- Vimeo				
-Controllable Toys	-Controllable Toys -Websites					
-Programmable toys		-E books				

Reception

- Completes a simple program on electronic devices.
- Can create content such as take a photograph, draw a picture on screen.

Can use a keyboard.

An awareness of keeping safe online.

	7.11 dwareness of Reeping sale offine.					
Independent use of	Supported use of	Teacher modelling the use of				
Cameras	Keyboards	-Visualisers				
lpads (ios)	Mouse	- Vimeo				
Tablets (android)	Scratch Junior app,	-Websites				
Ipods	MS Paint,	-E books.				
Digital photo frame	Beebot app					
Controllable Toys	RM Maths,					
Programmable toys	Photo collage					

Technology all around us -recognise common uses of information technology beyond school school school and retrieve digital content around us -recognise common uses of information technology beyond school school school school school school school around us -recognise common uses of information technology beyond school schoo		Year 1							
around us -recognise common uses of information school school purposefully to create, organise, store, store, manipulate and retrieve digital school	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6			
	around us -recognise common uses of information technology beyond	-Arcinbaldo -Creating faces with shapes use technology purposefully to create, organise, store, manipulate and retrieve digital	use technology purposefully to create, organise, store, manipulate and retrieve	use technology purposefully to create, organise, store, manipulate and retrieve	understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous	understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and			

	Year 2							
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6			
Information	Digital Photography	Making Music	Pictograms	Robot algorithms	Programming quizzes			
technology around	use technology	use technology	use technology	understand what	understand what algorithms			
us	purposefully to	purposefully to create,	purposefully to create,	algorithms are, how	are, how they are implemented			
-recognise common	create, organise,	organise, store,	organise, store,	they are implemented	as programs on digital devices,			
uses of information	store, manipulate	re, manipulate manipulate and retrieve manipulate and retrieve	as programs on digital	and that programs execute by				
technology beyond	and retrieve digital	digital content	digital content	devices, and that	following precise and			
school	content			programs execute by	unambiguous instructions.			
				following precise and				
				unambiguous	create and debug simple			
				instructions.	programs			
				create and debug				
				simple programs				

	Year 3						
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6		
Connecting	Stop Frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs		
computers	select, use and combine	-design, write and debug	use search	select, use and	-design, write and debug		
understand	a variety of software	programs that	technologies	combine a variety of	programs that accomplish		
computer	(including internet	accomplish specific goals,	effectively, appreciate	software (including	specific goals, including		
networks	services) on a range of	including controlling or	how results are	internet services) on a	controlling or simulating		
including the	digital devices to design	simulating physical	selected and ranked,	range of digital devices	physical systems; solve		
internet; how	and create a range of	systems; solve problems	and be discerning in	to design and create a	problems by decomposing		
they can provide	programs, systems and	by decomposing them	evaluating digital	range of programs,	them into smaller parts		
multiple services,	content that accomplish	into smaller parts	content	systems and content			
such as the world	given goals, including			that accomplish given	+Programming drones project -		
wide web; and	collecting, analysing,	-use sequence, selection,		goals, including	Block coding Motion		
the opportunities	evaluating and	and repetition in		collecting, analysing,			
they offer for	presenting data and	programs; work with		evaluating and			
communication	information	variables and various		presenting data and			
and collaboration		forms of input and		information			
	use search technologies	output					
	effectively, appreciate						
	how results are selected	-use logical reasoning to					
	and ranked, and be	explain how some simple					
	discerning in evaluating	algorithms work and to					
	digital content	detect and correct errors					
		in algorithms and					
	+3D design - Tinkercad	programs					
	project - Book marks						

			Year 4		
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
The Internet	Audio editing	Repetition in shapes	Data logging	Photo editing	Repetition in games
understand compu	ter select, use and	design, write and debug	select, use and	select, use and	design, write and debug
networks including	the combine a variety of	programs that	combine a variety of	combine a variety of	programs that accomplish
internet; how they	can software (including	accomplish specific goals,	software (including	software (including	specific goals, including
provide multiple	internet services)	including controlling or	internet services) on a	internet services) on a	controlling or simulating
services, such as th	ne on a range of digital	simulating physical	range of digital	range of digital devices	physical systems; solve
world wide web; a	nd devices to design	systems; solve problems	devices to design and	to design and create a	problems by decomposing
the opportunities the	ney and create a range	by decomposing them	create a range of	range of programs,	them into smaller parts
offer for	of programs,	into smaller parts	programs, systems	systems and content	
communication ar	nd systems and		and content that	that accomplish given	use sequence, selection, and
collaboration	content that	use sequence, selection,	accomplish given	goals, including	repetition in programs; work
	accomplish given	and repetition in	goals, including	collecting, analysing,	with variables and various
use search	goals, including	programs; work with	collecting, analysing,	evaluating and	forms of input and output
technologies	collecting,	variables and various	evaluating and	presenting data and	
effectively, apprecia	ate analysing,	forms of input and	presenting data and	informationand correct	use logical reasoning to explai
how results are	evaluating and	output	information	errors in algorithms	how some simple algorithms
selected and ranke	d, presenting data and			and programs	work and to detect and correct
and be discerning	in information	use logical reasoning to			errors in algorithms and
evaluating digita		explain how some simple			programs
content	+3D design -	algorithms work and to			
	Tinkercad project -	detect			
	Designing houses				+Programming drones project
					Block coding Control

	Year 5						
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6		
Sharing information	Vector Drawing	Selection in Physical	Flat file databases	Video editing	Selection in quizes		
understand computer		computing			design, write and debug		
networks including	select, use and combine	design, write and debug	select, use and	select, use and combine	programs that accomplish		
the internet; how	a variety of software	programs that	combine a variety of	a variety of software	specific goals, including		
they can provide	(including internet	accomplish specific	software (including	(including internet	controlling or simulating		
multiple services,	services) on a range of	goals, including	internet services) on a	services) on a range of	physical systems; solve		
such as the world	digital devices to design	controlling or simulating	range of digital	digital devices to design	problems by decomposing		
wide web; and the	and create a range of	physical systems; solve	devices to design and	and create a range of	them into smaller parts		
opportunities they	programs, systems and	problems by	create a range of	programs, systems and	use sequence, selection,		
offer for	content that accomplish	decomposing them into	programs, systems	content that accomplish	and repetition in		
communication and	given goals, including	smaller parts	and content that	given goals, including	programs; work with		
collaboration	collecting, analysing,	use sequence, selection,	accomplish given	collecting, analysing,	variables and various		
	evaluating and	and repetition in	goals, including	evaluating and	forms of input and output		
select, use and	presenting data and	programs; work with	collecting, analysing,	presenting data and			
combine a variety of	information	variables and various	evaluating and	information	use logical reasoning to		
software (including		forms of input and	presenting data and	use logical reasoning to	explain how some simple		
internet services) on a		output	information	explain how some simple	algorithms work and to		
range of digital	+3D design - Tinkercad			algorithms work and to	detect and correct errors		
devices to design and	project - Designing 3d			detect and correct errors	in algorithms and		
create a range of	images from 2D images	+Programming drones		in algorithms and	programs		
programs, systems		Block coding light		programs			
and content that							
accomplish given							
goals, including							
collecting, analysing,							
evaluating and							
presenting data and							
information							

	Year 6						
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6		
Internet communication use technology safely, respectfully and responsibly; recognise acceptable/unaccepta ble behaviour; identify a range of ways to report	Webpage creation 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	Term 3 Variables in games design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into	Term 4 Introduction to spreadsheets select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of	3D modelling 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	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,		
concerns about content and contact	given goals, including collecting, analysing, evaluating and presenting data and information	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 +Programming drones project - Block coding Image recognition	programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	given goals, including collecting, analysing, evaluating and presenting data and information +3D design - Printing using Cura	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 an		

	Year 7								
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6				
7.1 Computer Systems		7.2 Computational Thinking		7.3 Programmiı	ng in Scratch (1)				
This unit takes learners on a tour through the different layers of computing systems: from programs and the operating system, to the physical components that store and execute these programs. The aim is to provide a concise overview of how computing systems operate, conveying the essentials and abstracting away the technical details that might confuse or put off learners.		understanding of solvir thinking using the co skills such as decom	arners develop their ng problems and critical omputational thinking position, abstraction, nd pattern recognition.	The aim of this unit a ('programming 2') confidence and know and construct does not assume any particle experience, but it does opportunity to expand throughout the main programming this unit are sequencing and count-controlled.	ng concepts covered in ng, variables, selection, d iteration. All of the ties for this unit use				

Year 8							
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6		
Programming	in Scratch (2)	Networks Representation		tion of Data			
This unit begins right where 'Programming I' left off. Learners will build on their understanding of the control structures' sequence, selection, and iteration (the big three), and develop their problem-solving skills. Learners will learn how to create their own subroutines, develop their understanding of decomposition, learn how to create and use lists, and build upon their problem-solving skills by working through a larger project at the end of the unit.		there would be no m instant messaging, onlir and iTunes; no online sh and no central backups begins by defining a net benefits of networking data is transmitted a	ut computer networks: ore YouTube, Google, ne video gaming, Netflix, hopping; no file sharing; of information. This unit work and addressing the g, before covering how cross networks using ocols.	transmit information. The digits to your learners as use to perform these to	to record, process and his unit introduces binary is the symbols computers asks and focuses on the hid numbers, images and and.		

	Year 9								
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6				
9.1 Impact of	f Technology	9.2 Python	ı 1	9.3 Cyber Sec	curity				
This unit explores how technology is changing and how it affects the learners lives. They will explore topics such as the ethical implications of technology as well as the environmental and cultural impact of technology. Learners will look at recent developments and learn how to express their opinion on the topic as well as produce a balanced argument that looks at all impacts of technology.		This unit introduces learners to t with Python. The lessons form a simple programs involving in gradually moves on through a randomness, selection, and itera on tackling common misconcept mechanics of program execution tools is employed throughout t prominent being pair program worked examples. The previous units are a prerequisite	journey that starts with aput and output, and arithmetic operations, ation. Emphasis is placed tions and elucidating the n. A range of pedagogical the unit, with the most aming, live coding, and s scratch programming	This unit takes learners discovery of techniques the use to steal data, disrupinfiltrate networks. The least considering the value the what organisations might then learn about social engonomon cybercrimes, as methods to protect again	hat cybercriminals pt systems, and arners will start by eir data holds and use it for. They will gineering and other nd finally look at				

			Year 10	a week)		
Torm 1	Torm 2	Torm	(based on 3 hours		Torm F	Torm 6
Term 1 2 hours 1.1 Computer Systems Purpose of CPU CPU Components Von Neumann Architecture CPU Performance Embedded Systems	Term 2 2 hours 1.2 Memory and Storage Primary Storage Secondary Storage Units of data Binary – Denary Hexadecimal Binary Addition Binary Shifts Characters Images Sound Compression	2 hours 1.2 Memory and Storage Primary Storage Secondary Storage Units of data Binary – Denary Hexadecimal Binary Addition Binary Shifts Characters Images Sound Compression	2 hours 1.3 Networks Types of network Performance of networks Network models LAN Hardware The internet Topologies Modes of connection Encryption IP vs MAC	Term 4 2 hours 1.3 Networks Types of network Performance of networks Network models LAN Hardware The internet Topologies Modes of connection Encryption IP vs MAC Addresses	Term 5 2 hours 1.4 Network Security Forms of attack: Malware, Social engineering, Brute-force, DOS, Data interception, SQL injection Common Prevention methods: Penetration testing, Anti-malware software, Firewalls, User access levels, Passwords,	Term 6 2 Hours Exam practice Revision
1 hour 2.1 Algorithms	Compression	1 hou	Addresses Protocols Protocol layers	Protocols Protocol layers	Encryption, Physical security	. hour t Programming
Computational Thinking Flowcharts Pseudocode Syntax and Logic Errors Trace Tables Search Algorithms Sort Algorithms		Constants and Sequer Selecti Iteratio Operat Data Ty String Manio File hand Array Subprogo	nce on on ors pes pulation dling rs rams		Va Subp Main T	sive design lidation programs tainability esting or types

			Year (based on 3 ho					
Autu	ımn 1	Autumn	•	·	ing 1	Spring 2	Summer 1	Summer 2
2 hours 1.3 Networks Types of network Performance of networks Network models LAN Hardware The internet Topologies Modes of connection Encryption IP vs MAC Addresses Protocols Protocol layers	2 hours 1.4 Network Security Forms of attack: Malware, Social engineering, Brute-force, DOS, Data interception, SQL injection Common Prevention methods: Penetration testing, Anti-malware software, Firewalls, User access levels, Passwords, Encryption, Physical security	2 hours 1.5 System Software The OS: User interface, Memory management and multitasking, Peripheral management/drivers, User management, File management Utility software: Defragmentation, Encryption, Compression	2 hours 1.6 Ethics and Legislation: Ethics vs Legal Cultural Environmental Privacy The DPA The CMA Copyright Open source vs Proprietary	2 hours 2.4 Boolean Logic Logic Gates Truth Tables Complex logic gates	2 hours 2.5 Programming Languages Language Levels and Generations Compilers vs. Interpreters The Integrated Development Environment (IDE)	Exam practice Revision Algorithm and coding challenges	Exam practice Revision Algorithm and coding challenges	N/A
2.2 programmir Constants a Sequ Sele Itera Oper Data	nour Ing fundamentals Ind variables Idence Idence Identification I	1 hour 2.2 programming fundamentals Constants and variables Sequence Selection Iteration Operators Data Types	1 hour 2.3 Robust Programming Defensive design Validation Subprograms Maintainability Testing Error types	2.3 Robust F Defensiv Valid Subpro Mainta Tes	Programming ve design dation ograms inability sting types	Exam practice Revision Algorithm and coding challenges	Exam practice Revision Algorithm and coding challenges	

File handling	String Manipulation
Arrays	File handling
Subprograms	Arrays
SQL	Subprograms
	SQL