Truro & Penwith Academy Trust

Upper KS2 Computing

Y5/6 Cycle A			Cycle B		
Autumn 1	Spring 1	Summer1	Autumn 1	Spring 1	Summer 1
Connecting systems and networks Systems and searching (5)	**Creating Media** 3D modelling (6)	**Creating Media** Introduction to vector graphics (5)	**Connecting systems and networks** Communication and collaboration (6)	**Programming** Variables in Games (6)	**Data and information** Introduction to spreadsheets (6)
What IT systems are around the world and how do they help us search the internet? Recognising IT systems in the world and how some can enable searching on the internet. **(PowerPoint)**	**How can we develop a 3D computer model of a physical object?** Planning, developing, and evaluating 3D computer models of physical objects. **(Tinkercad)**	**How can we use layers to create digital images?** Creating images in a drawing program by using layers and groups of objects. **(Google Drawings/Publisher)**	**How is data transferred to allow us to work collaboratively?** Exploring how data is transferred by working collaboratively online. **(PowerPoint)**	**How can we create variables to code a game?** Exploring variables when designing and coding a game. **(Scratch)**	**How can we use a spreadsheet to organise and calculate data?** Answering questions by using spreadsheets to organise and calculate data**. (Excel)**
1.I can explain that computers can be connected together to form systems 2.I can recognise the role of computer systems in our lives 3.I can recognise how information is transferred over the internet 4.I can explain how sharing information online lets people in different places work together 5.I can contribute to a shared project online 6.I can evaluate different ways of working together online	1.I can use a computer to create and manipulate three-dimensional (3D) digital objects 2.I can compare working digitally with 2D and 3D graphics 3.I can construct a digital 3D model of a physical object 4. I can identify that physical objects can be broken down into a collection of 3D shapes 5.I can design a digital model by combining 3D objects 6.I can develop and improve a digital 3D model	1.I can identify that drawing tools can be used to produce different outcomes 2.I can create a vector drawing by combining shapes 3.I can use tools to achieve a desired effect 4. I can recognise that vector drawings consist of layers 5.I can group objects to make them easier to work with 6.I can evaluate my vector drawing	1.I can explain the importance of internet addresses. 2.I can identify and explain the main parts of a data packet. 3.I can explain how sharing information online can help people to work together. 4. I can evaluate different ways of working together online 5.I can recognise how we communicate using technology 6.I can evaluate different methods of online communication	1.I can define a 'variable' as something that is changeable 2.I can explain why a variable is used in a program 3.I can choose how to improve a game by using variables 4.I can design a project that builds on a given example 5.I can use my design to create a project 6.I can evaluate my project	1.I can identify questions which can be answered using data 2.I can explain that objects can be described using data 3. I can explain that formulas can be used to produce calculated data 4.I can apply formulas to data, including duplicating 5.I can create a spreadsheet to plan an event 6.I can choose suitable ways to present data
System, connection, digital, input, process, output, Search, search engine, refine, Index, crawler, bot,	2D, 3D, shapes, select, move, perspective, view Handles, resize, lift, lower, recolour Rotate, duplicate, group	Vector, drawing tools, object, toolbar move, resize, colour, rotate, duplicate/copy, Zoom, select, rotate, object, align, resize, modify, Layers,	Communication, protocol, data, address, Internet Protocol (IP) address, Domain Name Server (DNS) Packet, header, data payload, Chat,	Variable, change, name, value, set, change , design, event , algorithm, code, Task, artwork, program, project, code, test, debug, Improve, evaluate, share	Data, collecting, table, structure, spreadsheet Cell, cell reference, data item, format Formula, calculation, data,

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Ordering, ranking, links, algorithm, optimisation (SEO) web crawler, content creator, selection, ranking	Cylinder, placeholder, hollow, choose, combine, Construct, evaluate, modify	paste, group, ungroup, duplicate, vector drawing, reuse, Reflection, vector drawing	explore, slide deck Reuse, remix, collaboration, public, private, one-way, two-way, one-to-one Internet Communication, one-to-many		spreadsheet, input, output, calculate, operation, range, duplicate, sigma Propose, question, data set, organised, formula, Chart, evaluate, results, comparison, questions, software, tools
Natterhub E-Safety focus Year 6 Feel it – Lesson 1 To understand how to react to concerns online and what help is available if we have a concern. Chat it – Lesson 1 To understand the importance of respectful communication. Question it – Lesson 1 To explore how search engines work and how results are selected and ranked. Think it – Lesson 2 To understand what positive and negative online interactions look like and how we can respond to them.	Natterhub E-Safety focus Year 6 Mind it – Lesson 1 To understand how to create a positive online reputation. Secure it – Lesson 1 To understand how to use, manage and remember passwords. Learn it – Lesson 3 To understand the positive differences technology makes throughout the world. Secure it – Lesson 3 To describe and identify certain types of cybercrime.	Natterhub E-Safety focus Year 6 Feel it – Lesson 2 To know how to gather evidence of online bullying and what to do with the evidence. Balance it – Lesson 1 I can identify and resist online temptations and pressures. Chat it – Lesson 2 To recognise the problems that can come with sharing information online. Question it – Lesson 3 To learn how to be a discerning consumer of digital content.	Natterhub E-Safety focus 2 Natterhubs Year 5 Feel it – Lesson 1 To recognise when someone is upset, hurt or angry online. Chat it – Lesson 1 To recognise negative online behaviour and know what to do if I encounter it. Question it – Lesson 1 To understand what makes an effective online searcher. Balance it – Lesson 1 I understand that using technology can negatively impact my health and wellbeing in different ways.	Natterhub E-Safety focus Year 5 Think it – Lesson 1 To understand the risks associated with posting information online. Mind it – Lesson 2 To describe how information found online can be used to make judgements about individuals. Secure it – Lesson 2 To explain how apps or services may collect and share my private information. Learn it – Lesson 1 To understand the internet is a valuable tool for learning new skills. View lesson	Natterhub E-Safety focus Year 5 Chat it – Lesson 3 To understand how to deal with the emotions associated with feeling left out. Question it – Lesson 2 To explore how accurate and reliable the information we see online is. Feel it – Lesson 3 To understand how to protect myself from negative behaviour online. Balance it – Lesson 3 I have strategies I can use to promote digital wellness.
Autumn 2	Spring 2	Summer 2	Autumn 2	Spring 2	Summer 2
Programming **Selection in physical computing (5)**	**Data and information** **Flat file databases (5)**	**Programming** **Selection in quizzes (5)**	**Creating Media** **Website creation (6)**	Programming Sensing Movement (6)	**Creating Media** **Video Production (5)**
How can we program a microcontroller? Exploring conditions and selection using a programmable microcontroller. **(Crumble controller)**	**How can we use a database to answer questions?** Using a database to order data and create charts to answer questions. **(j2data Database)**	**How can we design and code an interactive quiz?** Exploring selection in programming to design and code an interactive quiz. **(Scratch)**	**How can we design and create a webpage?** Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation. **(Google sites)**	**How can we code a project that uses inputs from a physical device?** Designing and coding a project that captures inputs from a physical device (microbits)	**How can we produce a short film?** Planning, capturing, and editing video to produce a short film. **(Microsoft Photos)**

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1.I can control a simple circuit connected to a computer 2.I can write a program that includes count-controlled loops 3.I can explain that a loop can stop when a condition is met 4.I can explain that a loop can be used to repeatedly check whether a condition has been met 5.I can design a physical project that includes selection 6. I can create a program that controls a physical computing project	1. I can use a form to record information 2. I can compare paper and computer based databases 3.I can outline how grouping and then sorting data allows us to answer questions 4.I can explain that tools can be used to select specific dat a 5.I can explain that computer programs can be used to compare data visually 6.I can apply my knowledge of a database to ask and answer real-world questions	1.I can explain how selection is used in computer programs 2. I can relate that a conditional statement connects a condition to an outcome 3.I can explain how selection directs the flow of a program 4.I can design a program which uses selection 5.I can create a program which uses selection 6.I can evaluate my program	1.I can review an existing website and consider its structure 1.I can plan the features of a web page 3.I can consider the ownership and use of images (copyright) 4.I can recognise the need to preview pages 5.I can outline the need for a navigation path 6.I can recognise the implications of linking to content owned by other people	1.I can create a program to run on a controllable device 2.I can explain that selection can control the flow of a program 3.I can update a variable with a user input 3.I can use a conditional statement to compare a variable to a value 4.I can design a project that uses inputs and outputs on a controllable device 5.I can develop a program to use inputs and outputs on a controllable device	1.I can explain what makes a video effective 2.I can identify digital devices that can record video 3.I can capture video using a range of techniques 4.I can create a storyboard - I can identify that video can be improved through reshooting and editing 5.I can consider the impact of the choices made when making and sharing a video
Microcontroller, components, connection, infinite loop , output component, motor, repetition, countcontrolled loop, Crumble controller, components, switch, motor, LED, Sparkle, crocodile clips, connect, battery box, program, condition, Input, output, selection, condition, action , repetition , debug	Database, data, information, record, field, sort, order, group, record, sort, order, value, search, criteria, graph, chart, axis, compare, filter, presentation	Selection, condition, true, false, count controlled loop, outcomes, conditional statement, algorithm, program, debug, question, answer, algorithm, program, debug, Task, design, algorithm, input, program, selection, condition, outcomes Implement, , test, run, Design	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, Hyperlink, evaluate, implication, external link, embed	Micro:bit, MakeCode, input, process, output, flashing, USB, trace Selection, condition, if then else, variable, random, Input, selection, condition, variable, sensing, accelerometer, value, Compass, direction, variable, navigation, design, task, algorithm, step counter Plan, create, code, test, debug	Video, audio, camera, talking head, panning, close up Video camera, microphone, lens, , mid range, long shot, moving subject, side by side, high angle, low angle, normal angle Static camera, zoom, pan, tilt, storyboard Storyboard, filming, review, Import, split, trim, clip, edit, reshoot, Delete, trim, reorder, export, evaluate, share
			Natterhub E-Safety focus Year 6 Feel it – Lesson 1 To understand how to react to concerns online and what help is available if we have a concern.	Natterhub E-Safety focus Year 6 Mind it – Lesson 1 To understand how to create a positive online reputation. Secure it – Lesson 1	Natterhub E-Safety focus Year 6 Feel it – Lesson 2 To know how to gather evidence of online bullying and what to do with the evidence.

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