

Computing – Year 6

Autumn 1

In this unit learners explore how data is transferred over the internet. Learners initially focus on addressing, before they move on to the makeup and structure of data packets. Learners then look at how the internet facilitates online communication and collaboration; they complete shared projects online and evaluate different methods of communication. Finally, they learn how to communicate responsibly by considering what should and should not be shared on the internet and how to report concerns about inappropriate content online.

Computer Systems and Networks – Internet Communication	CK/ Vocabulary	Skills
	- The World Wide Web is part of the internet where we can visit webpages and websites (WWW.) - Web browsers (Google Chrome, Safari, Firefox, Internet Explorer) You need these to access the World Wide Web. - Packets are used to transfer data across networks - data is transferred in packets - connections between computers allow access to shared stored files - computers connected to the internet allow people in different places to work together - We can communicate over the internet and World Wide Web, but we must do so responsibly. - communicating and collaboration using the internet can be public or private 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.	- To outline methods of communicating and collaborating using the internet - To choose methods of internet communication and collaboration for given purposes - To evaluate different methods of online communication and collaboration - To decide what you should and should not share online

Spring 1

This unit introduces the learners to spreadsheets. They will be supported in organising data into columns and rows to create their own data set. Learners will be taught the importance of formatting data to support calculations, while also being introduced to formulas and will begin to understand how they can be used to produce calculated data. Learners will be taught how to apply formulas that include a range of cells and apply formulas to multiple cells by duplicating them. Learners will use spreadsheets to plan an event and answer questions. Finally, learners will create charts and evaluate their results in comparison to questions asked.

Data – Introduction to Spreadsheets	CK/ Vocabulary	Skills
	- Technology can be used to sort data - Data can be words, numbers, dates, images and sounds - Spreadsheets organise data into columns and rows under headings - In Spreadsheets, formulas can be used to produce calculated data 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.	- To create a data set in a spreadsheet - To build a data set in a spreadsheet - To explain that formulas can be used to produce calculated data - To apply formulas to data - To create a spreadsheet to plan an event - To choose suitable ways to present data

Summer 1

Learners will develop their knowledge and understanding of using a computer to produce 3D models. Learners will initially familiarise themselves with working in a 3D space, moving, resizing, and duplicating objects. They will then create hollow objects using placeholders and combine multiple objects to create a model of a desk tidy. Finally, learners will examine the benefits of grouping and ungrouping 3D objects, then go on to plan, develop, and evaluate their own 3D model of a building.

Creating Media – 3D Modelling	CK/ Vocabulary	Skills
	- Information Technology can help us to design, create programs, collect information, analyse data and present information. Hardware is the physical components of a computer. Software is the programme or operating system that a computer uses.	- Recognise that you can work in three dimensions on a computer - Resize an object in three dimensions - I can rotate, duplicate and group 3D objects

	• Different Software on digital devices helps people and industries to do different things. • You can use software on digital devices to design and create • 3D models can be created on a computer, they can be used to design buildings, furniture and even pen pots. 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.	• To plan and create my own 3D model for a given purpose • Evaluate the effectiveness of my own 3D model
Summer 2		
This unit is the final KS2 programming unit and brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6 – ‘Programming A’. It offers pupils the opportunity to use all of these constructs in a different, but still familiar environment, while also utilising a physical device — the micro:bit. The unit begins with a simple program for pupils to build in and test within the new programming environment, before transferring it to their micro:bit. Pupils then take on three new projects in Lessons 2, 3, and 4, with each lesson adding more depth		
Programming B – Sensing Movement	• CK/ Vocabulary	Skills
	• An algorithm is a precise set of ordered instructions which can be turned into code • Coding is how we communicate with computers. Code tells a computer what actions to take. • Different programs act in different ways. ○ Sequence - An order of events. ○ Selection - the process of making a decision. ○ Repetition - A repeat in code, repeating a sequence of instructions a certain number of times. ○ Variable: something that can be changed. 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.	• Create a program to run on a controllable device • Explain that selection can control the flow of a 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