

Sandon Primary Academy – Computing: Year 3

Where we improve our knowledge and understanding of technology to enable us to participate and change technological world around us in a safe way.		
Autumn Term	Spring Term	Summer Term
<p>Computer Science: Programming Building on the use of the 'ScratchJr' application in Year 2, progressing to using the more advanced computer-based application called 'Scratch', learning to use repetition or 'loops' and building upon skills to program; an animation, a story and a game.</p>	<p>Computer Science: Computer Systems and Networks Introduction to the concept of networks, learning how devices communicate. Identifying components, learning how information is shared and exploring examples of real-world networks.</p>	<p>Information Technology: Data Handling Using the theme of a 'Comparison card game' to understand what a database is. Learning the meanings of records, fields and data. Further exploration will lead to the development of the ideas of sorting and filtering.</p>
<p>Key Objectives: Lesson 1: Online Safety: Health and Wellbeing</p> <ul style="list-style-type: none"> I can explain why spending too much time using technology can sometimes have a negative impact on anyone. I can give some examples of both positive and negative activities where it is easy to spend a lot of time engaged <p>Lesson 2: To Explore a Programming Application: Tinkering with Scratch</p> <ul style="list-style-type: none"> I know that Scratch is a coding application I can predict what I think different codes will do I can explore an application independently I can explain what I found <p>Lesson 3: To Use Repetition in a Program: Using Loops</p> <ul style="list-style-type: none"> I can explain what a loop is I can recognise when a loop is used I can choose an appropriate loop <p>Lesson 4: To Program an Animation: Making an Animation</p> <ul style="list-style-type: none"> I can decompose a project I can plan what I want to happen I can select the blocks to make that happen <p>Lesson 5: To Program a Story: Storytelling</p> <ul style="list-style-type: none"> I can choose appropriate blocks I can continue someone else's program I can debug my own program <p>Lesson 6: To Program a Game: Robot Bop</p> <ul style="list-style-type: none"> I can explain the purpose of an algorithm I can decompose a problem I can use an algorithm to code a program 	<p>Key Objectives: Lesson 1: Online Safety: Online Bullying</p> <ul style="list-style-type: none"> I can give examples of how bullying behaviour could appear online and how someone can get support. <p>Lesson 2: To Understand What a Network is and Understand Our School Network: What's a Network?</p> <ul style="list-style-type: none"> I know that a network joins things together I can explain the purpose of a network I can include information on what a network is/why we use them I can name the key parts of network I can identify which components are connected I can explain which connections are wired or wireless <p>Lesson 3: To Understand How Information Moves Around a Network and Begin to Recognise Real World Networks: A File's Journey</p> <ul style="list-style-type: none"> I can explain what a server does I can suggest what a server is connected to I can discuss the journey of a file I can recognise real world networks <p>Lesson 4: To Understand How the Internet Works and Explain a Website's Journey: A Website's Journey</p> <ul style="list-style-type: none"> I can explain what the internet is I can recognise wires connect countries together I can suggest how everything is connected I understand that the computer I use is connected to the internet via a router <p>Lesson 5: To Explore the Role of Routers: Routers</p> <ul style="list-style-type: none"> I understand the purpose of a router I can explain how a website reaches my computer I can suggest which websites will have more/less jumps <p>Lesson 6: To Understand the Role of Packets: Packets</p> <ul style="list-style-type: none"> I can explain that routers connect to send information I can understand that websites are too big to send whole I can recognise that each packet will take its own route 	<p>Key Objectives: Lesson 1: Online Safety: Online Reputation</p> <ul style="list-style-type: none"> I can give examples of what anyone may or may not be willing to share about themselves online. I can explain the need to be careful before sharing anything personal. <p>Lesson 2: To Understand the Terminology Around Databases: Records, Fields and Data</p> <ul style="list-style-type: none"> I know what field, record and data mean. I can compare numbers. I can scan a record for relevant information. <p>Lesson 3: To Compare Paper and Computerised Databases: Race Against the Computer</p> <ul style="list-style-type: none"> I understand what a paper database is and can name examples. I understand what a computerised database is. I can compare the advantages and disadvantages of paper and computerised databases. <p>Lesson 4: To Sort, Filter and Interpret Data: Sorting and Filtering</p> <ul style="list-style-type: none"> I can input data into a database. I know how to sort data. I can filter data by a particular value. I can create questions that can be answered using information from a database. I can interpret information. <p>Lesson 5: To Represent Data in Different Ways: Representing Data</p> <ul style="list-style-type: none"> I can create a graph and chart in Microsoft Excel. I can name different types of charts. I understand the purpose of visual representations of data. <p>Lesson 6: To Sort Data for a Purpose: Planning a Holiday</p> <ul style="list-style-type: none"> I understand that databases are used for different purposes. I know how to sort and filter data. I can explain what information is useful in an online database.
<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Animation – Bringing concepts to life through 2D or 3D moving pictures or photographs, for example cartoons. Application – A computer program. Code – A set of instructions written in programming language, to tell a computer what to do. Code Block – A visual representation for a section of code that performs a certain job. They can be snapped together to build a program. Debug – To remove and repair the error or mistake in computer code. Decompose – To break something down into smaller chunks. Interface – The menus, buttons and other functions which makes a computer program or website intuitive to humans. Loop – A repeated sequence of instructions. Predict – To make an educated guess as to what might happen or occur as the result of something in the future. Program – A series of code that instructs the computer to perform specific tasks. 	<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Device – Equipment created for a specific purpose/job. DSL (Digital Subscriber Line) – An internet connection for rural areas where wired services are not available. It uses communication satellites to send/receive data at a slower speed than wired connections. File – Item on a computer that can keep data in various forms (images, music and documents). Internet – A worldwide network enabling 10xmillions of computers around the globe to share vast amounts of information and communicate with other online users across the globe. Network – When more than 1 electronic device is connected in a network through the internet/local connection in order to share files/information. Network Map – A diagram that shows what type and how many devices are on the network. It shows they are connected. Network Switch – A device that deals with the movement of network information. Router – Main device responsible for providing internet access to a network either wired/wirelessly. 	<p>Key Vocabulary:</p> <ul style="list-style-type: none"> Categories – Put into groups which have similar or the same properties Data – Information used for a specific purpose of investigation Database – For collecting and organising data stored on an electronic device Fields (Data) – Categories which information can be sorted Filter (Data) – Displays specified or selected data types Graphs and Charts – Visual methods of representing data Information – Knowledge which can be remembered, written in documents or stored in different forms as data, such as in video files and audio recordings Record – To log information in the present (e.g data during a science experiment), to look back on it in the future Sort – To arrange items by an order or into a category Spreadsheet – A file where you can input, sort and analyse data across a series of cells

Cross-Curricular Links:

Autumn: Literacy: Speaking/Listening
Music: Compose Music
Spring: Literacy: Speaking/Listening
RSHE: Online Relationships
Maths: Data Collection
Summer: Maths: Data Collection
Geography: South America

Enrichment:

Autumn: Create a "Coding Gallery" showcasing the various coding projects completing throughout the unit.
Spring: Visiting key parts of Sandon's network around school environment.
VR: Networks in the Home / What is the Internet?
Summer: Chn plan everything needed to book a holiday to Brazil (Geography country of study).

Key Computing Skills which can be revisited throughout other Subject Areas:

- Information Technology: logging in and out, using a mouse/mouse pad, developing touch typing skills and keyboard shortcuts, navigating popular websites/programs with confidence.
- Digital Literacy: e-safety, collaboration, creativity, critical thinking and evaluation, functional skills, effective communication.

Online Safety:

- Autumn:** Health and Wellbeing
- Spring:** Online Bullying
- Summer:** Online Reputation

Key Computing Days:

- National Coding Week - September
- Safer Internet Day – February

<ul style="list-style-type: none"> • Remixing Code – Altering code that already exists. • Repetition Code – To create loops in your program, to make it more efficient. • Review – To look at something in detail and give constructive feedback if it requires improvement. • Sprite – Visual objects that can be moved or perform an action through code e.g. move forwards by one step. • Tinker – To explore and play with something to discover the key functions. 	<ul style="list-style-type: none"> • Server – A computer/computer program that provides data and information to other computing devices. • Submarine Cables – Cables that run under the sea to allow information to be accessed and shared. • The Cloud – Data/files that are stored and accessed on servers via the internet. • WiFi – Connect to a network that is wireless. • Wired – Connect to the network through wires. • Wireless – Connect to the network through signals. • Wireless Access Point – Enables other electronic items to connect wirelessly to the internet. 		
<p>Resources (IT):</p> <ul style="list-style-type: none"> • Online Safety: https://projectevolve.co.uk/sign-in/ Username: icolclough@sandonprimary.org.uk Password: Sandon123456! (Lesson 1) • iPads (Scratch) • Website: https://video.link/w/gybe (Lesson 2) • Website: https://scratch.mit.edu/projects/77814448/ (Lesson 4) • Website: https://projects.raspberrypi.org/en/projects/lost-in-space (Lesson 4) • Website: https://scratch.mit.edu/projects/207812937/ (Lesson 5) • Website: https://scratch.mit.edu/projects/208909637/ (Lesson 5) 	<p>Resources (IT):</p> <ul style="list-style-type: none"> • Online Safety: https://projectevolve.co.uk/sign-in/ Username: icolclough@sandonprimary.org.uk Password: Sandon123456! (Lesson 1) • iPads – PicCollage (Lesson 2) • Website: https://scratch.mit.edu/projects/244400994/ (Lesson 3) • Website: https://www.submarinecablemap.com/ (Lesson 4) • Website: https://prezi.com/v7mm9_wuxizf/network-of-networks-mark-2/?utm_campaign=share&utm_medium=copy (Lesson 4) • Website: https://traceroute-online.com/ (Lesson 5) • Website: https://bbc.co.uk/bitesize (Lesson 5) • Website: https://video.link/w/5BICc (Lesson 5) 	<p>Resources (IT):</p> <ul style="list-style-type: none"> • Online Safety: https://projectevolve.co.uk/sign-in/ Username: icolclough@sandonprimary.org.uk Password: Sandon123456! (Lesson 1) • Laptops (Lesson 4-6) • Website: https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z83wjxs (Lesson 5) • Website: https://www.bbc.co.uk/bitesize/topics/zf2f9j6/articles/z8yk87h (Lesson 6) • Links suitable for Booking a Holiday: Argos, Expedia, Booking, Sky Scanner, Kayak, Google Flights, Last Minute (Lesson 6) 	

National Curriculum: By the end of KS2, pupils will be able to:

- 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, 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
- Understand computer networks including the internet; how they can provide multiple services, such as the world wide web.
- Use search technologies effectively
- 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 given goals, including
- Collecting, analysing, evaluating and presenting data and information
- Understand the opportunities [networks] offer for communication and collaboration
- Be discerning in evaluating digital content
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact