

COMPUTING LONG TERM OVERVIEW 2022-2023

	AUTUMN	A2	SPRING	S2	SUMMER	S2
1	A1 Moving a Robot (BeeBots) CLASS TEACHERS	A2 Digital Painting (Paint) CLASS TEACHERS	Sp1 Technology Around Us TAUGHT BY BP IN SUITE (Y1 learn to log in)	Sp2 Grouping Data (PowerPoint) TAUGHT BY BP IN SUITE	Su1 Programming Animations (Scratch Junior) TAUGHT BY BP IN SUITE	Su2 Digital Writing (iPad app) CLASS TEACHERS
2	A1 IT around us TAUGHT BY BP IN SUITE	A2 Pictograms (J2E) TAUGHT BY BP IN SUITE	Sp1 Digital Photography (iPads) CLASS TEACHERS	Sp2 Making Music CLASS TEACHERS	Su1 Robot Algorithms (BeeBots) CLASS TEACHERS	Su2 An Introduction to Quizzes (Scratch Junior) TAUGHT BY BP IN SUITE
3	A1 Branching Databases (J2E)	A2 Desktop Publishing (Canva)	Sp1 Events and Actions (Scratch Pen)	Sp2 Animation (iMotion)	Su1 Connecting Computers (Networks)	Su2 Sequence in Music (Scratch Dance) plus Archisketch
4	A1 Photo Editing	A2 Data Logging (iPads)	Sp 1 The Internet	Sp2 Repetition in Shapes (Scratch)	Su1 Audio Editing (Audacity)	Su2 Repetition in Games (Scratch)
5	A1 Flat File Databases (J2E)	A2 Systems and Networks	Sp1 Vector Drawing	Sp 2 Scratch Quizzes	Su 1 Tinkercad (design DT mechanism)	Su 2 Video Editing (iMovie)
6	A1 Systems and Networks	A2 Crumble	Sp1 Spreadsheets	Sp 2 Web Page Creation	Su 1 Coding Variables (Scratch)	Su 2 3D Modelling (Tinkercad)

COMPUTER SCIENCE MEDIA NETWORKS/DATA

SHORT DESCRIPTIONS OF EACH UNIT

Y1

A1 Moving a Robot (BeeBots)

Learners will explore using individual commands, both with other learners and as part of a computer program. They will identify what each floor robot command does and use that knowledge to start predicting the outcome of programs. Learners are also introduced to the early stages of program design through the introduction of algorithms.

A2 Digital Painting (Paint)

Pupils will use a range of tools used for digital painting, gaining inspiration from a range of artists' work.

Sp1 Technology Around Us

Learners will develop their understanding of technology and how it can help them in their everyday lives. They will start to become familiar with the different components of a computer by developing their keyboard and mouse/trackpad skills. Learners will also consider how to use technology responsibly.

Sp2 Grouping Data (PowerPoint)

Pupils will begin by using labels to put objects into groups and labelling these groups. They will demonstrate that they can count a small number of objects, before and after the objects are grouped. Pupils will then begin to demonstrate their ability to sort objects into different groups, based on the properties they choose. Finally, pupils will use their ability to sort objects into different groups to answer questions about data.

Su1 Programming Animations (Scratch Junior)

Pupils will explore the way a project looks by investigating sprites and backgrounds. They will use programming blocks to use, modify, and create programs. Learners will also be introduced to the early stages of program design through the introduction of algorithms.

Su2 Digital Writing (Word)

Pupils will use a keyboard and mouse to enter and remove text, as well as learn how to log in, open and save. They will learn how to change font size, style and colour. They will consider the differences between using a computer to create text and writing on paper. They will be able to explain which method they prefer and explain their reasoning for choosing this.

Y2

A1 IT Around Us

Pupils will look at information technology at school and beyond, in settings such as shops, hospitals, and libraries. They will investigate how information technology improves our world, and they will learn about using information technology responsibly.

A2 Pictograms (J2E)

Pupils will learn the term 'data'. They will begin to understand what data means and how this can be collected in the form of a tally chart. They will learn the term 'attribute' and use this to help them organise data. They will use J2E software to present data in pictograms and block diagrams. Learners will use the data presented to answer questions.

Sp1 Digital Photography

Pupils will learn to recognise that different devices can be used to capture photographs. They will capture, edit and improving photos. Pupils will use this knowledge to recognise that images they see may not be real.

Sp2 Making Music

Pupils will use a computer to create music. They will listen to a variety of pieces of music and consider how music can make them think and feel. Learners will compare creating music digitally and non-digitally. Learners will look at patterns and purposefully create music.

Su1 Robot Algorithms (BeeBots)

Learners will develop their understanding of instructions in sequences and the use of logical reasoning to predict outcomes. Pupils will use given commands in different orders to investigate how the order affects the outcome. Pupils will also learn about design in programming. They will develop artwork and test it for use in a program. They will design algorithms and then test those algorithms as programs and debug them.

Su2 An Introduction to Quizzes (Scratch Junior)

Pupils will recap the Y1 ScratchJr unit programming animations. Learners begin to understand that sequences of commands have an outcome and make predictions based on their learning. They use and modify designs to create their own quiz questions in ScratchJr and use blocks of code to create the quiz. They will evaluate their work and make improvements to their programming projects.

Y3

A1 Branching Databases (J2E)

The children will learn to create closed yes/no questions which will be used within a branching database to sort items according to their attributes. They will use J2E Branching Database software to enter their questions and create their own databases.

A2 Desktop Publishing (Canva)

The children will learn how to format text and images and to use placeholders (templates) to design cards. They will learn how to change font style, colour and size. They will use Canva software to insert and edit images.

Sp1 Events and Actions (Scratch Pen)

Pupils explore the links between events and actions, as they consolidate prior learning relating to sequencing. They will use Scratch to move a sprite in four directions (up, down, left, and right). They then explore movement within the context of a maze, using design to choose an appropriately sized sprite. Pupils will draw lines with sprites and change the size and colour of lines. They will design and coding their own maze-tracing program.

Sp2 Animation (iMotion)

The children will experiment with different techniques to create a stop-motion animation. They will use flick books, white board images and paper collage techniques to create and retell narratives, using iPad software iMotion. They will upload their creations to iMovie to edit them. Editing techniques include adding introductory slides with text, transition effects and musical accompaniment. Animations will then be uploaded to the cloud for everyone to enjoy!

Su1 Connecting Computers (Networks)

Learners will develop their understanding of digital devices, with an initial focus on inputs, processes, and outputs. They will also compare digital and non-digital devices. Pupils will be introduced to computer networks, including devices that make up a network's infrastructure, such as wireless access points and switches. They will discover the benefits of connecting devices in a network.

Su2 Sequence in Music (Scratch Dance)

We create dance sequences with a repeat. We will then transfer this to using Scratch coding with a repeated (count controlled) loop. Children will use code blocks to make a sprite appear to dance by experimenting with the speed between a sprite's costumes (dance poses). We will then create our own dance floor backgrounds and code them to change at varying speeds. Finally, we will choose music to add to the piece.

Archisketch (CAD)

We will learn how to use the iPad app Archisketch to draw shapes, insert images, label objects and to use exact measurements in millimetres. These skills will then be applied in class as part of the Egyptian Shaduf DT project to help pupils design their mechanism.

Y4

A1 Photo Editing

Pupils will develop their understanding of how digital images can be changed and edited, and how they can then be resaved and reused. They will consider the impact that editing images can have and evaluate the effectiveness of their choices.

A2 Data Logging

Pupils will consider how and why data is collected over time. They will use special input devices called sensors to monitor the environment. Pupils will use data loggers and iPads to collect data. They will access data captured over long periods of time. They will look at data points, data sets, and logging intervals.

Sp1 The Internet

Pupils will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. They will learn that the World Wide Web (WWW) is part of the internet and be given opportunities to explore the WWW for themselves to learn about who owns content and what they can access, add, and create. They will evaluate online content to decide how honest, accurate, or reliable it is, and understand the consequences of false information.

Sp2 Repetition in Shape (Scratch)

Pupils will learn to use sequences of code to draw shapes, then develop their coding to use repeated loops. Pupils will create programs by planning, modifying, and testing commands to create shapes and patterns.

Su1 Audio Editing (Audacity)

Learners will examine devices capable of recording digital audio, identifying the input device (microphone) and output devices (speaker or headphones). We will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. Learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files.

Su2 Repetition in Games (Scratch)

Learners will build on their use of repeated loops in the shape (Spring) unit. They will look at the difference between count-controlled and infinite loops and use their knowledge to modify existing animations and games using repetition. Their final project is to design and create a game which uses repetition, applying stages of programming design throughout.

Y5

A1 Flat File Databases (J2E)

Pupils learn how to use J2E flat-file databases, accessing form and table views. Pupils use filter tools to order and answer questions about data. They create graphs and charts from their data to help solve problems. They use a real-life database to answer a question and present their work to others.

A2 Systems and Networks (sharing information)

Pupils will develop their understanding of computer systems and how information is transferred between systems and devices. Learners will consider small-scale systems as well as large-scale systems. They will explain the input, output, and process aspects of a variety of different real-world systems. Learners will also take part in a collaborative online project with other class members and develop their skills in working together online.

Sp1 Vector Drawing

Vector images are made up of shapes. Pupils will learn how to use different drawing tools and how images are created in layers. They will explore the ways in which images can be grouped and duplicated to support them in creating more complex pieces of work.

Sp2 Scratch Quizzes

Pupils develop their knowledge of selection by revisiting how conditions can be used. They will learn how the 'If... Then... Else' structure can be used to select different outcomes depending on whether a condition is true or false. They represent this understanding in algorithms and then by constructing programs. They use their knowledge to design a quiz in response to a given task and implement it as a program.

Su1 Tinkercad (design DT mechanisms)

Pupils will use Tinkercad software alongside their DT project as CAD (computer-aided design). They will be designing a mechanism using one/more of: pulleys, levers, gears, springs. Pupils will learn how to combine 3D objects, make models and to use accurate measurements. They will learn to use placeholders and how to group objects. They will use this CAD model to make their DT mechanism in class.

Su2 Video Editing (iMovie)

We will use iPads to film and edit a video tutorial about how to use the 5 basic camera shots. The editing process will include adding text, music and effects to the finished product.

Y6

A1 Systems and Networks

We will learn about the World Wide Web (WWW) as a communication tool. Pupils will find information and learn how search engines work. They will learn how search engines select and rank results and what influences searching, through comparing different search engines. They will evaluate which methods of internet communication to use for particular purposes.

A2 Crumble

Learners will use physical computing to explore the concept of selection in programming using Crumble. Using a microcontroller (Crumble controller) they will learn how to connect and program components (including output devices, LEDs and motors). Learners are introduced to conditions as a means of controlling the flow of actions. They will use repetition and conditions when introduced to the concept of selection (through the 'if, then' structure). This unit links with their DT project.

Sp1 Spreadsheets

Pupils will organise data into columns and rows to create their own data set. They will learn to format data to support calculations. We will use formulas to produce calculated data. Pupils will apply formulas that include a range of cells and apply formulas to multiple cells by duplicating them. We will plan an event and answer questions, create graphs and charts, and evaluate their results in comparison to questions asked.

Sp2 Web Page Creation

Pupils will create a web page for a chosen purpose. They will identify what makes a good web page and use this information to design and evaluate their own website using Google Sites. We will discuss copyright and fair use of media, the aesthetics of the site, and navigation paths.

Su1 Coding Variables (Scratch)

We will explore the concept of variables in programming through games in Scratch. We will find out what variables are and relate them to real-world examples of values that can be set and changed. We will then use variables to create a simulation of a scoreboard. Pupils will then follow the 'Use-Modify-

Create' model to experiment with variables in an existing project, then modify them, before they create their own project. We will then apply our knowledge of variables and design to improve our games in Scratch.

Su2 3D Modelling (Tinkercad)

Pupils will use Tinkercad software to produce 3D models. They will combine 3D objects to make a house. They will make accurate 3D models of physical objects (pencil holder and keyring). Pupils will use accurate measurements and 3D objects as placeholders. We will learn the importance of grouping 3D objects, then plan, develop, and evaluate a 3D model of a photo frame.