Year 1 - 6 computing curriculum

Aims:

- We expect 100% of our children to leave Beckfoot Allerton as computer literate citizens who have a strong understanding of computer science.
- Children hold an important skill of 'Computational Thinking' where they can express themselves and develop their ideas through information and computer technology.
- Every child at Beckfoot Allerton will be taught the skills of computing through many different technologies.
- Children will use high-quality apps and websites to create rich, deep learning experiences that balance all aspects of computing.

Purpose:

- **A well-planned curriculum**: We use the National Centre for Computing Education to support out curriculum and computing training. Each year group builds on previously learnt skills around four main themes: digital citizenship (including online safety), creating media, programming and data and information.
- **Powerful knowledge**: As we're all part of an increasingly digital world, it is important children are taught computing lessons as it is vital for their futures. Schools play a vital role in teaching young people the skills they need thrive in a digital future through a knowledge rich computing curriculum. Because of this, Beckfoot Allerton children are taught how to be computer-literate citizens through four major units: online safety, media, programming and data and information. The computing curriculum offers many benefits to children at Beckfoot Allerton school. Use of digital technology improves the language skills of young people and promotes social development and creativity. Having a deeper understanding of computing also helps children to become better equipped at other STEM lessons. In school we follow a stimulating curriculum journey where the fundamentals are taught in KS1 and this is built upon in KS2.
- **High-quality teaching**: All teachers at Beckfoot Allerton School are aware of the importance of teaching computing lessons effectively to young adults. We strive to deliver high quality, effective computing teaching at all levels, as part of a broad and balanced curriculum. Computing lessons follow our six-part learning approach. This allows time for children to learn new content but to also have the opportunity to practice, study and investigate. Computing lessons are all about exploring, researching and having fun.

- **No child left behind**: Each unit within our computing scheme is accessible to everyone through a show what you know approach. Children learn alongside the teacher and scaffolds; extra resources and models are set in place when required.

Year 1

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity - Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership - Managing online information
2	Creating media: Digital Painting	paintzapp	-To describe what different freehand tools do -To use the shape tool and the line tools -To make careful choices when painting a digital picture -To explain why I chose the tools I used -To use a computer on my own to paint a picture -To compare painting a picture on a computer and on paper
3	Programming A – Moving a robot	Beebots	-To explain what a given command will do -To act out a given word -To combine forwards and backwards commands to make a sequence -To combine four direction commands to make sequences -To plan a simple program -To find more than one solution to a problem

4	Data and information – Grouping data	Keynote	-To label objects -To identify that objects can be counted -To describe objects in different ways -To count objects with the same properties -To compare groups of objects -To answer questions about groups of objects
5	Creating media – Digital writing	Pages	-To use a computer to write -To add and remove text on a computer -To identify that the look of text can be changed on a computer -To make careful choices when changing text -To explain why I used the tools that I chose -To compare typing on a computer to writing on paper
6	Programming B - Programming animations	Scratch Junior	-To choose a command for a given purpose -To show that a series of commands can be joined together -To identify the effect of changing a value -To explain that each sprite has its own instructions -To design the parts of a project -To use my algorithm to create a program

Year 2

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity

			- Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership Managing online information
2	Creating media: Digital Photography	Pixlr.com	-To use a digital device to take a photograph -To make choices when taking a photograph -To describe what makes a good photograph -To decide how photographs can be improved -To use tools to change an image -To recognise that photos can be changed
3	Programming A – Robot Algorithms	Beebots	-To describe a series of instructions as a sequence -To explain what happens when we change the order of instructions -To use logical reasoning to predict the outcome of a program -To explain that programming projects can have code and artwork -To design an algorithm -To create and debug a program that I have written
4	Data and information – Pictograms	J2E data	-To recognise that we can count and compare objects using tally charts -To recognise that objects can be represented as pictures -To create a pictogram -To select objects by attribute and make comparisons -To recognise that people can be described by attributes -To explain that we can present information using a computer
5	Creating media – Digital music	Chrome Music Lab	-To say how music can make us feel -To identify that there are patterns in music -To experiment with sound using a computer -To use a computer to create a musical pattern -To create music for a purpose -To review and refine our computer work

6	Programming B - Programming quizzes	Scratch Junior	-To explain that a sequence of commands has a start -To explain that a sequence of commands has an outcome -To create a program using a given design -To change a given design -To create a program using my own design -To decide how my project can be improved

Year 3

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity - Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership Managing online information
2	Creating media: Stopframe Animation	Stop Motion Studio	-To explain that animation is a sequence of drawings or photographs -To relate animated movement with a sequence of images -To plan an animation -To identify the need to work consistently and carefully -To review and improve an animation -To evaluate the impact of adding other media to an animation

3	Programming A – Sequencing Sounds	Scratch Junior	-To explore a new programming environment -To identify that commands have an outcome -To explain that a program has a start -To recognise that a sequence of commands can have an order -To change the appearance of my project -To create a project from a task description
4	Data and information – Branching Databases	J2E Data	-To create questions with yes/no answers -To identify the attributes needed to collect data about an object -To create a branching database -To explain why it is helpful for a database to be well structured -To plan the structure of a branching database -To independently create an identification tool
5	Creating media – Desktop publishing	Canva	-To recognise how text and images convey information -To recognise that text and layout can be edited -To choose appropriate page settings -To add content to a desktop publishing publication -To consider how different layouts can suit different purposes -To consider the benefits of desktop publishing
6	Programming B – Events and actions in programs	Scratch Junior	-To explain how a sprite moves in an existing project -To create a program to move a sprite in four directions -To adapt a program to a new context -To develop my program by adding features -To identify and fix bugs in a program -To design and create a maze-based challenge

Year 4

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity - Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership Managing online information
2	Creating media: Audio production	Garage Band	-To identify that sound can be recorded -To explain that audio recordings can be edited -To recognise the different parts of creating a podcast project -To apply audio editing skills independently -To combine audio to enhance my podcast project -To evaluate the effective use of audio
3	Programming A – Repetition in shapes	Turtle Academy	--To identify that accuracy in programming is important -To create a program in a text-based language -To explain what 'repeat' means -To modify a count-controlled loop to produce a given outcome -To decompose a task into small steps -To create a program that uses count-controlled loops to produce a given outcome
4	Data and information – Data logging	Arduino Science Journal	-To explain that data gathered over time can be used to answer questions -To use a digital device to collect data automatically -To explain that a data logger collects 'data points' from sensors over time

			-To recognise how a computer can help us analyse data -To identify the data needed to answer questions -To use data from sensors to answer questions
5	Creating media – Photo editing	Pixlr.com	-To explain that the composition of digital images can be changed -To explain that colours can be changed in digital images -To explain how cloning can be used in photo editing -To explain that images can be combined -To combine images for a purpose -To evaluate how changes can improve an image
6	Programming B – Repetition in games	Scratch Junior	-To develop the use of count-controlled loops in a different programming environment -To explain that in programming there are infinite loops and count controlled loops -To develop a design that includes two or more loops which run at the same time -To modify an infinite loop in a given program -To design a project that includes repetition -To create a project that includes repetition

Year 5

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity - Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership

			Managing online information
2	Creating media: Video production	iMovie	-To explain what makes a video effective -To identify digital devices that can record video -To capture video using a range of techniques -To create a storyboard -To identify that video can be improved through reshooting and editing -To consider the impact of the choices made when making and sharing a video
3	Programming A – Selection in physical computing	Hopscotch	-To control a simple circuit connected to a computer -To write a program that includes count-controlled loops -To explain that a loop can stop when a condition is met -To explain that a loop can be used to repeatedly check whether a condition has been met -To design a physical project that includes selection -To create a program that controls a physical computing project
4	Data and information – Flat file databases	J2E Database	-To use a form to record information -To compare paper and computer-based databases -To outline how you can answer questions by grouping and then sorting data -To explain that tools can be used to select specific data -To explain that computer programs can be used to compare data visually -To use a real-world database to answer questions
5	Creating media – Introduction to vector graphics	Keynote	-To identify that drawing tools can be used to produce different outcomes -To create a vector drawing by combining shapes -To use tools to achieve a desired effect -To recognise that vector drawings consist of layers -To group objects to make them easier to work with -To apply what I have learned about vector drawings
6	Programming B – Selection in quizzes	Scratch Junior	-To explain how selection is used in computer programs -To relate that a conditional statement connects a condition to an outcome -To explain how selection directs the flow of a program -To design a program which uses selection -To create a program which uses selection -To evaluate my program

Year 6

Term	Unit	Apps/ Programmes	Objectives
1	Project Evolve: Digital Citizenship	ProjectEvolve	Project Evolve offers engaging and focussed activities written by leading experts to engage and inform children and young people around important steps forward in their online development. This framework covers knowledge, skills, behaviours and attitudes across eight strands of our online lives from early years right to UKS2. The eight strands are: - Self-image and identity - Online relationships - Online bullying - Wellbeing and Lifestyle - Privacy and Security - Copyright and Ownership Managing online information
2	Creating media: Web page creation	Microsoft Sway	-To review an existing website and consider its structure -To plan the features of a web page -To consider the ownership and use of images (copyright) -To recognise the need to preview pages -To outline the need for a navigation path -To recognise the implications of linking to content owned by other people
3	Programming A – Variables in Games	Scratch Junior	-To define a 'variable' as something that is changeable -To explain why a variable is used in a program -To choose how to improve a game by using variables -To design a project that builds on a given example -To use my design to create a project -To evaluate my project
4	Data and information – Spreadsheets	Numbers	-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
5	Creating media – 3D modelling	Tinkercad	-To recognise that you can work in three dimensions on a computer -To identify that digital 3D objects can be modified -To recognise that objects can be combined in a 3D model -To create a 3D model for a given purpose -To plan my own 3D model -To create my own digital 3D model
6	Programming B – Sensing movement	Microbits	-To create a program to run on a controllable device -To explain that selection can control the flow of a program -To update a variable with a user input -To use a conditional statement to compare a variable to a value -To design a project that uses inputs and outputs on a controllable device -To develop a program to use inputs and outputs on a controllable device