# Year 3

*We are Programmers, We are Bug Fixers, We are Presenters, We are Who we are, We are Co-authors, We are Opinion Pollsters*

## Key Skills

- I can plan and create an algorithm for an animated scene in the form of a storyboard.
- I can write a program in Scratch to create an animation. including characters, dialogue, costumes, backdrops and sound.
- I can review animation programs and correct mistakes.
- I can develop a number of strategies for finding errors in programs.
- I can recognise a number of common types of bugs in software.
- I can develop web-based research skills.
- I can record a piece to camera.
- I can edit a movie using static images and green screen footage.
- I can create a number of structured presentations.

- I can create a narrated presentation.
- I can consider issues of trust and privacy when sharing information.
- I understand the conventions for collaborative online work, particularly in wikis .
- I can become familiar with Wikipedia, including potential problems associated with its use.
- I understand some ethical and legal aspects of online data collection.
- I can use the Internet to facilitate data collection.
- I can gain skills in using charts to analyse data.

**Knowledge Vocabulary**
Bug, Creative Commons, Hyperlinks, Output, Sprite
**Skills Vocabulary**
Repeat, Sequence, Review, Facilitate

# Year 4

*We are Software Developers, We are Makers, We are Musicians, We are Bloggers, We are Artists, We Are Meteorologists*

## Key Skills

- I can develop an educational computer game using selection and repetition.
- I can start to debug computer programs.
- I understand and can use variables.
- I understand inputs and outputs available on a BBC micro: bit.
- I can program using the MakeCode block based environment.
- I can test and debug programs I write, using an on-screen simulator and the micro: bit.
- I can convert and transfer a program written on screen to the micro: bit.
- I can play music using virtual instruments.

- I can compose or edit virtual tunes.
- I can create a sequence of blog posts on a theme.
- I can incorporate additional media in a blog post.
- I can comment on the blog posts of others.
- I understand the tools and techniques of a vector graphics package.
- I can develop an understanding of turtle graphics.
- I understand different measurement techniques for weather.
- I can use computer-based data logging to automate the recording of some weather data.
- I can use spreadsheets to create charts.

**Knowledge Vocabulary**
Accelerometer, Analogue, Bitmap, Digital, Input, Internet, Variables
**Skills Vocabulary**
Compose, Convert, Debug, Simulate

# Progression in Computing skills and knowledge at Banks Lane Junior School

## National Curriculum Outcomes for KS2

**The National Curriculum for Computing aims to ensure that all pupils can:**

- 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; and the opportunities they offer for communication and collaboration.
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.
- 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.
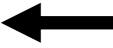
# Year 6

*We are Toy Makers, We are Computational Thinkers, We are Publishers, We are Connected, We are Advertisers, We are AI Developers*

## Key Skills

- I can explain how computers use stored programs to connect input to output.
- I can work with physical components of a system.
- I can design and write a program for an embedded system.
- I understand how some key algorithms can be expressed as programs.
- I understand common algorithms for searching and sorting a list.
- I can source digital media while demonstrating safe, respectful and responsible use.
- I can design and produce a high-quality print document.
- I can explain how search results are selected and ranked.

- I understand appropriate rules or guidelines for a civil online discussion.
- I understand and can acknowledge intellectual property rights.
- I can work collaboratively to create and edit assembled content to make an effective advert.
- I can explain how decision trees can be trained automatically to classify data.
- I can explain how a neural net recognises images.
- I can train a neural net to classify images.
- I can train a machine learning system to identify sentiments.
- I can consider some ethical principles in designing AI systems.

**Knowledge Vocabulary**
AI, Binary, Final Cut, Linear, Machine Learning, Microprocessor
**Skills Vocabulary**
Consider, Decompose, Source, Train

# Year 5

*We are Game Developers, We Are Cryptographers, We are Architects, We are Web Developers, We are Adventure Gamers, We are VR Designers*

## Key Skills

- I can design and create a computer program for a computer game, which uses sequence, selection, repetition and variables.
- I can detect and correct errors in my game.
- I can use iterative development techniques.
- I can use semaphore and Morse code.
- I can understand the need for private information to be encrypted.
- I can encrypt and decrypt messages in simple ciphers.
- I can use a simple CAD tool.
- I can develop spatial awareness by exploring and experimenting with a 3-D virtual environment.

- I can name and explain the function of components making up the school's network.
- I can explain how information is passed between the components that make up the Internet.
- I can explain what the source code for a web page looks like and how it can be edited.
- I can use hyperlinks for navigation between the slides of a presentation.
- I can explore real-world and imagined locations in VR.
- I can create 360° photosphere images.
- I can create my own VR scene.

**Knowledge Vocabulary**
CAD, Cipher, GPS, IP Address, Iterative Development, Packets
**Skills Vocabulary**
Decrypt, Encrypt, Render, Transmit