

The logo for UK Youth, with 'UK' in blue and 'YOUTH' in orange.

## Skills Framework

This document maps the skills learnt or practiced throughout the Generation Code programme with the Programmes of Study for computing within the National Curriculum in England. Full descriptors have been included as to allow participants studying other curricula to easily map to their own programs of study. [Key Stages](#) are shown in brackets as a guide.

# Science & Technology

## Space - Level 1

### Rocket Countdown

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)

## Space - Level 2

### Star Wars BB8

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

## Space - Level 3

### Star Wars Part 2

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

## Animal Kingdom - Level 1

### Flappy Bird

- Create and debug simple programs (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Animal Kingdom - Level 2

### Digital Pet

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (KS3)

## Animal Kingdom - Level 3

### Teleporting Duck

- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- 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 (KS2)
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (KS3)
- Understand how instructions are stored and executed within a computer system; understand how data of various types (including text, sounds and pictures) can be represented and manipulated digitally, in the form of binary digits (KS3)

## Food Science - Level 1

### HTML Burger

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)  
Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)
- Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (KS3)

## Food Science - Level 2

### Food Frenzy

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- 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 (KS2)
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)

## Food Science - Level 3

### Banana Keyboard

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (KS3)

# Health & Wellbeing

## Healthy Mind - Level 1

### Smiley Faces

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)

## Healthy Mind - Level 2

### Inside HQ

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Healthy Mind - Level 3

### About You

- Keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)

## Healthy Body - Level 1

### Beating Heart

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)

## Healthy Body - Level 2

### Step counter

- Create and debug simple programs (KS1)  
Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

## Healthy Body - Level 3

### Reaction Timer

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] (KS3)

## Sport - Level 1

### Stopwatch

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)

## Sport - Level 2

### Sports Mix

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Sport - Level 3

### Pong

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)
- 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 (KS2)



# Personal & Global Citizenship

## Sustainable Living - Level 1

### Fortune Teller

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

## Sustainable Living - Level 2

### Online Shop

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)

## Sustainable Living - Level 3

### Soil Moisture

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)

- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Create, re-use, revise and re-purpose digital artefacts for a given audience, with attention to trustworthiness, design and usability (KS3)

## Tech for Good - Level 1

### Minecraft Designer

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Tech for Good - Level 2

### Door Bell

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)

## Tech for Good - Level 3

### Voting Machine

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] (KS3)
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (KS3)

## Culture and Language - Level 1

### Lucky 7

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)

## Culture and Language - Level 2

### Hack the News

- Use technology purposefully to create (KS1)
- Keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies. (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)

## Culture and Language - Level 3

### Make a Meme

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Use two or more programming languages, at least one of which is textual, to solve a variety of computational problems; make appropriate use of data structures [for example, lists, tables or arrays]; design and develop modular programs that use procedures or functions (KS3)

# Creative Arts

## Music - Level 1

### Music Mixer

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Music - Level 2

### Coding Music

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)

## Music - Level 3

### Controlling Music with sensors

- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (KS3)

## Dance - Level 1

### Dancing Yeti

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Dance - Level 2

### Robo Dancers

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Dance - Level 3

### Dance Machine

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- 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 (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)
- Understand simple Boolean logic [for example, AND, OR and NOT] and some of its uses in circuits and programming; understand how numbers can be represented in binary, and be able to carry out simple operations on binary numbers [for example, binary addition, and conversion between binary and decimal] (KS3)
- Understand the hardware and software components that make up computer systems, and how they communicate with one another and with other systems (KS3)

## Art and Fashion - Level 1

### Micro:bit Art

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Use logical reasoning to predict the behaviour of simple programs (KS1)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)

## Art and Fashion - Level 2

### Loopy Art

- Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions (KS1)
- Create and debug simple programs (KS1)
- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs (KS2)
- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems (KS3)

## Art and Fashion - Level 3

### Wearable Tech

- Use technology purposefully to create (KS1)
- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts (KS2)
- Use sequence, selection, and repetition in programs; work with variables and various forms of input and output (KS2)
- Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. (KS2)