



# Hanslope Primary School

## Computing Knowledge Organiser

Year 1: Programming animations

### How does this link to my previous learning?

#### Personal, Social and Emotional Development

- Show resilience and perseverance in the face of a challenge.

#### Physical Development

- Develop small motor skills so that they can use a range of tools competently, safely, and confidently.

### What key vocabulary will I learn:

**Programming** - The process or activity of writing computer programs.

**Scratch Jr** - a visual programming language designed to introduce programming skills to children ages 5-7.

**Sprite** - objects that wear costumes that are used to make up Scratch projects.

**Command** - a directive to a computer program to perform a specific task.

**Block** - Puzzle-shaped pieces that fit together and are used to create a script.

**Stage** - The area where the effects and actions of the script are displayed.

**Background** - An image that appears on the Stage, behind the characters.

**Algorithm** - A set of sequenced instructions or rules for solving a problem or completing a task in a logical order. In Scratch Jr, these are referred to as scripts.

**App** - A self-contained software package that allows users to perform specific tasks on a mobile or desktop device.

### National Curriculum Links:

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

### How does this link to my future learning?

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

### What will I know by the end of this unit:

- 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 that uses selection.
- To create a program that uses selection.
- To evaluate my program.

SCRATCH



# Hanslope Primary School

## Computing Knowledge Organiser

Year 2: Programming quizzes

### How does this link to my previous learning?

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

### What key vocabulary will I learn:

**Programming** - The process or activity of writing computer programs.

**Scratch Jr** - a visual programming language designed to introduce programming skills to children ages 5-7.

**Sprite** - objects that wear costumes that are used to make up Scratch projects.

**Command** - a directive to a computer program to perform a specific task.

**Block** - Puzzle-shaped pieces that fit together and are used to create a script.

**Algorithm** - A set of sequenced instructions or rules for solving a problem or completing a task in a logical order. In Scratch Jr, these are referred to as scripts.

**Quiz** - A test of knowledge, especially as a competition between individuals or teams as a form of entertainment.

**Outcome** - The way a thing turns out, a consequence.

**Sequence** - A particular order in which related things follow each other.

### National Curriculum Links:

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

### How does this link to my future learning?

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

### What will I know by the end of this unit:

- 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.



## Hanslope Primary School

### Computing Knowledge Organiser

Year 3: Events and actions in programs

#### How does this link to my previous learning?

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

#### National Curriculum Links:

- 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.

#### How does this link to my future learning?

- Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.

#### What key vocabulary will I learn:

- **Programming** - The process or activity of writing computer programs.
- **Scratch** - Scratch is a programming platform for children which was created by the MIT Media Lab in 2007.
- **Blocks** - In Scratch, blocks refer to the structures employed to build code.
- **Command** - A directive to a computer program to perform a specific task.
- **Code** - Program instructions.
- **Events** - These blocks are "starting blocks," meaning they must be placed at the beginning of each new code segment.
- **Sequence** - A particular order in which related things follow each other.
- **Debugging** - the process of finding and fixing errors or bugs in the source code of any software

#### What will I know by the end of this unit:

- 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.



# Hanslope Primary School

## Computing Knowledge Organiser

### Year 4: Repetition in games

#### How does this link to my previous learning?

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

#### What key vocabulary will I learn:

- **Programming** - The process or activity of writing computer programs.
- **Scratch** - Scratch is a programming platform for children which was created by the MIT Media Lab in 2007.
- **Command** - A directive to a computer program to perform a specific task.
- **Code** - Program instructions.
- **Events** - These blocks are "starting blocks," meaning they must be placed at the beginning of each new code segment.
- **Motion** - These blocks in Scratch are used to move or turn sprites.
- **Sequence** - A particular order in which related things follow each other.
- **Debugging** - the process of finding and fixing errors or bugs in the source code of any software

#### National Curriculum Links:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

#### How does this link to my future learning?

- 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.

#### What will I know by the end of this unit:

- 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.



# Hanslope Primary School

## Computing Knowledge Organiser

Year 5: Selection in quizzes

### How does this link to my previous learning?

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

### What key vocabulary will I learn:

- **Programming** - The process or activity of writing computer programs.
- **Debugging** - the process of finding and fixing errors or bugs in the source code of any software
- **Circuit** - a complete circular path that electricity flows through.
- **Electricity** - Electricity is the flow of electrical power or charge. Electricity is both a basic part of nature and one of the most widely used forms of energy.
- **Code** – Program instructions.
- **Motor** - A machine that supplies motive power for a vehicle or other device with moving parts.
- **Modify** - Make partial or minor changes to (something).

### National Curriculum Links:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

### How does this link to my future learning?

- 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.

### What will I know by the end of this unit:

- 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 that uses selection.
- To create a program that uses selection.
- To evaluate my program.

SCRATCH



## Hanslope Primary School Computing Knowledge Organiser

### Year 6: Sensing movement

#### How does this link to my previous learning?

- Create and debug simple programs.
- Use logical reasoning to predict the behaviour of simple programs.

#### What key vocabulary will I learn:

**Micro:bit** - The BBC micro:bit is a pocket-sized computer that introduces you to how software and hardware work together.

**MakeCode** - A free online learn-to-code platform where anyone can build games, code devices, and mod Minecraft!

**Output** - a place where power or information leaves a system.

**Variable** - able to be changed or adapted.

**Code** - program instructions.

**Test** - the process of evaluating and verifying that a software product or application does what it's supposed to do.

**Debug** - identify and remove errors from (computer hardware or software).

**Algorithm** - a process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.

**Accelerometer** - The micro: bit's accelerometer measures forces in 3 dimensions, including gravity, so your projects

#### National Curriculum Links:

- Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.
- Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

#### How does this link to my future learning?

- Understand several key algorithms that reflect computational thinking [for example, ones for sorting and searching]; use logical reasoning to compare the utility of alternative algorithms for the same problem.

#### What will I know by the end of this unit:

- 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.

