COMPUTING KNOWLEDGE ORGANISERS

Year 1 to Year 6

Hanslope Primary School
Computing Knowledge Organiser

Year 1/2 : Programming quizzes

National Curriculum Links:

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

How does this link to my previous learning?

- 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 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.

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.

SCRATCH

Hanslope Primary School
Computing Knowledge Organiser

Year 3: Events and actions in programs

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 previous learning?

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

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.

SCRATCH

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.

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 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

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.

ScRATcH

Year 5: Selection in quizzes

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 previous learning?

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

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

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.

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 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

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.