|  |
| --- |
| **Key Words** |
| **Algorithm** | Precise sequence of instructions |
| **Computational thinking** | Solving problems with or without a computer |
| **Debugging** | Looking at where a program might have errors or can be improved |
| **Blocks** | Scratch bricks that we can use to code algorithms |
| **Decomposition** | Breaking down a problem into smaller parts |
| **Execute** | A computer precisely runs through the instructions |
| **Iteration** | Doing the same thing more than once |
| **Selection** | Making choices |
| **Sequence** | Running instructions in order |
| **Variable** | Data being stored by the computer |

A computer inputs (this might be automatic or via human input), processes that input and then produces an output. as well as producing an output. For example when you use a keyboard and mouse, the mouse is used to input data into the computer to be processed and the output is visible on the computer monitor.

We use algorithms in everyday life. Example of an algorithm to get to school, to make a cup of tea, to make a pizza, to order a takeaway. These are just precise sequences of instructions.

Scratch is a block-based programming language. We can use predefined code drag and drop blocks to create a sequence of code.

**Count controlled iteration** will execute the commands a set number of times. Example**:** “perform 200 star jumps”

**Condition-controlled iteration** will execute the commands until the condition you set is no longer being met. Example: “perform

star jumps until 3pm”

A **selection** statement in programming allows a computer to **evaluate** an **expression** to **‘true’** or **‘false’** and then perform an action depending on the outcome.

**Operators**

Comparison operators allow us to compare using **< > +**

Logical operators use **AND, OR, NOT**

**Sequence**, **selection** and **iteration** are all processes. In order for computers to perform tasks there is more that is needed. For example a computer will take an **input** (this might be automatic or via human input) which the computer will then **process** and the **output** will be visible on the computer monitor.

Will loop the code forever.

Will repeat a set number of times.

Will repeat until a condition is met.

**Variables** are used to store **data** for use in a program. They can store lots of different types of data such as names and scores.

So set variable score to equal 0

If I score a goal then increase variable by 1.

**A variable can only hold 1 piece of data at a time.**