Key Vocabulary…

Shape	Term	Purpose
	Terminator	Used to start and stop flowcharts.
	Input/ Output	Used to put data in or take data out of a flowchart.
	Process	Used to add delays to your flowchart and declare variables.
	Decision	Used to allow the data to branch into two different directions.
	Subroutine	Smaller parts of a larger program broken into smaller sections.
	Arrow	These are needed to connect the shapes in a flowchart.
let x = 0	Variable	A value that can change as the program runs.
+,-,*,/	Operator	Maths operators.
	Algorithm	A step by step set of instructions.
	Pseudocode	A simple way of describing instructions without syntax.

Picture This…

Fill the kettle with water

Plug kettle into wall socket

Switch the kettle on

Is the water bubbling? → wait

pour the water into a teapot

put teabags into the teapot

wait for Xx

get a cup

Do you want milk? → add milk

Do you want sugar? → add sugar

pour tea from the teapot into the cup

use a spoon to stir the tea for XX → drink and enjoy!

Tea Time

Starting instructions… Make a cup of tea!
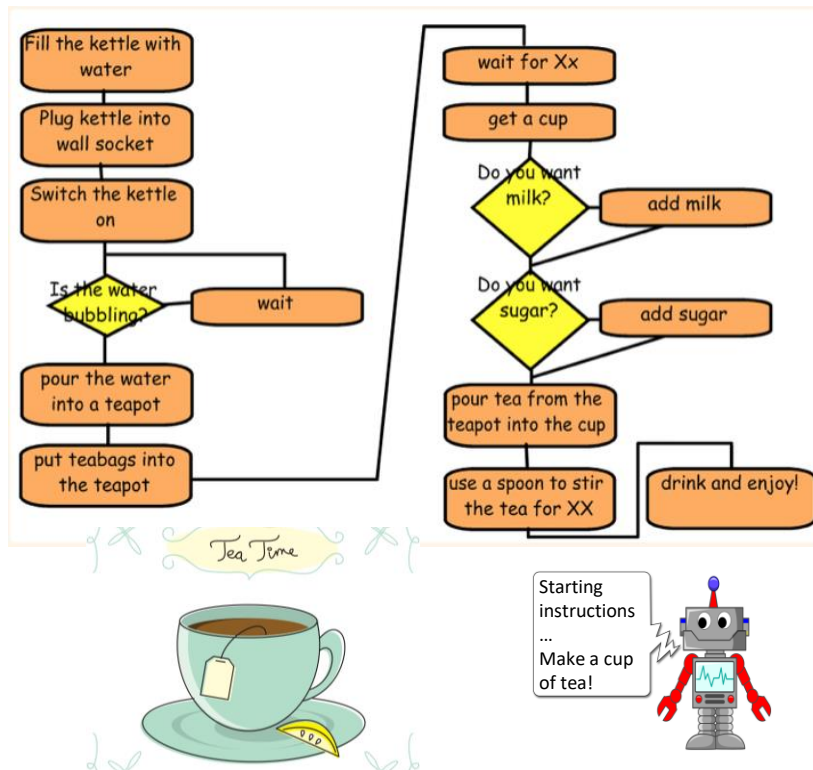
Always Remember…

- Algorithms are a set of precise instructions which should give the same results.
- A flowchart is a visual algorithm – i.e. a drawing.
- Computational thinking is thinking like a computer in an organised way.
- A variable is something that can change as a program is running like a high score.
- Branching is when a program flow can go into two or more different directions.
- A loop is a section of code that will be repeated for a certain number of times.
- Flowcharts can be used to plan out any task such as making a cup of tea.

Questions

1. Draw the process/ input/ output/ start/end/ decision shape.
2. Define the term algorithm.
3. Define the term variable.
4. Which shape should only appear at the beginning and the end of a flowchart?
5. Which shape shows making a choice?
6. Which shape shows a command?
7. Name three ways you can make a password stronger.

Deeper Learning…

Pseudocode is a language that people write once a flowchart has been written. It looks like a computer language but can't be understood by computers, only people.

```
count = 1
REPEAT
    Display ( count )
    count = count + 1
UNTIL count = 20
```

Activity – Draw a flowchart to show an activity given on the sheet. Make sure that you use a pencil and ruler to draw the shapes neatly. Try to use subroutines in your program.

Key Vocabulary…

Term	Definition
Algorithm	A set of step-by-step instructions.
Code	A set of program instructions.
Command	An instruction for a computer to perform a specific task.
Sprite	A character in Scratch that can be coded.
Stage	The stage is the background of the project. The stage can have different costumes
Code block	Code blocks are used to create code in Scratch. They fit together like jigsaw pieces to create programs
Costume	A costume is a different appearance for the same sprite. A sprite can have more than one costume.
Loop	A set of instructions that repeats until a condition is met. Loops make code simpler because they remove unnecessary steps.
Variable	A variable is like a box that the program uses to store a value. The content of the box can change. A variable can only store one value at a time.
Conditional Statement	A set of rules that IF a condition is met then an action is performed.

Picture This…

This is a sprite that can be coded in Scratch.

The stage is the area the sprite moves in.
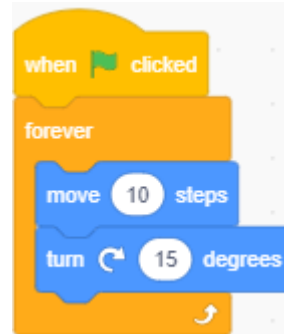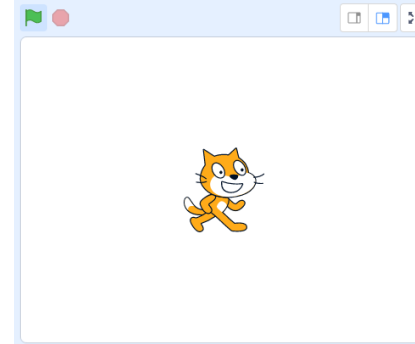
A script that is used to animate a sprite.

Always Remember…

Most people think a variable contains numbers, but they can also contain text or True and False values.

Coding helps with maths skills, because games often work using coordinates.

The order in which code blocks are created is important to make sure a program works.

If and If else blocks are used to make decisions in Scratch.

The repeat command, carries out an instruction a set number of times but a forever command will keep going until stopped by the user.

Questions

1. Define the term variable.
2. Define the term algorithm.
3. Which command is used to create a decision?
4. Which command is used to get an output?
5. Which command is used to create a loop?
6. Which command is used to start a program?
7. Explain what a sprite is.
8. Why should passwords not be shared?

Deeper Learning…

Scratch is an excellent tool for helping you to learn mathematics.
For example, Scratch teaches Cartesian coordinates.
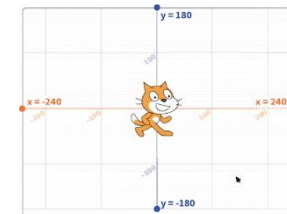
Activity – Create a game in Scratch where the sprite will be fed an item of food and each time increase the score.