Computer Basics
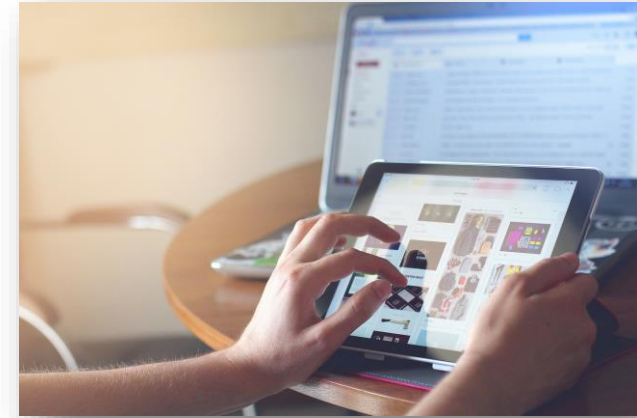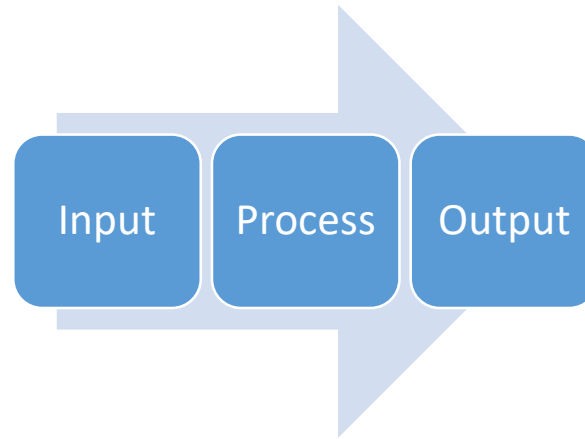
A **computer** is a machine that accepts data as **input**, **process**es that **data** using programs, and **outputs** the processed data.

Input → Process → Output

An input device is a piece of hardware that is used to enter data into a computer. There are many different kinds of input devices.

Input Devices
Mouse
Keyboard
Scanner
Digital Camera

An output device is a piece of hardware that is used to display or output data which has been processed or has been stored on the computer.

Output Devices
Screen
Speakers
Printer
Digital Camera

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The internet is a global **network** of computers. All computer devices that are connected to the internet form part of this network.

The World Wide Web or WWW Is the name given all of the web Pages that can be accessed on the Internet. You need a browser such as Chrome to access them.
You can use the World Wide Web to find out the news, use social media, Shopping, banking or games.

Uses of the Internet
World Wide Web
Email
The Cloud
TV
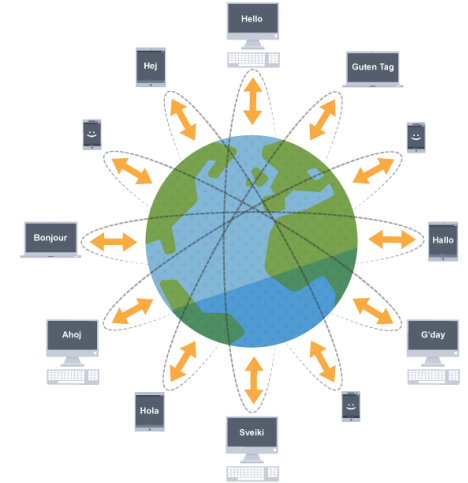
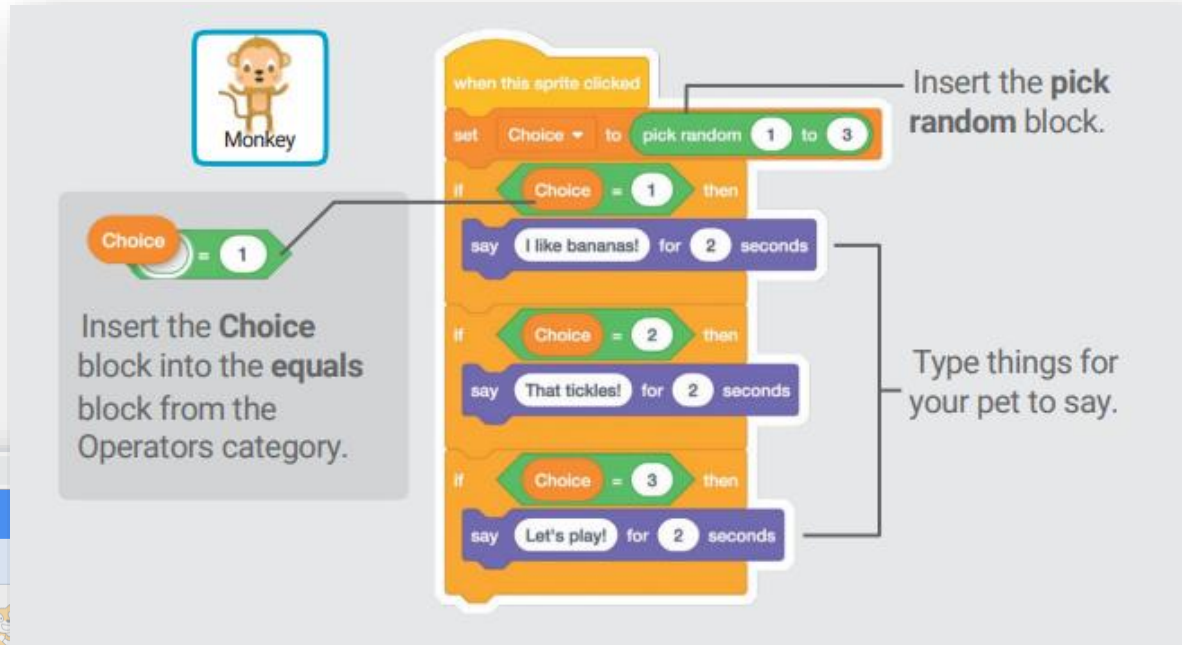**Remember to Stay Safe Online.**
1. Never Give Out Personal Details
2. Don't send out your picture to anyone
3. Don't enter private chat rooms
4. Don't open attachments from people you don't know
5. Don't download programs without permission
6. Respect people's privacy
7. Keep your password safe

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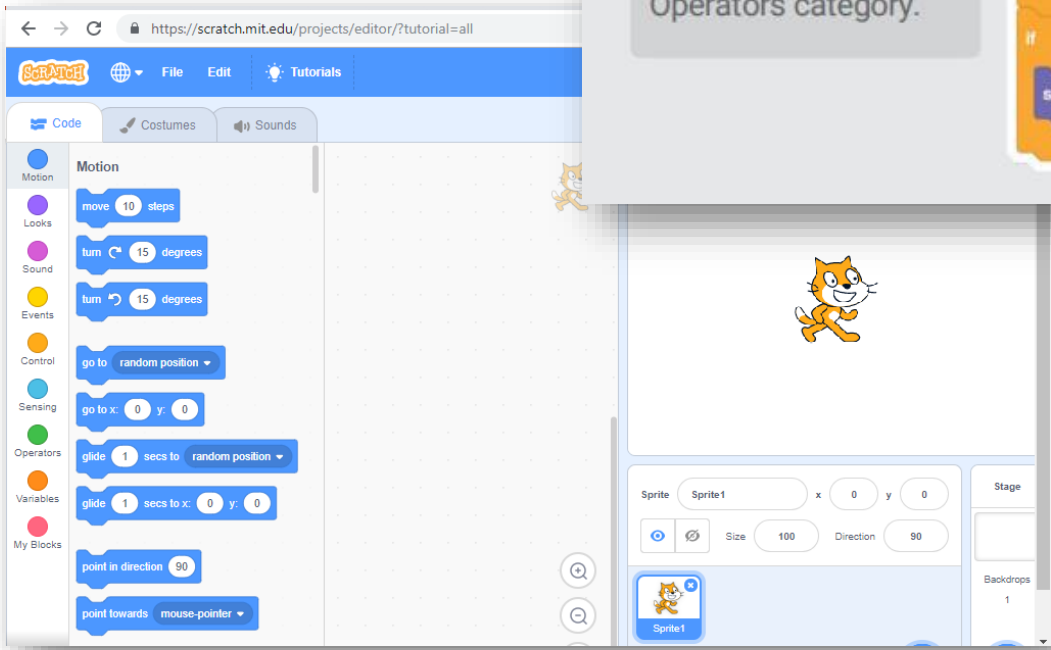
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Scratch is an Online Programming Environment that uses block based commands. You drag the block in to make the program

Monkey

Insert the **Choice** block into the **equals** block from the Operators category.

Insert the **pick random** block.

Type things for your pet to say.

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Binary is a number base. It can also be called Base 2. There are only two numbers in binary, 0 and 1. This is very different to our normal number base Denary or Base 10 which has the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Although confusing at first we can still represent all possible numbers using Binary, we just need more digits. In Computing each digit is known as a Bit.

To convert this Binary number to Denary we need to know the value of the columns. In Denary the columns go up in powers of Ten, eg Tens, Hundreds, Thousands. In Binary the columns go up in powers of 2.

128	64	32	16	8	4	2	1	Answer
							1	1
				1	0	1	0	10
	1	0	1	1	1	0	0	92

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Enjoyment – Achievement – Community

Be Respectful – Be Responsible – Be Ready

Algorithms

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

It is a step by step list of instructions.

It is build up from three main types of instruction, a sequence, a selection or an iteration.

A Selection is when the algorithm can go don different paths.

An iteration is when instructions can be looped.

Algorithms can be represented using Flowcharts or Pseudo Code. You must use the correct Symbols, or correct notation for both of these.

Start or Stop

Process

Decision
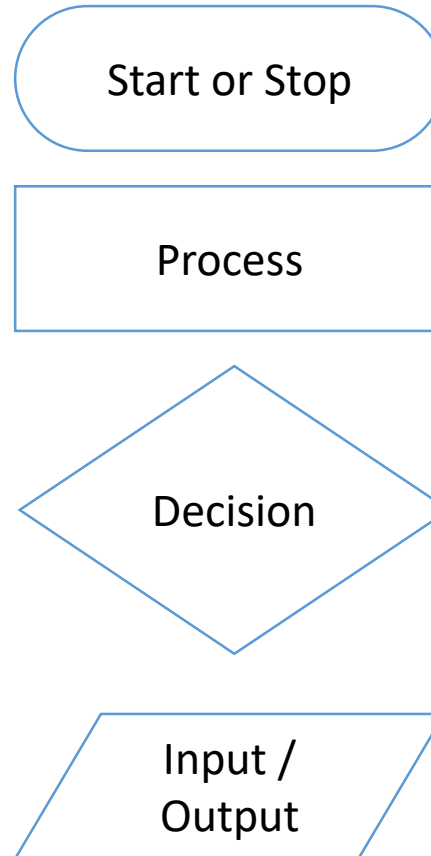
Input / Output

Pseudo Code would use commands like those in a programming language.

Such as INPUT, OUTPUT, WHILE, IF THEN ELSE

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Python: Turtle

Python is a High Level Programming Language. This is when you type in Commands rather than build them up from Blocks.

Turtle is a series of commands that allows us to draw using code, we can make different shapes and use different colours.

`import turtle` Make all the turtle commands available to your program

`turtle.mode('logo')` Set the mode

`turtle.speed(integer)` Set the animation speed of the turtle. 1 = slowest, 10 = fastest. 0 turns off animation completely

`turtle.shape('turtle')` Set the shape. You can also choose from: arrow, square, circle, triangle and classic

`turtle.forward(distance)` Go forwards by amount distance

`turtle.backward(distance)` Go backwards by amount distance

`turtle.right(angle)` Turn right by angle degrees

`turtle.left(angle)` Turn left by angle degrees

`turtle.home()` Go home (0, 0) and face north

`turtle.goto(x, y)` Go to position x, y

`turtle.setheading(degrees)` Point in compass direction degrees.
0 is north, 90 is east, 180 is south, 270 is west