Bletchley Park

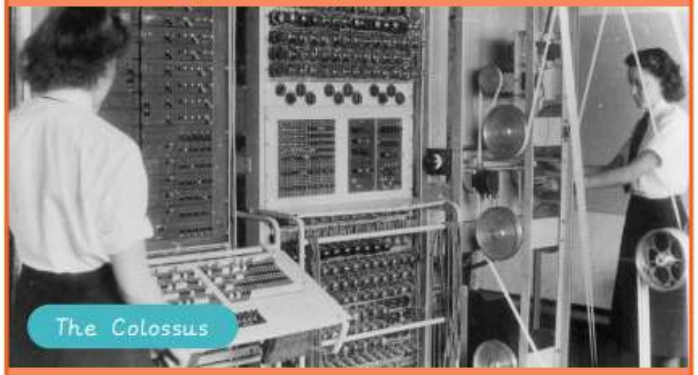
Acrostic code	A type of code where the first letter of each word, line, or paragraph when put together spells a message.
Brute force hacking	When someone, known as a hacker, uses different types of methods, such as trial and error, to crack entry into secured information.
Caesar cipher	A way in which every letter is replaced with another letter in a fixed number of places down the alphabet.
Chip and pin system	A payment system to buy something securely where a plastic bank card, such as a debit or credit card, has a chip in it, which the card owner can access by entering a Personal Identification Number (PIN).
Cipher	Information that is written in a secret way, also known as a code.
Date shift cipher	A code derived from the date that tells you how many spaces to move each of the letters in the coded message. For example, the date 1 January 1984 written in date format becomes '01011984'. This tells you to move the first letter of your coded word 0 spaces, the second letter by 1 space etc.
Encrypt	Converting information/data into a secret code or message, to avoid unauthorised access.
Invention	A new device or process that solves a problem.
Nth letter cipher	A type of code where you choose the Nth letter of the text /code again and again until the text ends. Say N=10, then you find every 10th letter in the text/code till you reach the end of it, to reveal a secret message.
Password	A unique combination of letters, numbers or symbols that protects personal information online.
Pigpen cipher	A substitution code, where letters are exchanged for symbols, which are parts of a specific grid.
Technological advancement	When scientific discoveries are made that can lead to the development of new or existing technologies to improve on current processes in life.
Trial and error	To test a method of resolving something, and if it fails, to try another method and continue this process until success has been achieved.

Key facts

Kapow Primary

Over 10,000 people worked for Bletchley Park. Over 75% of the workers were women.

In 1943, the Colossus computer was constructed by codebreakers during World War II. This enormous machine was the world's first electronic programmable computer. It took hours rather than days and weeks to crack encrypted messages to help win the war.



The Colossus

Enemy messages, which were encrypted, had to be written down on paper. Then they were sent over to Bletchley Park, often by motorbike.

Example:
Date shift cipher:

Visual representation:

Date used to encrypt the message: 1st January 1984

In number format this would read: 01 01 1984

Original message:	h	e	l	l	o
Each letter shifted:	0	1	0	1	1
Encrypted message:	h	f	l	m	p

a b c d e f g h i j k l m n o p q r s t u v w x y z

Y6

BBC Micro:bit

.hex file	A file type, that carries binary information.
.zip file	Multiple files that are bound together as a single file, to use less digital storage space.
Bluetooth	Device to device connectivity, for example sharing images between two smart phones.
Code blocks	A visual representation for a section of code that performs a certain job. They can be snapped together to build a program.
Decompose	To break something down into smaller chunks.
Emulator	A program or machine that is built to copy the way another computer system works.
Feature	Distinctive characteristics of something.
Loop	A repeated sequence of instructions.
Micro:bit	Created by the BBC, a small compact computer that you can code.
Pedometer	A device used to record the number of steps taken to calculate the distance travelled.
Predict	To make an educated guess, as to what might happen or occur as the result of something in the future.
Systematic	Doing something in an ordered way to achieve a specified goal.
Tinker	To explore and play with something to discover the key functions.
Variable	This could be a number or text, that can change each time the program is run and often in combination with selection to change the end result of the program.

BBC Micro:bit Make code - Code blocks key:

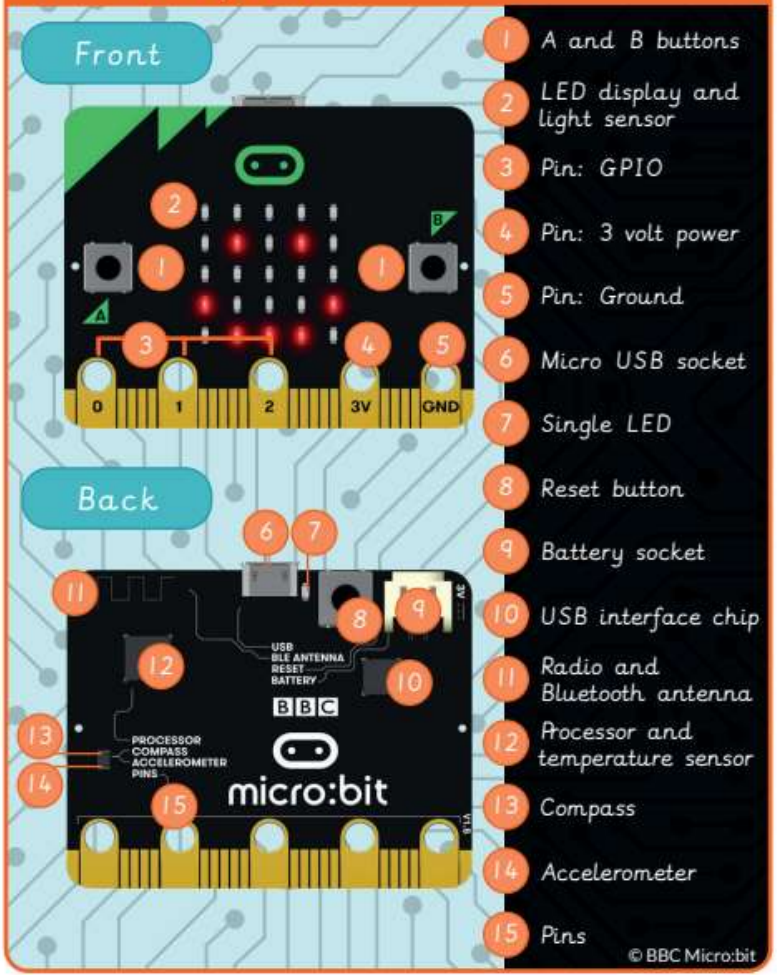
Key facts

Rapow Primary

BBC Micro:bit

The BBC Micro:bit has a wide-range of features for you to program and experiment with. Each feature can be included as part of an algorithm.

BBC Micro:bit features:



Y5

Computational thinking

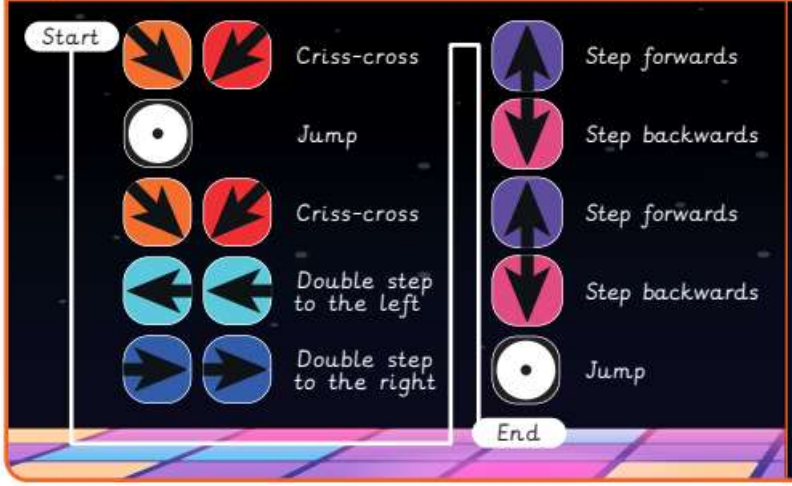
Abstraction	Identifying the important detail and ignoring irrelevant information.
Algorithm design	Creating a formula or set of instructions to solve the problem.
Code (computer)	A set of instructions written in programming language, to tell a computer what to do.
Code blocks	A visual representation for a section of code that performs a certain job. They can be snapped together to build a program.
Computational thinking	A method of tackling a complex problem, to devise a solution which both computers and humans can understand.
Computer	Electronic machines that accept and process information to produce an output, and then store the results.
Decompose	To break something down into smaller chunks.
Pattern recognition	Identifying similarities and recurrences in data.
Problem	A matter or situation that needs to be resolved.
Sequence	A set order or pattern for something to follow.

Key facts

Data without any identification, order or sequence.

Y4

Sequence of dance moves:



Decomposition:

Pattern recognition:

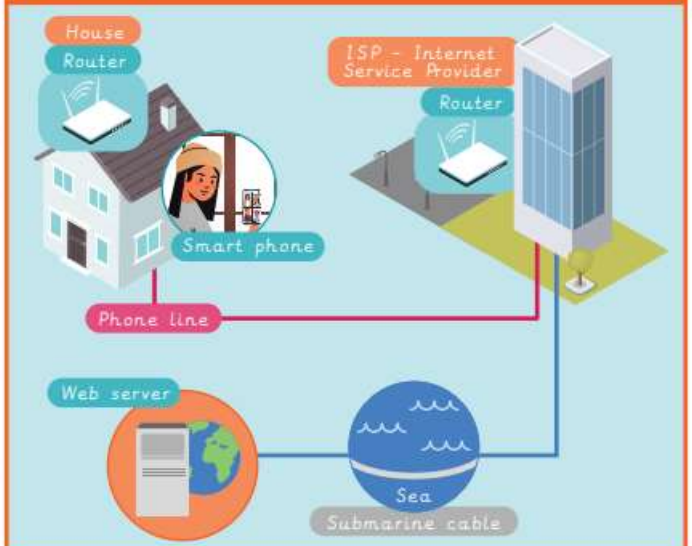
Networks and the internet

Device	Equipment created for a certain purpose or job.
DSL	Digital Subscriber Line. An internet connection for rural areas, where wired services are not available. It uses communication satellites to send and receive data and is a slower internet connection than wired connections.
File	An item on a computer that can keep data in various forms such as images, music and documents.
Internet	A worldwide network, enabling tens of millions of computers around the globe to share vast amounts of information, and communicate with other online users across the globe.
Network	When more than one electronic device is connected in a network through the internet or a local connection in order to share files and information.
Network map	A diagram that shows what type of and how many devices are on a network. It also shows how they are connected to each other.
Network switch	A device that deals with the movement of network information.
Router	The main device responsible for providing internet access to a network, and can be connected to through a wired connection or WiFi.
Server	A computer or computer program that provides data and information to other computing devices.
Submarine cables	Cables that run under the sea to allow information to be accessed and (shared around the world or across continents.)
The Cloud	Refers to data and files that are stored and accessed on servers via the internet.
WiFi	When you have, or can connect to a network that is wireless.
Wired	An electronic device is considered 'wired' when it is connected to the network through cables.
Wireless	An electronic device is considered 'wireless' when it is connected to the network through signals.
Wireless access point	A device that enables other electronic items to connect wirelessly to the internet.

Key facts

Kapow Primary

Network map:



The internet can be used for:

- Communicating (email, video call, voice call etc.)
- File sharing
- Websites
- Uploading and downloading files
- Streaming media (videos, music etc.)
- Playing online games

Y3

Algorithms and debugging

Abstraction	To pick out the important information.
Algorithm	A clear set of instructions to carry out a task.
Artificial intelligence	Computers that can perform the tasks that humans normally do.
Bug	An error or mistake in computer code.
Correct	Free from mistakes.
Data	Information used for a specific purpose or investigation.
Debug	To fix the error in code.
Decompose	To break something down into smaller chunks.
Error	A mistake.
Key features	Important parts of something.
Loop	A repeated sequence of instructions.
Predict	To make a guess.
Unnecessary	Not needed.

Abstraction: Key information

Remember to take spare clothes, including t-shirts, trousers, a coat, underwear and a hat. There will be a lot of wet weather in the rainforest, so wrap up to stay dry.

You might hear lots of animals, such as monkeys and parrots. Keep close to the adults and be careful where you step.

Do not forget to take a drink and a snack.

Decomposition: Smaller chunks

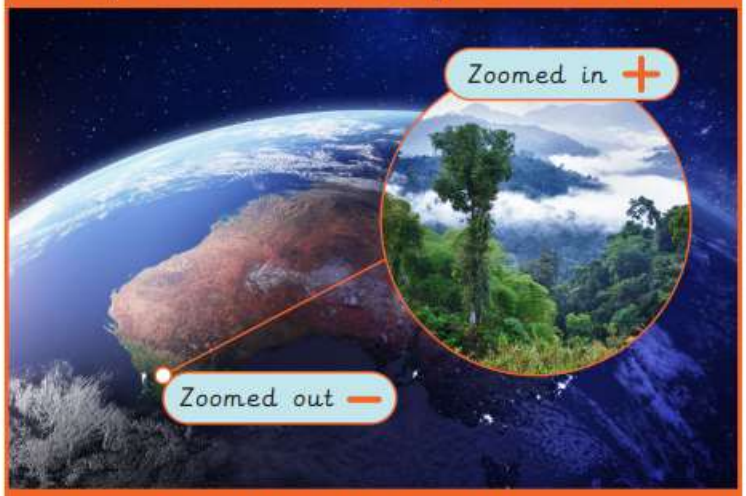
List for the rainforest:

- Take spare clothes
- Wet weather
- Keep close to the adults
- Take a drink and a snack

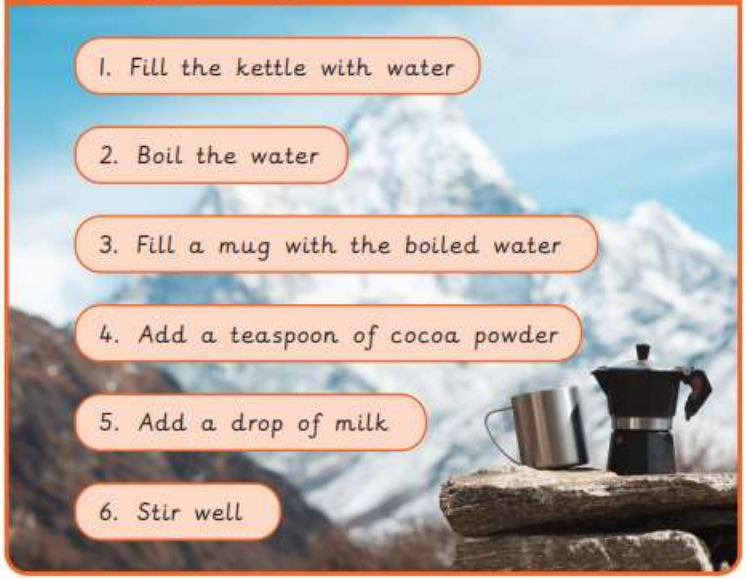
Key facts

Kapow Primary

Zooming into an Australian rainforest on Planet Earth.



Algorithm for making a hot chocolate:



Y2

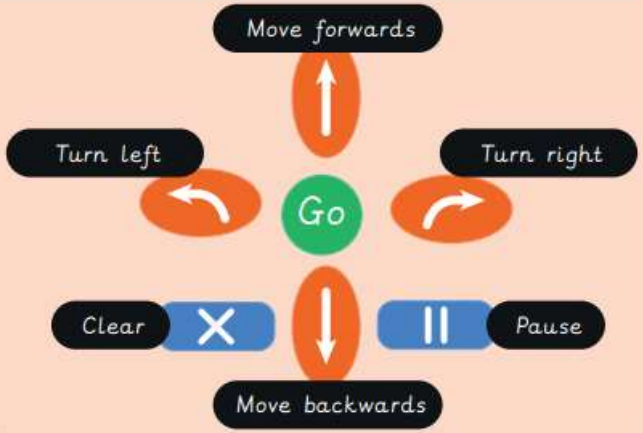
Programming - Bee Bot

Algorithm	A clear set of instructions to carry out a task.
Bee-Bot	A small programmable floor robot, with seven buttons (forwards, backwards, turn right, turn left, go, pause and clear).
Computing code	Words, numbers and symbols that make a computer language.
Computer program	A series of instructions, that are written for a computer to follow. Also known as apps.
Explain	Give clear information about something to someone.
Explore	Look at something new to learn more about it.
Instructions	A list of commands and directions on how to do something.
Predict	To make a guess.
Tinker	To explore and play with something to discover what it can do.
Video	Moving pictures, that make up a film or cartoon.

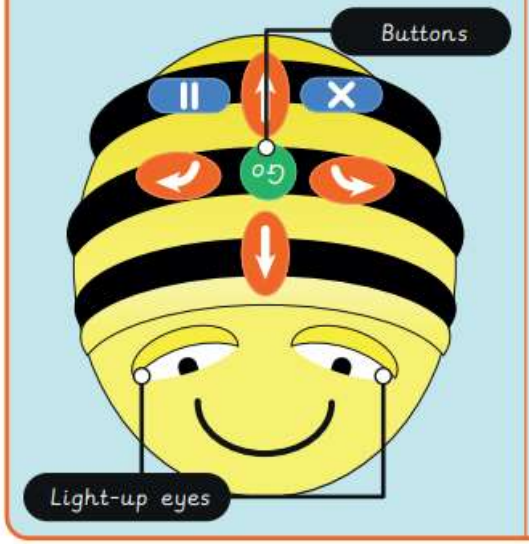
Key facts

Kapow Primary

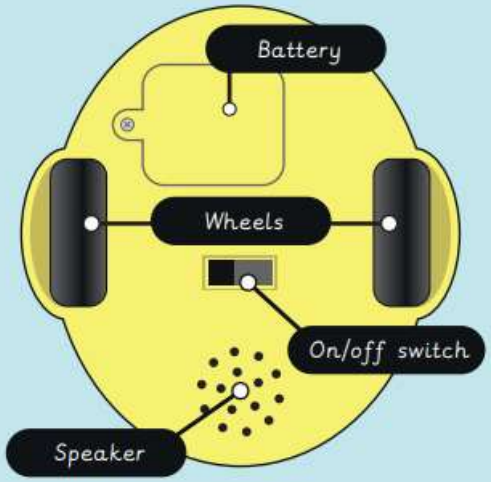
Bee-Bot buttons:



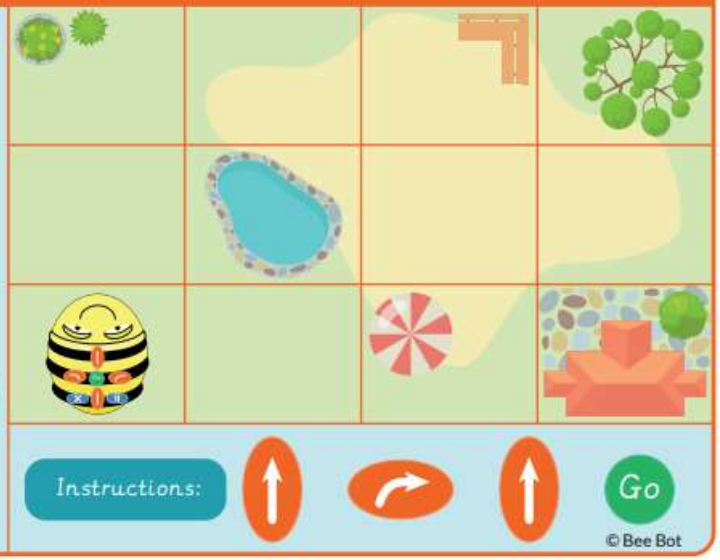
On top of the Bee-Bot



Under the Bee-Bot



Where will the instructions take Bee-Bot?



Y1