Year 2 – Algorithms & Debugging - Knowledge Organiser

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

Zooming into an Australian rainforest on Planet Earth.

Zoomed in +

Zoomed out —

Algorithm for making a hot chocolate:

1. Fill the kettle with water
2. Boil the water
3. Fill a mug with the boiled water
4. Add a teaspoon of cocoa powder
5. Add a drop of milk
6. Stir well

Year 2 – Digital Imagery - Knowledge Organiser

What is a computer?

Battery	A cell or connected group of cells that store electrical energy to power wireless devices.
Buttons	Switches that you can press to control a device.
Computer	Electronic machine that accepts and processes information to produce an output, and then stores the results.
Desktop	A tower computer that needs a mouse, keyboard and monitor, that stays in one place.
Device	Equipment created for a certain purpose or job.
Electricity	A type of energy, that is usually invisible, that can be made or stored and used to make devices work.
Input	A way of telling the computer what you want it to do.
Invention	A new device or process which solves a problem.
Keyboard	An input device made up of buttons that create letters, numbers, and symbols, as well as perform other functions.
Laptop	A compact computer that is easy to carry and move around.
Monitor	An output device, which shows what is happening on the computer for example videos, images and text.
Mouse	A handheld device that is used to move things around on the computer screen.
Output	Information or data that is sent by the computer to an output device such as a printer or speakers.
Technology	Using scientific knowledge to help us to create new devices or tools.
Wire	A long, thin and flexible piece of metal protected by a plastic coating. Electrical wire is used to carry electricity.

Key facts

Some computers have a keyboard, screen and mouse, others have buttons to make them do things.

Printer: output

Monitor: output

Computer

Speakers: output

Keyboard: input

Mouse: input

All computers need electricity – they can get this through wires into the wall or batteries!

These items all use technology.

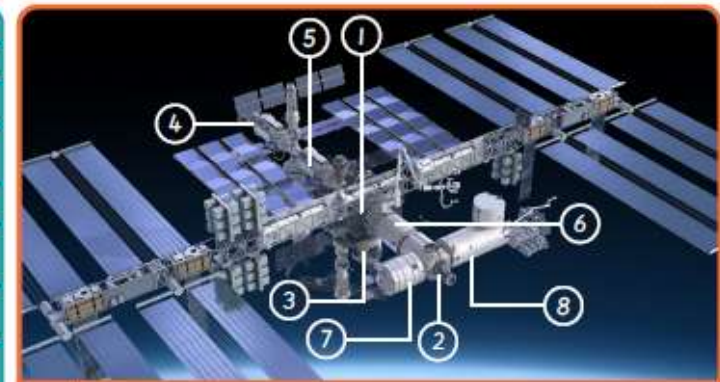# Year 2 – International Space Station - Knowledge Organiser

International Space Station

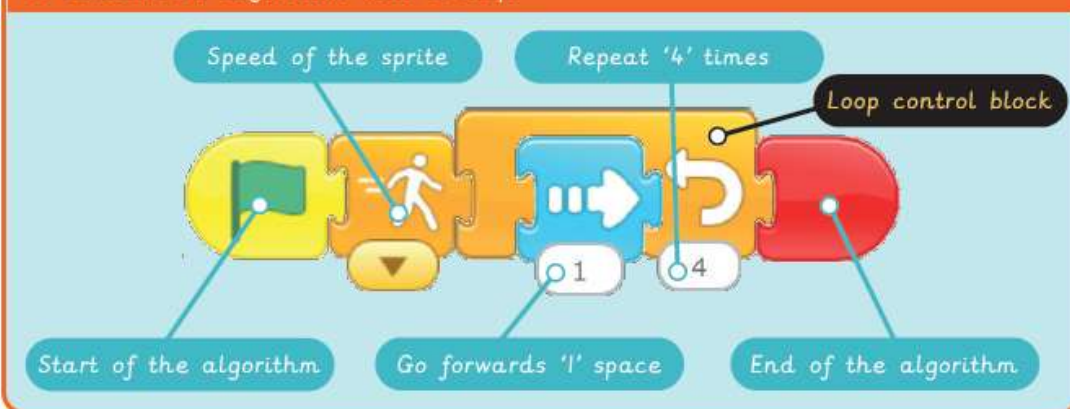|	
Approximate	Being close but not exactly the same as something.
Astronaut	Someone who is trained to control a spacecraft.
Data	Information used for a specific purpose or investigation.
Digital content	Information and media such as videos and pictures stored on a computer.
Experiment	To trial and test new ideas.
Interactive map	A digital map which can be searched, zoomed in or out of and provide information about a place.
International Space Station (I.S.S)	A laboratory in space that orbits the Earth.
Interpret	Explain the meaning of something to someone else or to yourself.
Laboratory	A place where scientists carry out research and experiments to discover more about something.
Monitor (verb)	To check the status of something.
Satellite	A computer that orbits the Earth to provide information or communication services.
Sensor	A tool or device that is designed to monitor, detect and respond to changes.
Space	A vast area around and beyond planet Earth, which is not inhabited.
Survival	To stay alive in bad conditions.
Thermometer	A device that measures and displays the temperature of something using a scale (°C or °F).

Key facts

1	Node 1 (Unity)	Connects U.S. and Russian modules of the I.S.S.
2	Node 2	Connects the American, European and Japanese modules.
3	Node 3	Sleeping and resting area.
4	Zvezda (Star)	Central hub for Russian astronauts.
5	Zarya (Sunshine)	Russian research module.
6	Destiny	American research module.
7	Columbus	European research module.
8	Kibo (Hope)	Japanese research module.

Growing plants in space

The Vegetable Production System, known as 'Veggie' is a device used to understand and support plants to grow in space on the I.S.S. It helps produce fresh food for the astronauts.

Survival items

Year 2 – Programming - Knowledge Organiser

Programming - Scratch JR

Algorithm	A clear set of instructions to carry out a task.
Animation	Pictures or photographs in a sequence to give the illusion of movement.
Bug	An error or mistake in computer code.
Code (computer)	A set of instructions written in programming language, to tell a computer what to do.
Code (verb)	To write in programming language (code).
Debug	To fix the error in code.
Icon	A small image which represents something or someone.
Imitate	To copy.
Instructions	A list of commands and directions on how to do something.
Loop	A repeated sequence of instructions.
Repeat	To do the same again.
Scratch JR	A simple, block-based coding application, in which you can instruct Scratch the cat.
Sequence	A set order or pattern for something to follow.

A Scratch JR algorithm with a loop:

Speed of the sprite
Repeat '4' times
Loop control block
Start of the algorithm
Go forwards '1' space
End of the algorithm

Key facts

Scratch JR is an application for tablets.

Code blocks let you build algorithms:

Triggering blocks:

Motion blocks:

Looks blocks:

Sound blocks: End blocks:

Control blocks:

Year 2 – Stop Motion - Knowledge Organiser

Stop motion

Animation	Pictures or photographs in a sequence to give the illusion of movement.
Animator	Someone who specialises in the creation of animations.
Contraption	An old-fashioned device.
Decompose	To break something down into smaller chunks.
Design	To make, draw or write plans for something.
Device	Equipment created for a certain purpose or job.
Download	Saving files from the internet, intranet or another device.
Film review	Writing your opinion about a film.
Filming	Using a video recorder to capture moving images.
Import image	To place a picture into a document or into other software.
Plan	An idea about how to do something in future.
Sketch	A rough drawing to help you plan.
Software	A series of instructions written for a computer to follow.
Stop motion	A sequence of photographs used to create an animation.
Storyboard	A sequence of sketches that show what you plan to make for an animation or video.
Upload	To send files from one device to another device.

Did you know?

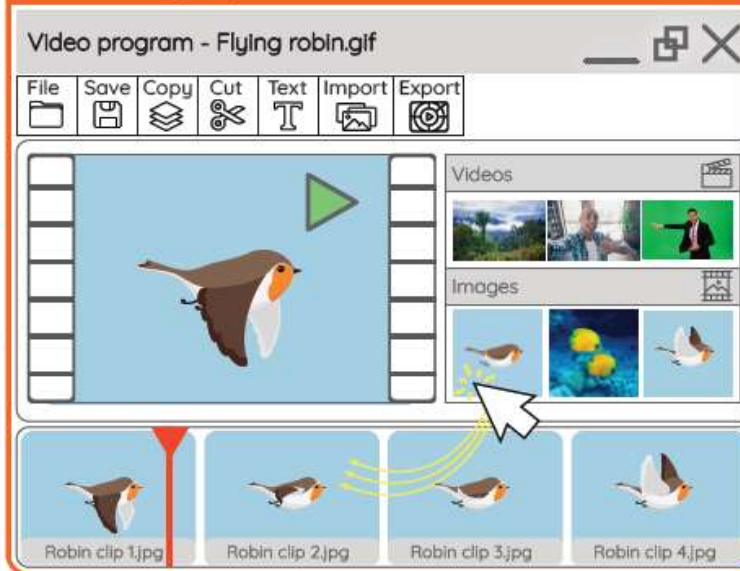Animators normally sketch a storyboard to plan their ideas and the sequence for an animation.

Key facts

Animations are made up of a sequence of still images, the sequence below makes the robin look like it is flying.

1 2 3 4

To see the finished animation, ask an adult to scan the QR code:

Video editing software:

Video program - Flying robin.gif

File Save Copy Cut Text Import Export

Videos

Images

Robin clip 1.jpg   Robin clip 2.jpg   Robin clip 3.jpg   Robin clip 4.jpg

Year 2 – Word Processing - Knowledge Organiser

Word processing

Backspace	A key to move the cursor backwards.
Copyright	The law that protects other people's work from being copied or used without permission.
Delete (text)	A button on the keyboard which deletes text.
Image	A picture.
Import	To place another file into a document, such as an image.
Keyboard	An input device made up of buttons that create letters, numbers, and symbols, as well as perform other functions.
Keyboard character	Any letter, symbol, space, number or punctuational mark that can be input with a keyboard.
Paste (text)	To insert copied or cut text.
Redo	To step forwards to the next edit.
Space bar	A button on a keyboard to insert room between letters.
Touch typing	Using a keyboard with all your fingers, without looking at the letters on the keys.
Undo	To step backwards to the previous edit.
Word processing	A program used for creating text documents on a computer.

Keyboard buttons:

Important buttons to learn when typing on a computer.

Key facts

Word processing software:

Writing program - Sid the dog.txt

File Save Print Copy Cut Text Clipart Font
Balsamiq sans

Regular   aA
Sid, the silly sausage dog, swam in the sparkling sea.

Bold   B
Sid, the silly sausage dog, swam in the sparkling sea.

Italics   I
Sid, the silly sausage dog, swam in the sparkling sea.

Underline   U
Sid, the silly sausage dog, swam in the sparkling sea.

Highlight
Sid, the silly sausage dog, swam in the sparkling sea.

E-books and e-documents can be read on electronic devices