

LEARNING JOURNEY

Computing systems and networks 1:

What is a computer?

Autumn 1 Computing



OUTCOME: To name some computer peripherals and their functions.

To recognise that buttons cause effects.

To explain that technology follows instructions.

To recognise different forms of technology.

To design an invention which includes inputs and outputs.

To explain the role of computers in the world around them.

Q: What are the different parts of a computer?

We are learning to recognise the parts of a computer.

I can name the key parts of a computer.
I can explain the purpose of different computer parts.
I can explain that a keyboard contains lots of buttons.

Q: What is an input and output?

We are learning to recognise how technology is controlled.

I can understand that people control technology.
I can understand that technology follows instructions.
I can predict what technology will do.

Q: What technology can you find around the school?

We are learning to recognise technology.

I can suggest what might have a computer inside.
I can explain why I think this.
I can suggest what the technology does.

Q: How do we know your invention is operating?

We are learning to create a design for an invention.

I can include an input and output as part of my invention.
I can explain how it works, including how to control it.
I can label my design clearly.

Q: How do computers work in the real world?

We are learning to understand the role of computers.

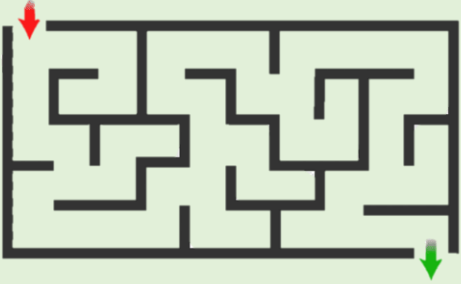
I can explain where computers are used.
I can suggest what their job is.
I can understand that computers work together.

Key vocabulary:

battery, buttons, computer, desktop, electricity, input, invention, keyboard, laptop, mouse, output, robot, screen (monitor), tablet, technology and wire.

LEARNING JOURNEY

Programming 1: Algorithms and debugging Autumn 2 Computing



OUTCOME: To decompose a game to predict the algorithms.
To give a definition for 'decomposition'.
To write clear and precise algorithms.
To create algorithms to solve problems.
To use loops in their algorithms to make their code more efficient.
To explain what abstraction is.

Q: Why is it important to follow instructions carefully?

We are learning to decompose a game to predict the algorithms that are used.

I can understand what the terms decomposition and algorithm mean.

I can decompose a game to predict algorithms.

I can plan algorithms for a more complex game.

Q: How do computers make predictions?

We are learning to understand that computers can use algorithms to make predictions (machine learning).

I can explain what an algorithm is.
I can explain that computers use algorithms to make predictions.
I can write a clear and precise algorithm.

Q: How will you direct a rabbit through a maze?

We are learning to plan algorithms that will solve problems.

I can devise and create algorithms to solve problems.
I can include loops in my algorithms (count controlled).
I can visualise directions from a 2D environment.

Q: How will you use your understanding of abstraction to create a map?

We are learning to understand what abstraction is.

I can explain what abstraction is.
I can give an example of when abstraction might be useful.

Q: How do you debug algorithms?

We are learning to understand what debugging is.

I can understand the meaning of the word debugging.
I can listen to my peer's verbal instructions.
I can perform a task by following step-by-step instructions.

Key vocabulary:

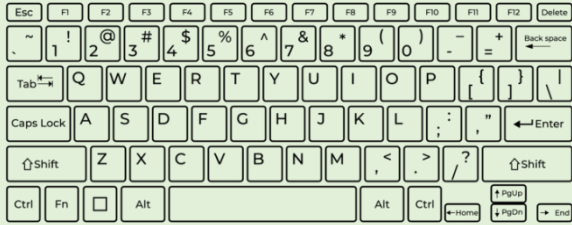
abstraction, algorithm, artificial intelligence, bug, clear, correct, data, debug, decompose, error, key features, loop, predict and unnecessary.

LEARNING JOURNEY

Computing systems and networks 2:

Word processing

Spring 1 Computing



OUTCOME: To explain which the home row keys are and how to find them when typing.

To use the spacebar and backspace correctly.

To type and make simple alterations to text using buttons on a word processor.

To search for, import and alter appropriate images for a text document.

To modify text in a document.

To use copy and paste to copy text from one document to another.

To explain what information is safe to be shared online.

Q: What skills will you use to create a piece of writing?

Q: Can you copy and paste text?

We are learning to create a digital piece of writing.

I can use keyboard shortcuts.
I can use different text styles.
I can import and alter an image in a document.
I can evaluate my writing.

Q: What do you notice about the setup and layout of a keyboard?

We are learning to begin to learn to touch type.

I can find keys on a computer keyboard.
I can type capital letters using shift.
I can identify that the keyboard is an important input device.

Q: How do you store information in a text document?

We are learning to understand how to use a word processor.

I can type a sentence using a word processor.
I can select text and make it bold or italic.
I can explain how to make other changes to a document.

Q: How do you edit and format images in text document?

We are learning to understand how to add images to a text document.

I can use keyboard shortcuts to alter text.
I can search for and find an appropriate image.
I can import and alter an image in a document.

We are learning to create a poetry book using sources from the internet.

I can use text styles to create headings and subtitles.
I can copy and paste text into a document.
I can identify the importance of crediting source materials.

Key vocabulary:

author, back button, backspace, bold, copy, copyright, cut, delete, forward button, highlight, image, import, italics, keyboard, keyboard shortcut, navigate, paste, redo, search, space bar, text effects, touch typing, underline, undo and word-processing software

LEARNING JOURNEY
Programming 2: ScratchJr
Spring 2 Computing



OUTCOME: To explore a new application independently.
To explain what the blocks on ScratchJr do and use them for a purpose.
To recognise a loop in coding and why it is useful.
To use a code to create an animation of an animal moving.
To use code to follow and create an algorithm.
To program code to run 'on tap'.
To explain the role of the blocks in a program they have created.

Q: What does each block have?

We are learning to explore a new application.

I can predict what something new will do.
I can explore something independently.
I can explain what I found using ScratchJr.

Q: What different blocks will you use to create an animation?

We are learning to create an animation.

I can use the programming blocks for a purpose.
I can recognise a loop in programming.
I can use my programming skills to represent an animal moving.

Q: How will you create a musical instrument?

We are learning to use characters as buttons.

I can design a musical instrument.
I can program code to run 'on tap'.
I can select appropriate blocks for my purpose.

Q: How will you program a joke on ScratchJr ?

We are learning to follow an algorithm.

I can use an algorithm to help with my programming.
I can sequence the blocks appropriately.
I can explain what each block in the program does.

Q: Can you plan and make an algorithm for a story?

We are learning to plan and use code to create an algorithm.

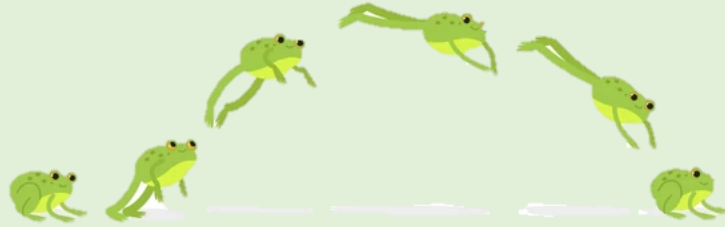
I can explain what an algorithm is.
I can choose the code to match my algorithm.
I can use an algorithm to write a computer program.

Key vocabulary:

algorithm, animation, blocks, bug, button, CGI, computer code, code, debug, fluid, icon, imitate, instructions, loop, 'on tap', programming, repeat, ScratchJR, sequence and sound recording.

LEARNING JOURNEY

Creating Media: Stop motion Summer 1 Computing



OUTCOME: To create a flip book animation.

To take clear, in-focus photographs using a digital camera.

To upload images from the school network.

To decompose a story into smaller parts to plan a stop motion animation.

To create stop motion animations with small changes between images.

Q: What are the key aspects of an animation?

We are learning to understand what animation is.

I can recognise an animation.
I can identify the key aspects of a simple animation
I can recognise how a short animation is created using a flip book.

Q: What do you need to think about when taking a photo?

We are learning to take clear photographs using a digital camera.

I can use a digital camera to take photographs.
I can recognise how to take a good photograph.

Q: How did you transform the look of images taken with effects, filters and editing tools?

We are learning to create a stop motion animation.

I can find and upload my images from the school network/shared drive.
I can change the duration of my images.
I can save my work.

Q: What will your animated object do?

We are learning to plan my stop motion animation.

I can work collaboratively to plan an animation.
I can decompose my idea into smaller parts.
I can plan how an object will move to create an animation.

Q: How did you create a space themed stop motion animation?

We are learning to create a stop motion animation.

I can use my planning sheet to create my animation.
I can work collaboratively.
I can create an animation of at least 10 frames.

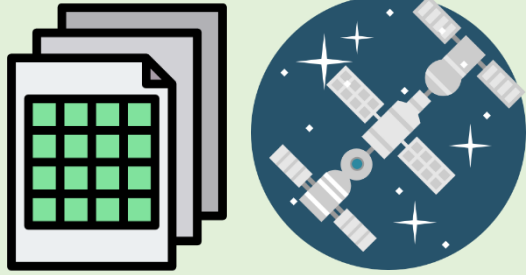
Key vocabulary:

animate, animation, animator, background, decompose, digital camera, duration, flipbook, focus, frames, import, moving images, object, onion skinning, plan, save, still images and upload.

LEARNING JOURNEY

Data handling: International Space Station

Summer 2 Computing



OUTCOME: To describe and explain how astronauts' survival needs are met aboard the ISS.
To identify and digitally draw items which fulfil basic human needs when aboard the ISS.
To read the correct temperature on a thermometer.
To design a display showing everything that needs to be monitored by sensors on the ISS.
To create an algorithm that addresses all plants' needs.
To explain how space exploration can benefit life on Earth.
To read data to identify whether a planet might be habitable.

Q: How do you discover information on an interactive map?

We are learning to locate features on an interactive map.

I can describe what humans need in their homes.
I can use an interactive map to locate features.
I can describe how sensors keep astronauts safe.

Q: What will an astronaut need in space?

We are learning to create a digital drawing.

I can use mouse and keyboard skills to draw simple images.
I can use text boxes to add labels.
I can recall how computers track the amount of items left.

Q: What are spreadsheets and what are they used for?

We are learning to input data in a spreadsheet.

I can read temperatures using a thermometer.
I can input text and numbers into a spreadsheet.
I can recall conditions that computers monitor with sensors.

Q: How can sensors be programmed to keep a plant healthy in space?

We are learning to create algorithms for healthy plant growth.

I can recall what plants need to stay healthy.
I can create algorithms to keep a plant healthy.
I can describe how a sensor works.

Q: How will you retrieve and fill in data on a spreadsheet?

We are learning to retrieve data from a spreadsheet.

I can locate column headers.
I can identify rows containing different data.
I can retrieve data about planets.

Key vocabulary:

algorithm, astronaut, column, data, digital content, essential, experiment, Goldilocks zone, interactive map, International Space Station, input, monitor, row, satellite, sensor, space, spreadsheet, survival, temperature and thermometer.

LEARNING JOURNEY
Online Safety
Computing



OUTCOME: To explain what is meant by online information.
To recognise what information is safe to be shared online.
To explain why we need passwords and what makes a strong password.
To understand that they need to ask permission before sharing content online and explain why.
To understand that they have the right to deny their permission to information about them being shared online.
To say who they can ask for help with online worries.
To use some strategies to work out if online information is reliable or not.

Q: What happens when I post online?

We are learning to decide which information is safe to share online.

I can explain what online information is.
I can explain what information is safe to share online.
I can recognise that information shared online stays there forever.
I can identify who to talk to if something is shared that makes me feel sad or worried.

Q: How do I keep my things safe online?

We are learning to practise keeping information safe and private online.

I can identify why passwords are used.
I can develop a strong password.
I can classify information as private.
I can explain how to keep information private online.

Q: When should I give and deny permission online?

We are learning to recognise when to deny permission online.

I can identify what denying permission means.
I can name ways to get help if I feel pressured online.
I can explain why I should deny permission.

Q: Is everything online true?

We are learning to recognise that not everything online is true.

I can identify whether information is true or false.
I can explain why people may post things online that are not true.
I can check the reliability of online information.

Key vocabulary:

accepting, consent, denying permission, fake, giving permission, offline, online, password, permission, personal information, pop-up, pressure, private information, real, reliable, sharing online, source and trusted adult.