

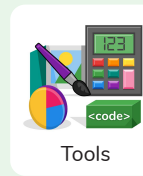


Unit: 3.1 Coding

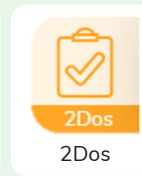
Key Learning

- To understand what a flowchart is and how flowcharts are used in computer programming.
- To understand that there are different types of timers and select the right type for purpose.
- To understand how to use the repeat command.
- To understand the importance of nesting.
- To design and create an interactive scene.
-

Key Resources



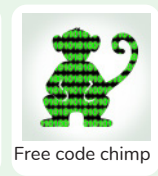
Tools



2Dos



2Chart



Free code chimp

Key Vocabulary

Action

The way that objects change when programmed to do so. For example, move or change a property.

Alert

This is a type of output. It shows a pop-up of text on the screen.

Algorithm

A precise step by step set of instructions used to solve a problem or achieve an objective.

Background

In 2Code the background is an image in the design that does not change.

Bug

A problem in a computer program that stops it working the way it was designed.

Button

A type of object that responds to being clicked on.

Click Event

An event that is triggered when the user clicks on an object.

Code

Writing the code for a computer program.

Collision Detection Event

The event of two objects colliding.

Command

A single instruction in a computer program.

Debug/Debugging

Fixing code that has errors so that the code will run the way it was designed to.



Unit: 3.1

Coding

Key Vocabulary

Event

An occurrence that causes a block of code to be run. The event could be the result of user action such as the user pressing a key (**when Key**) or clicking or swiping the screen (**when Clicked**, **when Swiped**). In 2Code, the event commands are used to create blocks of code that are run when events happen.

Nesting

When coding commands are put inside other commands. These commands only run when the outer command runs.

Properties

These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.

Sequence

When a computer program runs commands in order.

Turtle Object

A type of object in 2Code that moves by coding angles of rotation and distance to move.

Flowchart

A diagram which represents an algorithm.

Input

Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

Object

Items in a program that can be given instructions to move or change in some way (action). In 2Code Gibbon, these include character, turtle, button, vehicle, animal, food, shape, number, input and label.

Repeat

This command can be used to make a block of commands run a set number of times or forever.

Test

To run the code and observe what happens to identify where there might be bugs in the program.

Implement

When a design is turned into a program using coding.

Interval

In a timer, this is the length of time between the timer code running and the next time it runs e.g. every 1 second.

Predict

Use your understanding of a situation to say what will happen in the future or will be a consequence of something.

Run

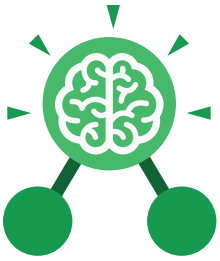
Clicking the Play button to make the computer respond to the code.

Scene

In 2Code, this is the combination of the background and objects in a program.

Timer

Use this command to run a block of commands after a timed delay or at regular intervals.



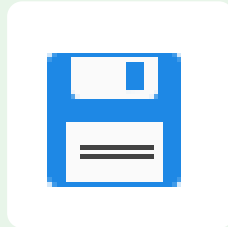
Unit: 3.1

Coding

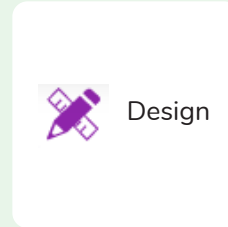
Key Images



Open, close or share a file.



Save your work.



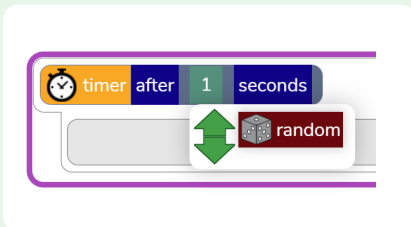
Design

Open design mode in 2Code.

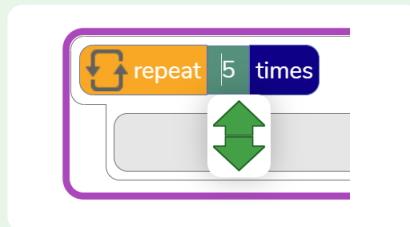


Exit Design

Switch to code mode in 2Code.



A timer code block.



Repeat block.

Key Questions

Why is it useful to use a flowchart to design a computer program?

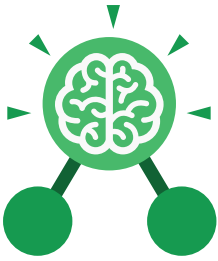
Using a flowchart to design a computer program is helpful as you can see it in its simplest form as inputs and outputs. You can see where the program is going which will prevent mistakes when creating the code.

What does repeat mean in computer programming?

Using the repeat command will make a block of commands run for a set number of times or forever. This saves rewriting the code many times.

What is the difference between 'timer after' and 'timer every'?

A 'timer after' means after a certain amount of seconds, the action will occur. 'Timer every' means that the action will re-occur every certain amount of seconds on a loop.



Unit: 3.2 Online Safety

Key Learning

- To know what makes a safe password.
- To learn methods for keeping passwords safe.
- To understand how the Internet can be used in effective communication.
- To understand how a blog can be used to communicate with a wider audience.
- To consider the truth of the content of websites.
- To learn about the meaning of age restrictions symbols on digital media and devices.

Key Resources

**purple
mash**



2Dos



2Connect



2Publish Plus



2Blog



2Write

Key Questions

What is a password and why should we keep them safe?

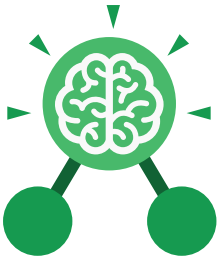
A password is a secret word or phrase that allows a user to access a website. Passwords are like toothbrushes in that they should not be shared with anyone else.

Is everything I read on the Internet true?

Just because something is on the Internet doesn't mean that it is true. Some people create spoof websites that pretend to be something else such as a bank website or to provide misleading information.

How do I know if I am old enough to play a computer game?

Computer games, like films, are often not suitable for children. PEGI ratings will show how old a person must be to play a game.



Unit: 3.2

Online Safety

Key Vocabulary

Appropriate

When using online services such as blogging or sharing information. It's important that users behave appropriately. Users should be truthful, respectful, kind, seek any permissions and report anything they feel uncomfortable with.

Password

A secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as a website.

Spoof

An imitation of something that appears to look genuine.

Vlog

A personal website or social media account where a person regularly posts short videos.

Blog

A regularly updated website or web page, typically one run by an individual or small group, that is written in an informal or conversational style.

Personal Information

This is information that is personal to someone. For example, their favourite food, their name and age.

Reputable source

Reputable sources are known places or sites that have accurate information. For example, well known news sites or encyclopaedias.

Reliable Source

A source of information that provides thorough, well-reasoned details based on valid evidence.

Website

A set of related web pages located under a single name.

Inappropriate

Behaviour or content online that is upsetting, rude, unkind or makes someone feel unsafe or concerned.

Internet

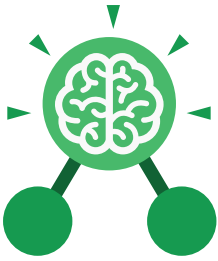
A global computer network providing a variety of information and communication facilities, consisting of interconnected networks and computers.

Permission

When someone shares or accesses content online, it's important that permission is given if it belongs to someone else or has information about them.

Verify

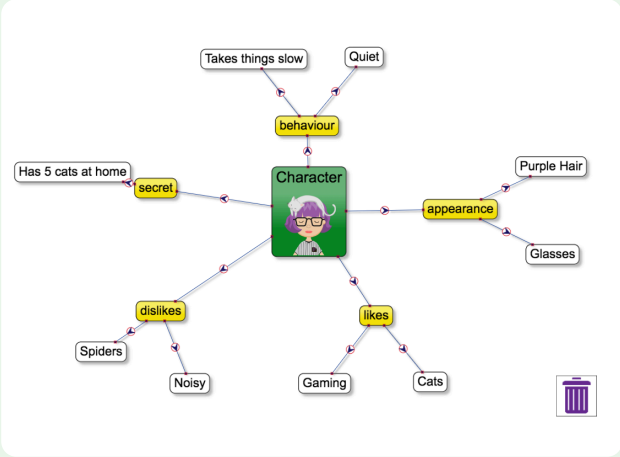
When seeking content online, it is important that a user verifies the information. They can do this by checking other sources and looking for signs that may indicate inaccuracy in the information.



Unit: 3.2

Online Safety

Key Images

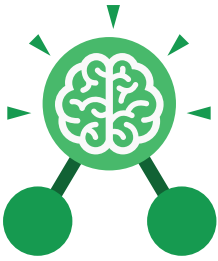


2Connect screen with nodes added



2Blog header

Username and Password screen



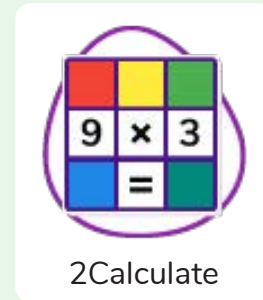
Unit: 3.3

Spreadsheets

Key Learning

- To use 2Calculate to collect data and produce a variety of graphs.
- To use the advanced mode of 2Calculate to learn about cell references.
- To use the formula wizard and the formula bar to write formulae.
- To use the tools within 2Calculate to explore number.
- To create a computational model using a spreadsheet.

Key Resources



Key Questions

Explain how you would collect data to find out children's favourite school subjects. What sort of graph would you create?

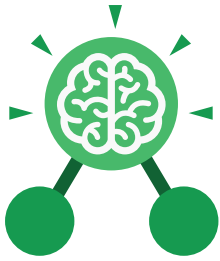
Label one column 'Subject' and list the subjects in this column. In the cells to the right put in the number of children who like this subject. Use the chart button to automatically create a chart. A pie chart would be a suitable choice.

How can you make a 3 times table machine using the spin tool? Could you use the equals tool to check your answer?

Put the spin tool in the left most cell of a row. Type 0×3 in the next three cells. Put an equals tool in the next cell in the row. When you spin the spin tool, the question will change. Enter the answer and the equals tool will tell you if it is correct.

Explain how you would locate a cell in the advanced mode?

Cells in advanced mode have rows labelled with numbers, and columns labelled with letters. So, each cell has a number and letter. For example, A1 or D7.



Unit: 3.3

Spreadsheets

Key Vocabulary

Advance mode

A mode of 2Calculate in which the cells have references and can include formulae.

Bar graph

A chart that uses bars to show quantities or numbers, so they can be easily compared.

Budget

A set amount of money that someone has available to spend on something. For example, a £100 budget to pay for a party.

Cell Address

Every **cell** has an address. This can be found by reading the **column** letter then **row** number.

Columns

Boxes running vertically in a spreadsheet.

Data

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Data table

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Equals

This symbol shows that numbers or number sentences either side are equal in value.

Equals Tool

This can be used after the equals sign or instead of a number in a calculation. If you input the correct answer it will disappear.

Formula bar

An area of the spreadsheet into which formulae can be entered using the '=' sign to open the formula.

Formula wizard

The wizard guides the user in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells.

Line graph

Used to display information which can change over time. For example, temperature at different times of the day.

Pie Chart

A circular chart divided into segments which each represent a part of the total amount.

Quiz tool

This can be used after the equals sign or instead of a number in a calculation. If you input the correct answer it will disappear.

Range

A collection of selected cells: all the numbers you want to appear in a calculation. For example, A1:A12 includes all the cells from A1 to A12.

Rows

Boxes running horizontally in a spreadsheet.

Spin Tool

Clicking on this in a cell will increase or decrease the value in the cell to the right by 1.



Unit: 3.3

Spreadsheets

Key Images



Open, close or share a file



Save your work



Open a previously saved file



Increase or decrease spreadsheet size



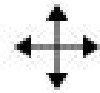
Formatting



Tools



Charts and graphs



Drag cells



Spin tool



Quiz tool



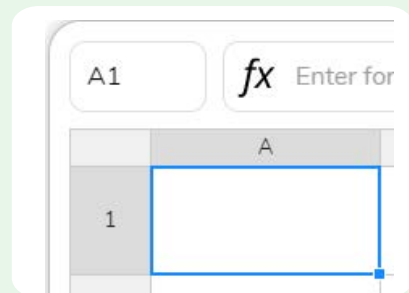
Random number tool



Formula wizard

fx Enter formula/value here

Formula bar



Cell reference



Unit: 3.4

Touch Typing

Key Learning

- To introduce typing terminology.
- To understand the correct way to sit at the keyboard.
- To learn how to use the home, top and bottom row keys.
- To practise typing with the left and right hand.

Key Resources

**purple
mash**



Key Vocabulary

Posture

The correct way to sit at the computer.

Keys

Buttons that are pressed on a computer keyboard or typewriter. These can be described by their position; bottom row, top row and home row (middle row).

Space bar

The bar at the bottom of the keyboard.

Typing

The action or skill of writing something by means of a typewriter or in this case a computer.

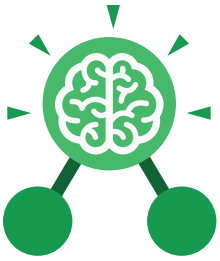
Key Questions

Why should I have a good posture at the computer?

A good posture is important to help you avoid any injuries that come from repeatedly using the computer incorrectly.

Why should I type certain keys with certain fingers?

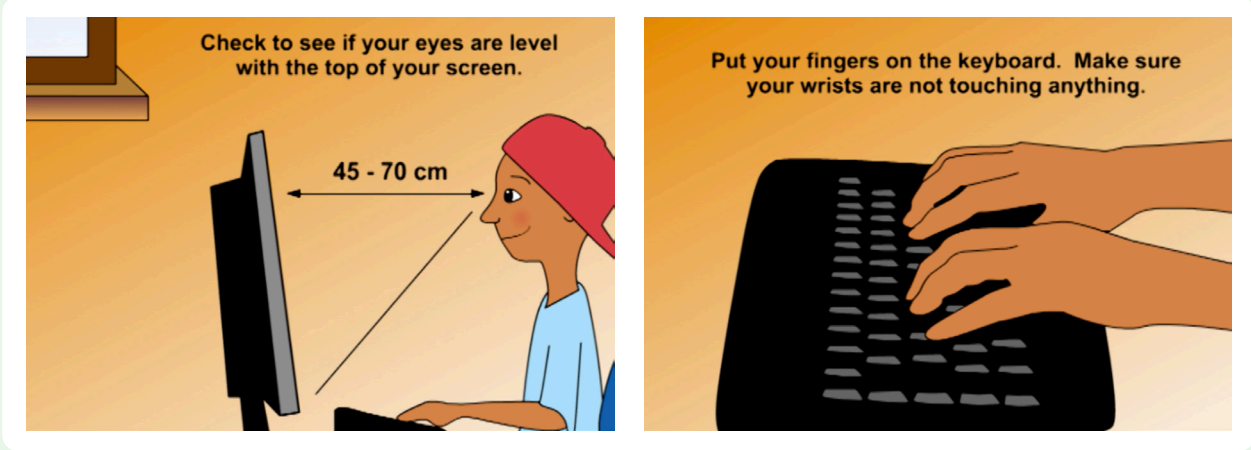
Using specific fingers for specific keys allows you to type more quickly.



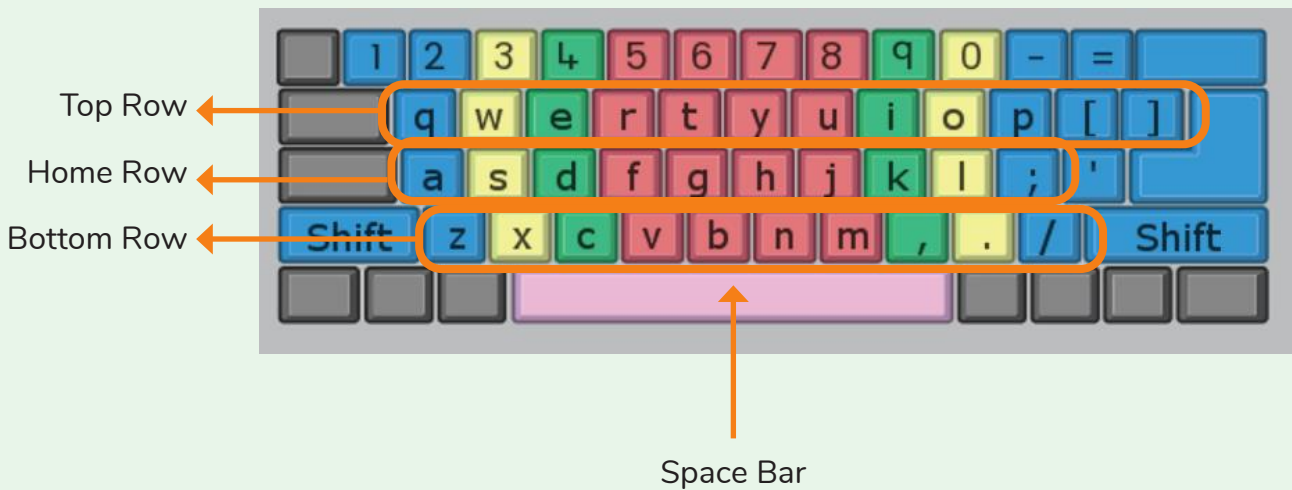
Unit: 3.4

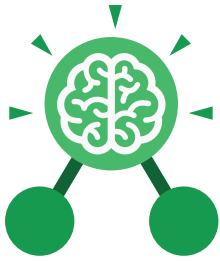
Touch Typing

Key Images



Posture





Unit: 3.5

Email

Key Learning

- To think about different methods of communication.
- To open and respond to an email using an address book.
- To learn how to use email safely.
- To add an attachment to an email.
- To explore a simulated email scenario.

Key Resources



2Email



2Connect



2Do It Yourself

Key Questions

What is email?

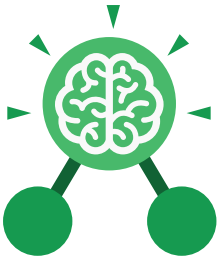
Email is a method of sending electronic communication from one device to another.

What should I do if I receive an email that makes me upset or scared?

If you are at school, you should tell the teacher immediately. If you receive the message at home, then you should tell a parent or guardian.

What information can I send in an email?

As well as sending a message, files such as photographs, videos, music and other resources can be attached to the email and sent to the receiver.



Unit: 3.5

Email

Key Vocabulary

Address book

A list of people who you regularly send an email to.

Attachment

A file, which could be a piece of work or a picture, that is sent with the email.

BCC

Blind Carbon Copy: A way of privately sending a copy of your email to other people so they can see the information in it, without the recipient knowing.

CC

A way of sending a copy of your email to other people so they can see the information in it.

Communication

The sharing or exchanging of information by speaking, writing, or using some other medium such as email.

Compose

To write or create something.

Email

(Electronic Mail) An Internet service that allows people who have an email address to send and receive instant electronic letters.

Inbox

The folder where new emails go into when they are received.

Password

A secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as email.

Personal Information

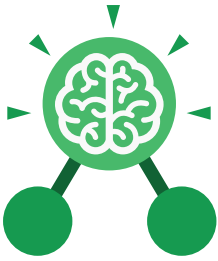
Identifying information about yourself such as your name, address and telephone number.

Save to draft

Allows you to compose an email and save it to draft folder to review later before sending.

Trusted Contact

A person who you know and trust, making an email from them safe to open.



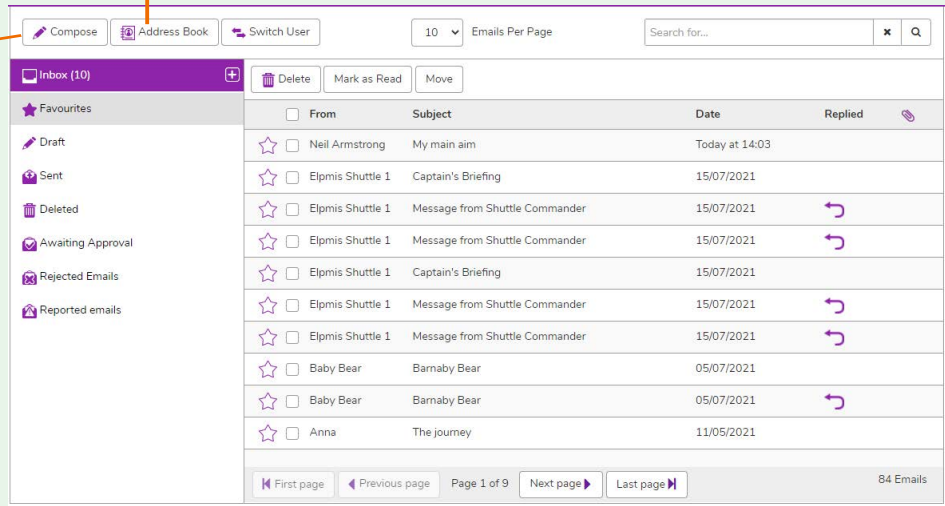
Unit: 3.5

Email

Key Images

A list of people you have sent emails to before

Click here to write your email

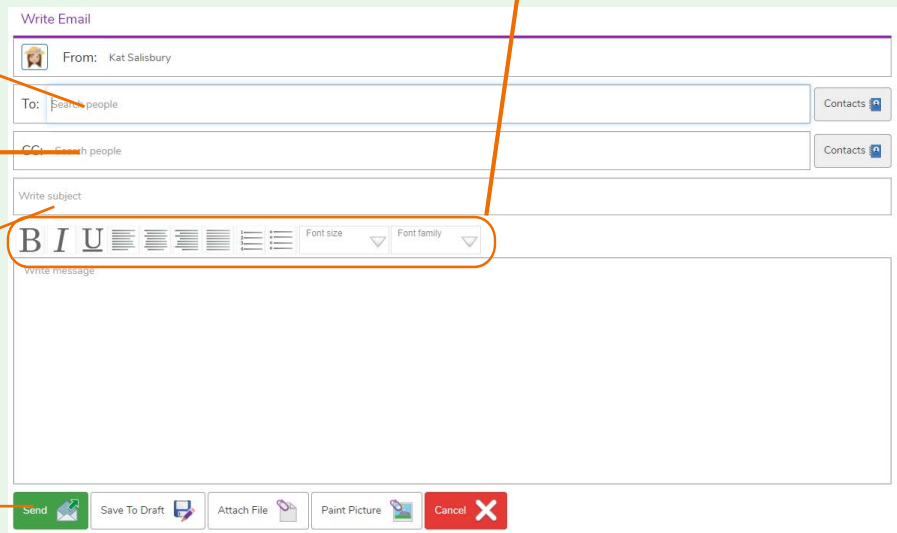


Formatting bar where you can change how the message looks.

Who is the email to be sent to?

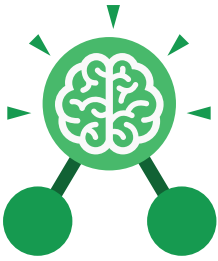
Who else will the email be sent to?

What is the email about?



Click this button to send the email.

Allows you to attach work and pictures to the email



Unit: 3.6

Branching Databases

Key Learning

- To sort objects using just 'yes' or 'no' questions.
- To complete a branching database using 2Question.
- To create a branching database of the children's choice.

Key Resources



Key Vocabulary

Binary Tree

Another name for a branching database.

Database

A collection of data organised in such a way that it can be searched, and information found easily. Database usually refers to data stored on computers.

Branching database

Used to classify groups of objects. It is used to help identify the objects by answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees.

Data

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Debugging

The process of identifying and removing errors from computer hardware or software.



Unit: 3.6

Branching Databases

Key Questions

What is meant by data?

Facts about something; data can be words, numbers or pictures. For example, the class register contains data about the names, addresses and attendance of the children in the class.

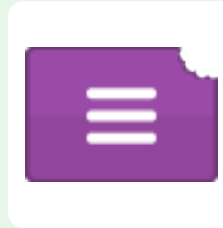
What is a database?

A collection of data organised in such a way that it can be searched, and information found easily. Database usually refers to data stored on computers.

What is a branching database?

Used to classify groups of objects. It is used to help identify the objects by answering questions with either 'yes' or 'no'. Branching databases can also be called binary trees.

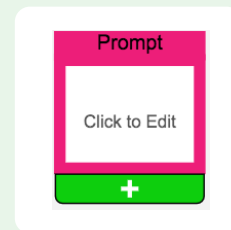
Key Images



Open, close or share a file



Give the database a name



Add a question to begin to sort the information



Unit: 3.7 Simulation

Key Learning

- To consider what simulations are.
- To explore a simulation.
- To analyse and evaluate a simulation.

Key Resources



Key Questions

What is a computer simulation?

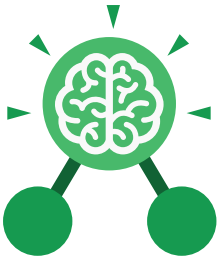
A program that models a real-life situation. They let you try things out that would be too difficult or dangerous to do in real life.

What kind of simulations are there?

Some simulations represent dangerous situations for training such as flying in space, carrying out medical operations or piloting an aeroplane. Others simulate activities for fun, such as racing simulations.

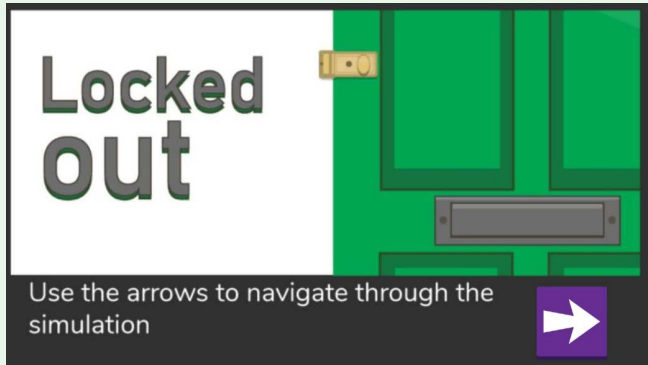
Are there any problems with simulations?

Simulations are often too simple; and unexpected problems can still occur in real life that are difficult to simulate. Simulations can also be very expensive.



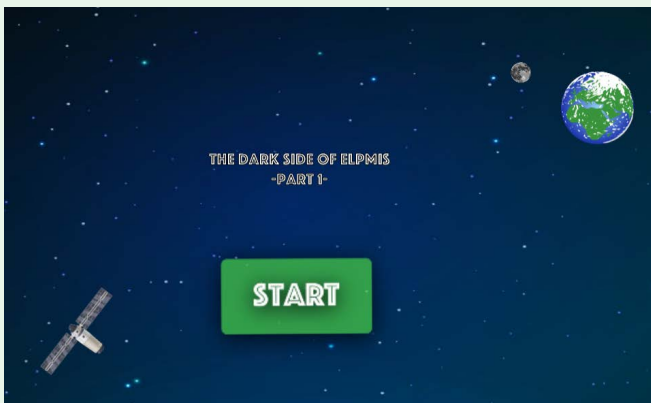
Unit: 3.7 Simulation

Key Images



Locked Out

A lively dog causes problems for Mariza, her baby brother Sam and her mum.



The Dark Side of Elpmis

Trainee astronauts get ready for a mission to the planet Elpmis.

Key Vocabulary

Analysis

A detailed examination of something.

Simulation

A program that models a real-life situation. They let you try things out that would be too difficult or dangerous to do in real life.

Evaluation

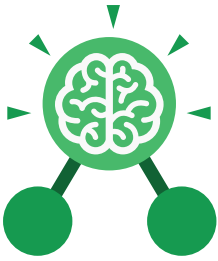
To judge the value, condition or effectiveness of something.

Modelling

The act of representing something, often on a smaller scale.

Decision

The act or result of making a choice after careful thought.

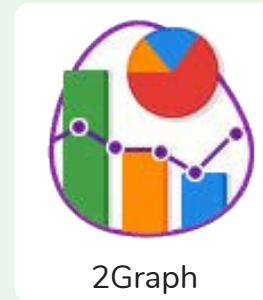


Unit: 3.8 Graphing

Key Learning

- To enter data into a graph and answer questions.
- To solve an investigation and present the results in graphic form.

Key Resources



Key Vocabulary

Axis

A fixed horizontal or vertical reference line for the measurement of coordinates or to plot data in a graph.

Chart

A diagram that represents data. Charts include graphs and other diagrams such as pie charts or flowcharts.

Column

Vertical (down the page) divisions of a piece of work.

Data

A collection of information, especially facts or numbers, obtained by observation, questions or measurement to be analysed and used to help decision-making.

Graph

A diagram that represents data. There are specific layouts for graphs including bar graphs and line graphs.

Investigation

A formal inquiry or systematic study.

Row

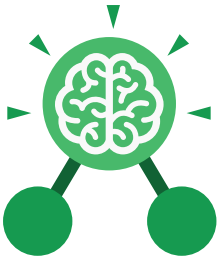
Horizontal (across the page) divisions of a piece of work.

Sorting

Organising data by a rule such as alphabetical or numerical.

Tally Chart

A way of recording how often something happens by counting in fives.



Unit: 3.8 Graphing

Key Images

Chart Title 

Insert the name of the graph here.



Add and remove a row from the table.



Vertical Bar Chart



Horizontal Bar Chart



Block Graph



Line Graph



Pie Chart

Item	Number
Total	0

Data entry table

Key Questions

What is a graph?

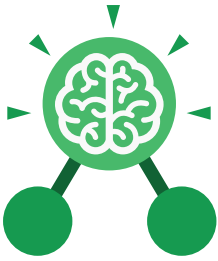
A diagram representing part of a set of data. Graphs can be drawn by hand or on the computer. There are different types of graphs.

What are the frame lines on the graph called?

They are the axes. The axis that goes up and down (vertical) is called the 'y' axis and usually shows the amount. The axis that goes across (horizontal) is called the 'x' axis and shows what is being measured.

What different kinds of graphs are there?

There are lots of different types of graphs including line graph, bar chart and pie chart.



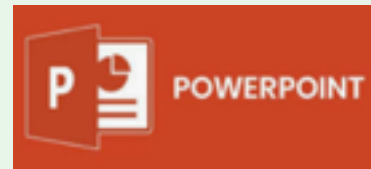
Unit: 3.9

Presenting with Microsoft PowerPoint

Key Learning

- To understand the uses of PowerPoint.
- To create a page in a presentation.
- To add media to a presentation.
- To add animations to a presentation.
- To add timings to a presentation.
- To use the skills learnt to design and create an engaging presentation.

Key Resources



Key Images



Open a new document



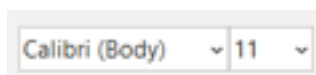
Open an existing document



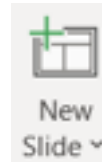
Save your work



Undo key



Font Category



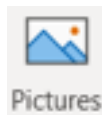
Insert a new slide



Insert a text box



Home tab where many editing tools are found



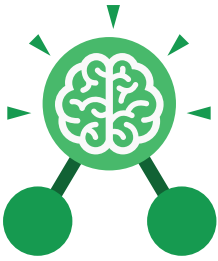
Insert a picture



Design tab where you can find ready-made design templates



Insert tab where you can add an object such as a picture or



Unit: 3.9

Presenting with Microsoft PowerPoint

Key Vocabulary

Animation

The process of adding movement to still objects.

Border Properties

The style of the border around text or an object including the colour, thickness and dashes.

Font formatting

Changing the appearance of text on the screen.

Layer

Describes which objects appear in the front (foreground) of a slide and which appear behind other objects.

Media

Information in the form of words, sounds, numbers, images, or graphics in electronic, print or broadcast form.

Presentation

A visual way of displaying information to an audience that is clear and engaging. It can contain text, images, animation and videos.

Slide

A single page within a presentation.

Slideshow

A collection of pages arranged in sequence that contains text and images to present to an audience.

Text box

An object that can be inserted into a piece of work in a program that allows the user to input text.

Transition

How a slide moves from one to the next.

WordArt

A way of changing the appearance of text often using decorative shapes.



Unit: 3.9

Presenting with Microsoft PowerPoint

Key Questions

What is a presentation program used for?

A presentation program is used to present information to an audience in an engaging way, such as including text, pictures and videos. PowerPoint is an example of a presentation program.

How do you add a transition to a presentation?

Click on 'Transitions' at the top of the screen and select the transition you wish to use. You can preview the transition by pressing 'preview' on the left-hand side.

What features can you use to make a presentation more engaging?

You can give your presentation an engaging look and feel by using different fonts, colour schemes and using an interesting layout. Adding pictures, sound, and videos would also make a presentation more interesting to an audience. Using animations and interesting transitions between slides would also be engaging.



Unit: 3.9

Presenting with Google Slides

Key Learning

- To understand the purpose of the Slides tool.
- To add slides to presentations.
- To add media to presentations.
- To format text appropriately.
- To add shapes and lines to enhance a presentation.
- To use the skills learnt to design and create an engaging presentation.

Key Resources



Google Slides

Key Images



Open a new document

Share

Access sharing options



Return to slides home



Undo key

Arial - 11 B I U A

Text formatting



Insert a text box



Insert image



Insert shape



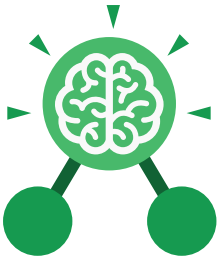
Insert line



Word art



Insert a new slide



Unit: 3.9

Presenting with Google Slides

Key Vocabulary

Animation

The process of adding movement to still objects.

Border Properties

The style of the border around text or an object including the colour, thickness and dashes.

Font formatting

Changing the appearance of text on the screen.

Layer

Describes which objects appear in the front (foreground) of a slide and which appear behind other objects.

Media

Information in the form of words, sounds, numbers, images, or graphics in electronic, print or broadcast form.

Presentation

A visual way of displaying information to an audience that is clear and engaging. It can contain text, images, animation and videos.

Slide

A single page within a presentation.

Slideshow

A collection of pages arranged in sequence that contains text and images to present to an audience.

Text box

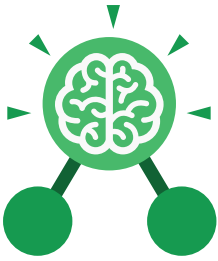
An object that can be inserted into a piece of work in a program that allows the user to input text.

Transition

How a slide moves from one to the next.

WordArt

A way of changing the appearance of text often using decorative shapes.



Unit: 3.9

Presenting with Google Slides

Key Questions

What is a presentation program used for?

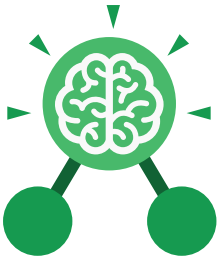
A presentation program is used to present information to an audience in an engaging way, such as including text, pictures and videos. Google Slides is an example of a presentation program.

How do you add a transition to a presentation?

Click on 'Transitions' at the top of the screen and select the transition you wish to use from the Motion menu. Choose the speed that you think will look best.

What features can you use to make a presentation more engaging?

You can give your presentation an engaging look and feel by using different fonts, colour schemes and using an interesting layout. Adding pictures, sound, and videos would also make a presentation more interesting to an audience. Using animations and interesting transitions between slides would also be engaging.

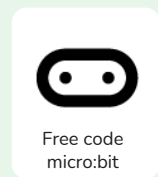
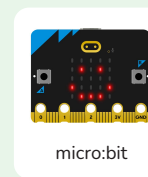
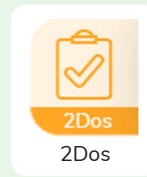


Unit: 3.10 micro:bit

Key Learning

- To understand that the micro:bit is a tiny computer which needs code to make it work.
- To use Free code micro:bit to make code that the micro:bit can understand and then transfer it to the micro:bit.
- To code a micro:bit to show animations on its LEDs.
- To recognise the key inputs and outputs such as accelerometer and LED display.
- To create code that generates sound outputs based on different movement gestures.

Key Resources



Key Vocabulary

Accelerometer

A sensor that detects movement.

Animation

The process of adding movement to still objects.

Data

A collect of information, especially facts or numbers, obtained by observation, questions or measurements.

Gestures

A type of input where the mico:bit is moved in different ways such as tilting, dropping, shaking.

Hardware

A physical device like a computer or a micro:bit that is told what to do by computer programs (software).

Image

A graphic representation of something on a computer screen.

Infinite loop

A loop that runs forever.

Input

Information going into the computer. For example, moving a mouse, using keyboard and tilting device.

LED

Light emitting diode - the micro:bit display is made of 25 LEDs.

Output

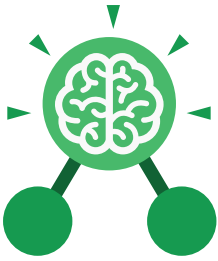
Data sent from a computer such as information shown on the LED display or sound.

Program

A set of instructions written in code that performs a given task.

Repeat

This command can be used to make a block of commands run a set number of times or forever.

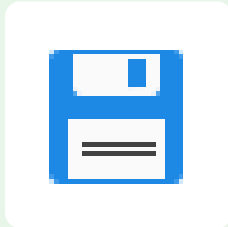


Unit: 3.10 micro:bit

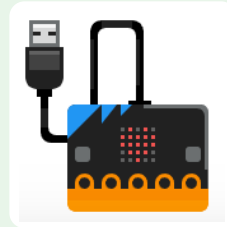
Key Images



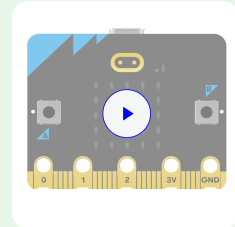
Open, close or share a file.



Save your work.



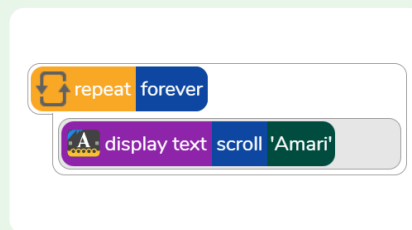
USB transfer.



Test code using simulator.



An event block.



Repeat block.

Key Questions

What does a repeat forever loop do?

A repeat forever loop can keep code running forever. This might be useful in situations such as making an image or text appear on the micro:bit. An example of this could be creating a basic animation where there are several images that need to continually alternate.

What inputs does a micro:bit have?

The micro:bit has quite a few different inputs. Some of the inputs that will be used in our learning are the buttons on the device and gestures. Buttons are simply pressed and will do something if code has been written for them. Gestures use the micro:bit's accelerometer to detect movement such as shaking and tilting.

What outputs does a micro:bit have?

The micro:bit is able to output sounds and images/text on a display. Sounds are produced from a small speaker. It's display is made up of 25 LEDs. Text and simple images can be outputted to this display. The micro:bit will only output if code is written for it to do so.