Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.1
Coding

Key Learning

- To begin to understand selection in computer programming.
- To understand how an IF statement works.
- To understand how to use co-ordinates in computer programming.
- To understand the 'repeat until' command.
- To understand how an IF/ELSE statement works.
- To understand what a variable is in programming.
- To use a number variable.
- To create a playable game.

Key Resources

Tools

2Dos

2Chart

Free code gibbon

Key Vocabulary

Action
Types of commands which are run on an object. They could be used to move an object or change a property.

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

Background
The part of the program design that shows behind everything else. It sets the scene for the story or game.

Button
An object that can trigger an event in response to being clicked.

Code Block
An individual code command represented visually by a block on the screen.

Command
A single instruction in a computer program.

Co-ordinates
Numbers which determine the position of a point, shape or object in a particular space.

Debug/Debugging
Looking for any problems in the code, fixing and testing them.

Execute
To run a computer program.

Flowchart
A diagram which represents an algorithm.

If
A conditional command. This tests a statement. If the condition is true, then the commands inside the block will be run.

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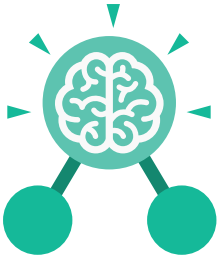


Unit: 4.1
Coding

Key Vocabulary

If/Else
A conditional command. This tests a statement. If the condition is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else block' are run.

Nesting
When you write a command inside something else e.g. a block of commands could be nested inside a timer.

Number Variable
A variable that is numerical.

Object Types
The visual components within 2Code that have different properties and different actions to respond to events.

Predict
Say what you think will happen when a piece of code is run.

Prompt
A question or request asked in coding to obtain information from the user in order to select which code to run.

Prompt for Input
A code command that visually presents the user with text.

Properties
All objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties.

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

Repeat Until
This command can be used to make a block of commands run until something certain happens.

Selection
This is a conditional/ decision command. When selection is used, a program will choose a different outcome depending on a condition.

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

Variable
A named area in computer memory. A variable has a name and a value. The program can change this variable value.

Variable Value
In 2Code, this can be a string (text) a number or a function. It can be changed by the code and is stored in machine memory for the duration of the program.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.1
Coding

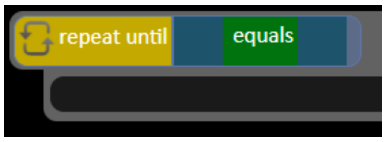
Key Images

Open design mode in 2Code.

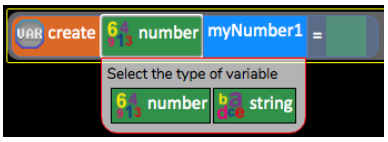
Switch to code mode in 2Code.

A change variable block.

An 'if/Else' command.



Repeat until.



Creating a variable in 2Code.

Unit: 4.1
Coding

Key Questions

Explain the stages of the design, code, test, debug coding process.

This is a process to go through as you create a program using coding

- Design: create a design which could be a flowchart, a labelled diagram or a storyboard. This helps to think through the algorithms required
- Code: code the algorithms using to code and adapting the design.
- Test and Debug: see if the program works and fix any errors.

How can variables and if/else statements be useful when coding programs with selection?

The variable could be set either to 0 or 1 and this could be changed by user action or a timer. If/else statement outcomes could depend upon the value of the variable. command for selection.

What does selection mean in coding and how can you achieve this in 2Code?

The code will contain commands that require a decision and the next code to run will depend upon the outcome of this decision. In 2Code we used the 'if' command for selection.

What is the difference between the different object types in 2Code Gibbon level?

The different objects have different properties. This makes then suitable for different type of programs.

- Buttons can only be clicked and have their colour and text changed.
- Vehicles have speed and angle.
- Characters have movement in 4 directions.
- Turtles have rotation, pen up and down.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.2
Online Safety

Key Learning

- To understand how children can protect themselves from online identity theft.
- To understand that information put online leaves a digital footprint or trail and that this can aid identity theft.
- To identify the risks and benefits of installing software including apps.
- To understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.
- To identify appropriate behaviour when participating or contributing to collaborative online projects for learning.
- To identify the positive and negative influences of technology on health and the environment.
- To understand the importance of balancing game and screen time with other parts of their lives.

Key Resources


2Connect


2Investigate

SPAM

Key Questions

What is meant by a digital footprint?

A digital footprint is the information that exists about a person based upon sites that they have visited, searches that they have done, information that they have shared and other online behaviours.

What is SPAM?

SPAM messages are emails or online messages sent from a computer to many other users. The users are sent the email without requesting it. The purpose of SPAM is for advertising, phishing or malware.

What is meant by plagiarism?

Plagiarism refers to using someone else's work and claiming it to be your own.

Unit: 4.2
Online Safety

Key Vocabulary

Computer virus
A piece of code which can copy itself and typically has a damaging effect on the device, such as corrupting the system or destroying data.

Cookies
A small amount of data generated by a website and saved by a web browser. Its purpose is to remember information about the user.

Copyright
When the rights to something belong to a specific person.

Digital footprint
The information about a person that exists on the Internet as a result of their online activity.

Email
Messages sent by electronic means from one device to one or more people.

Identity theft
When a person pretends to be someone else.

Malware
Software that is specifically designed to disrupt, damage, or gain unauthorized access to a computer system.

Phishing
Practice of sending email pretending to be from reputable companies in order to persuade individuals to reveal personal information, such as passwords and credit cards numbers.

Plagiarism
When you use someone else's words or ideas and pass them off as your own.

Spam
Messages sent over the Internet, typically to many users, for the purposes of advertising, phishing or spreading malware.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.3
Spreadsheets

Key Learning

- To format cells as currency, percentage, decimal to different decimal places or fraction.
- To use the formula wizard to calculate averages.
- To combine tools to make spreadsheet activities such as timed times tables tests.
- To use a spreadsheet to model a real-life situation.
- To add a formula to a cell to automatically make a calculation in that cell.

Key Resources

purple mash

2Calculate

Key Vocabulary

Average Function
A feature that allows a user to find the average values of selected cells..

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

Copy and Paste
A way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing.

Columns
Vertical reference points for the cells in a spreadsheet.

Cells
An individual section of a spreadsheet grid. It contains data or calculations.

Charts
Use this button to create a variety of graph types for the data in the spreadsheet.

Equals tool
Tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.

Formula
Use the formula wizard or type into the formula bar to create a formula in a cell, this will calculate the value for the cells based upon the value of other cells in the spreadsheet.

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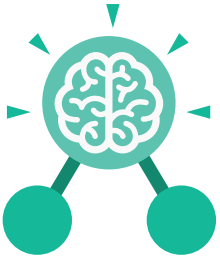


Unit: 4.3
Spreadsheets

Key Vocabulary

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

Move cell tool
This tool makes a cell's contents moveable by drag-and-drop methods.

Random tool
Click to give a random value between 0 and 9 to the cell.

Rows
Vertical reference points for the cells in a spreadsheet.

Spin Tool
Adds or subtracts 1 from the value of the cell to its right.

Spreadsheet
A computer program that represents information in a grid of rows and columns. Any cell in the grid may contain either data or a formula that describes the value to be inserted based on the values in other cells.

Timer
When placed in the spreadsheet, clicking the timer adds 1 to the value of the cell to its right every second until it is clicked again.

Purple Mash Computing Scheme of Work: Knowledge Organisers

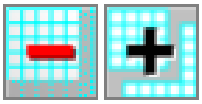
Unit: 4.3
Spreadsheets

Key Images

Open, close or share a file

Save your work

Open a previously saved file



Increase or decrease spreadsheet size

Advanced mode

Formula Wizard

Format Cell Toolbox

Charts

Totals toolbox

Image Tools

Controls Toolbox

Random Number

Spin

Equals

Timer

To Copy

To Cut

To Paste

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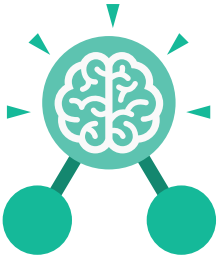

Unit: 4.3
Spreadsheets

Key Questions

How would you add a formula so that the cell shows the percentage score for a test?

Click on the cell where you want the percentage score to be displayed then click the formula wizard button. Click on the cell that contains the score. Choose the ÷ operation then click on the cell that shows what the test was out of. Click OK. Click on the answer cell and then the formet cell button. Choose % as the format.

Which tools would you use to create a timed times tables test in 2Calculate?

You could use the random tool, the spin tool, the equal tool and the timer tool.

Give an example of the data that could be best represented by a line graph.

Data where both axes will contain continuous data so that you can see trends in the data. Such as ages and heights, time and temperature, years and costs.

Explain what a spreadsheet model of a real-life situation is and what it can be used for?

It represents the data of a situation for example budgeting for a party, working out how big a field needs to be for a certain number of animals, working out how to spend your pocket money over time.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.4
Writing for Different Audiences

Key Learning

- To explore how font size and style can affect the impact of a text.
- To use a simulated scenario to produce a news report.
- To use a simulated scenario to write for a community campaign.

Key Resources

2Publish Plus

2Simulate

Key Images

Text Toolbar. Click here to format your text.

Key Vocabulary

Font
The style of writing one can use when typing on a document.

Bold
This makes the text stand out.

Italic
A style of formatting when the text is at an angle.

Underline
To draw a line underneath the font.

Key Questions

Why should I change the font when I am writing?

Changing the appearance of the font can help make things easier to read and highlight important parts of the text.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.5
Logo

Key Learning

- To learn the structure of the coding language of Logo.
- To input simple instructions in Logo.
- Using 2Logo to create letter shapes.
- To use the Repeat function in Logo to create shapes.
- To use and build procedures in Logo.

Key Resources

2Logo

Key Questions

What is Logo?

Logo is a text-based coding language used to control an on-screen turtle to create mathematical patterns.

Key Vocabulary

LOGO
A text-based coding language used to control an on screen turtle to create mathematical patterns.

BK
Move backwards a distance of units.

FD
Move forward a distance of units.

RT
Turn right a given number of degrees.

LT
Turn left a given number of degrees.

REPEAT
Repeat a set of instructions a specified number of times.

SETPC
Set pen colour to a given colour.

SETPS
Set the pen thickness.

PU
Lift the pen up off the screen.

PD
Put the pen back down on the screen.

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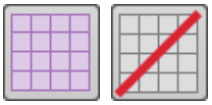
Unit: 4.5
Logo

Key Images

Open, close and share work

Choose the turtle style

Choose a background

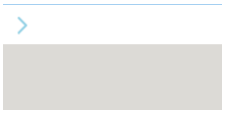


Switch the grid on and off

Press and the logo mouse follows the instructions

Reset the mouse to the start position

Change the speed at which the mouse moves



Write the Logo instructions here

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Unit: 4.6
Animation

Key Learning

- To discuss what makes a good animated film or cartoon.
- To learn how animations are created by hand.
- To find out how animation can be created in a similar way using the computer.
- To learn about onion skinning in animation.
- To add backgrounds and sounds to animations.
- To be introduced to 'stop motion' animation.
- To share animation on the class display board and by blogging.

Key Resources

2Animate

Key Vocabulary

Animation
A process by which still pictures appear to move.

Flipbook
A book with pictures drawn in a way that makes them appear to move when the pages are flicked.

Frame
A single image in an animation.

Onion skinning
A process where the shadow image of the previous frame is present to help you line up the objects of the animation correctly.

Background
A non-moving image that appears behind the animated images.

Play
Press this button to make the animation start.

Sound
Music or oral effects that can be added to the animation.

Stop motion
A technique whereby the camera is repeatedly stopped and started, for example to give animated figures the impression of movement.

Video clip
A short piece of film or animation.

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Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.6
Animation

Key Images

Open, close or share animation.

Add or delete a frame from the animation.

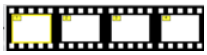
Play the animation.

Switch onion skinning on or off.

Add a background picture to the animation.

Insert a photograph from a webcam into the animation.

Insert a sound file into the animation.



Number of frames in the animation.

Key Questions

What is an animation?

Animation is the process of giving the illusion of movement to drawings, models, or inanimate objects. Animated motion pictures and television shows are highly popular forms of entertainment.

What is meant by onion skinning?

Onion skinning is a 2D computer graphics term for a technique used in creating animated cartoons and editing movies to see several frames at once.

What is meant by stop motion animation?

Stop motion animation is a filming technique in which objects (such as clay models) are photographed in a series of slightly different positions so that the objects seem to move.

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Unit: 4.7
Effective Searching

Key Learning

- To locate information on the search results page.
- To use search effectively to find out information.
- To assess whether an information source is true and reliable.

Key Resources

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2Publish Plus

Key Questions

What is a search engine?

A search engine is a piece of software that allows the user to find and display pages from the World Wide Web.

Key Vocabulary

Easter egg
An unexpected or undocumented feature in a piece of computer software or on a DVD, included as a joke or a bonus.

Internet
A global computer network providing a variety of information and communication facilities.

Internet browser
A software application used to locate and display Web pages.

Search
To look for information. In this case on the Internet.

Search engine
A program that searches for and identifies items in a database. Used especially for finding sites on the World Wide Web.

Spoof website
Website spoofing is the act of creating a website, as a hoax, with the intention of misleading readers that the website has been created by a different person or organisation.

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

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.8
Hardware Investigators

Key Learning

- To understand the different parts that make up a computer.
- To recall the different parts that make up a computer.

Key Resources

purple mash

2Connect

2Quiz

Key Questions

What is the difference between hardware and software?

Hardware refers to the physical parts of a computer or device. The parts inside the computer casing are often called the components. The parts that are attached to the computer case are called peripherals. Software describes the programs that run on the computer.

Key Vocabulary

Motherboard
A printed circuit board containing the main parts of a computer or other device, with connectors for other circuit boards to be slotted into.

CPU
The part of a computer in which operations are controlled.

RAM
Allows programs to store information to help the computer run more quickly.

Graphics card
A printed circuit board that controls the output to a display screen.

Network card
An electronic device that connects a computer to a computer network.

Monitor
A screen which displays an image generated by a computer.

Speakers
A device for letting you hear sounds generated by the computer.

Keyboard and mouse
External input devices.

Purple Mash Computing Scheme of Work: Knowledge Organisers

Unit: 4.8
Hardware Investigators

Key Images

Motherboard

CPU

RAM

Graphics card

Network card

Monitor

Speakers

Keyboard

Mouse

Purple Mash Computing Scheme of Work: Knowledge organisers

Unit: 4.9
Making Music

Key Learning

- To identify and discuss the main elements of music.
- To understand and experiment with rhythm and tempo.
- To create a melodic phrase.
- To electronically compose a piece of music.

Key Questions

What is the difference between melody and rhythm?

A rhythm is a pattern of sounds based on the length of the notes and the silences. A melody is a pattern of notes based on the pitch and rhythm, which make up a memorable tune.

Key Resources

purple mash

Busy Beats

Key Vocabulary

Pitch
How high or low the sound of a note is.

Tempo
How slow or fast a piece of music is.

Melody
A sequence of notes which make up a tune.

Rhythm
A pattern of long and short sounds and silences.

Dynamics
How loud or quiet a sound is.

Rippler
The tool which when clicked, begins the ripple of sound.

Pulse
The steady beat of a piece of music.

Texture
The way that different sounds and music elements are layered together to create a piece of music.

House music
A style of electronic disco music which uses a range of different beats and synth sounds.

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Unit: 4.9
Making Music

Key Images

Open, save and share work.

Play and add different notes or synths.

Play and add different sample sounds.

Clicking on the rippler triggers the sounds.

Stop the music by pressing this button.

This changes the speed – beats per minute.

Record, stop recording and replay your work.

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