



Unit: 4.1 Coding

Key Learning

- To use selection in coding with the 'if else' command.
- To understand and use variables in 2Code.
- To use flowcharts for design of algorithms including selection.
- To use the 'repeat until' with variables to determine the repeat.
- To learn about and use computational thinking terms; decomposition and abstraction.

Key Resources

purple
mash



Key Vocabulary

Action

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

Bug

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

Design Mode

Used to create the look of a 2Code computer program when it is run.

Alert

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

Code Design

Design what your program will look like and what it will do.

Event

Something that causes a block of code to be run.

Algorithm

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

Command

A single instruction in a computer program.

Get Input

This puts the text that a user types into the computer's temporary memory to be used to control the program flow.

Debug/Debugging

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



Unit: 4.1 Coding

Key Vocabulary

If

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

Output

Information that comes out of the computer e.g. sound.

Selection

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

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.

Object

An element in a computer program that can be changed using actions or properties. In 2Code, buttons, characters and vehicles are types of objects.

Simulation

A model that represents a real or imaginary situation.

Input

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

Repeat

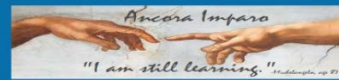
This command can be used to make a block of commands run a set number of times or forever.

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.



What I already know:

- To design algorithms using flowcharts.
- To design an algorithm that represents a physical system and code this representation.
- To use selection in coding with the 'if' command.
- To understand and use variables in 2Code.
- To deepen understanding of the difference between timers and repeat commands.



Unit: 4.2 Online Safety

Key Learning

- To understand how children can protect themselves from online identity theft.
- 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



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.

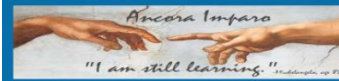
Spam
Messages sent over the Internet, typically to many users, for the purposes of advertising, phishing or spreading malware.

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.



What I already know:

- To know what makes a safe password.
- 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.



Unit: 4.3 Spreadsheets

Key Learning

- Formatting cells as currency, percentage, decimal to different decimal places or fraction.
- Using the formula wizard to calculate averages.
- Combining tools to make spreadsheet activities such as timed times tables tests.
- Using 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



Key Vocabulary

Average

Symbols used to represent comparing two values.

Columns

Vertical reference points for the cells in a 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.

Advance mode

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

Cells

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

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.

Copy and Paste

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

Charts

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



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.

Random tool

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

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.

Rows

Vertical reference points for the cells in a spreadsheet.

Move cell tool

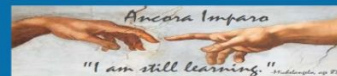
This tool makes a cell's contents moveable by drag-and-drop methods.

Spin Tool

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

Timer

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



What I already know:

- To use the symbols more than, less than and equal to, to compare values.
- To use 2Calculate to collect data and produce a variety of graphs.
 - To use the advanced mode of 2Calculate to learn about cell references.



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

purple
mash



2Publish Plus



2Simulate

Key Images



Text Toolbar. Click here to format your text.

Key Vocabulary

Font

The style of writing one can uses 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.

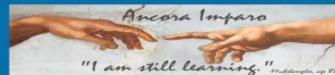
Key Questions

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.



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Unit: 4.5 Logo

Key Learning

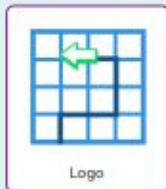
- To learn the structure of the coding language of Logo.
- To input simple instructions in Logo.
- Using 2Logo to create letter shapes.
- To use the Repeat function in Logo to create shapes.
- To use and build procedures in Logo.

Key Questions

What is Logo?

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

Key Resources



Logo

Key Vocabulary

LOGO

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

RT

Turn right a given number of degrees.

SETPC

Set pen colour to a given colour.

LT

Turn left a given number of degrees.

SETPS

Set the pen thickness.

BK

Move backwards a distance of units.

REPEAT

Repeat a set of instructions a specified number of times.

PU

Lift the pen up off the screen.

FD

Move forward a distance of units.

PD

Put the pen back down on the screen.



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.



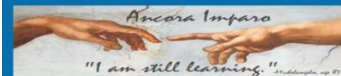
Reset the mouse to the start position.



Change the speed at which the mouse moves.



Write the Logo instructions here.





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 2Animate 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



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.



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?

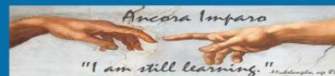
Animation is the process of giving the illusion of movement to drawings, models, or inanimate objects. Animated motion pictures and television shows are highly popular forms of entertainment.

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 frame 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.





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

purple
mash



Key Questions

What is a search engine?

A search engine is a piece of software that allows the user to find and then 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

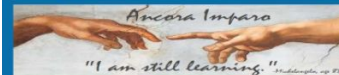
Website spoofing is the act of creating a website, as a hoax, with the intention of misleading readers that the website has been created by a different person or organisation.

Website

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



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What I already
know:

- To understand the terminology associated with searching.
- To gain a better understanding of searching on the Internet.
- To create a leaflet to help someone search for information on the Internet.



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 devices



Unit: 4.8 Hardware investigators

Key Images



Motherboard



CPU



RAM



Graphics card



Network card



Monitor



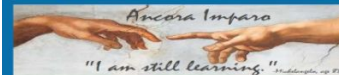
Speakers



Keyboard



Mouse



What I already know:

Simulations

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



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 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.

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.



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 or replay your work.



What I already know:

- To make music digitally using 2Sequence.
- To explore, edit and combine sounds using 2Sequence.
- To edit and refine composed music.
- To think about how music can be used to express feelings and create tunes which depict feelings.
- To upload a sound from a bank of sounds into the Sounds section.
- To record and upload environmental sounds into Purple Mash.
- To use these sounds to create tones in 2Sequence.