



Unit: 5.1 Coding

Key Learning

- To represent a program design and algorithm.
- To create a program that simulates a physical system using decomposition.
- To explore string and text variable types so that the most appropriate can be used in programs.
- To use the Launch command in 2Code Gonilla
- To program a playable game with timers and scorepad.

Key Resources



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.

Control

These commands determine whether parts of the program will run, how often and sometimes, when.

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.

Debug/Debugging

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

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.

Design Mode

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



Unit: 5.1 Coding

Key Vocabulary

Event

Something that causes a block of code to be run.

Get Input

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

If

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

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.

Input

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

Output

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

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.

Repeat

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

Sequence

This is when a computer program runs commands in order. In 2Code this can also include 'repeat' or a timer.

Selection

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

Simulation

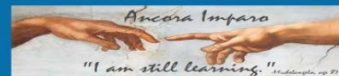
A model that represents a real or imaginary situation.

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 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.



Unit: 5.2 Online Safety

Key Learning

- To gain a greater understanding of the impact that sharing digital content can have.
- To review sources of support when using technology and children's responsibility to one another in their online behaviour.
- To know how to maintain secure passwords.
- To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this.
- To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online.
- To learn about how to reference sources in their work.
- To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information.
- Ensuring reliability through using different methods of communication

Key Resources



Key Questions

Who do I tell if I see anything online that makes me upset or scared?

When you are at school, you should tell the teacher or another adult. At home, you should tell your parent or guardian or another adult that you trust.

Why are passwords so important?

Passwords protect your information and stop other people accessing it. Passwords are like a toothbrush; they should not be shared with anyone else.

Why is it important to reference sources in my work?

If you use a book or article written by someone else, then you must reference it, so people know where you got the information from. If you don't do this then it is known as plagiarism.



Unit: 5.2 Online Safety

Key Vocabulary

Online safety
Refers to staying safe when having a presence online.

Smart rules
A set of rules based around the word SMART designed to help you stay safe when online.

Password
A string of characters that allows access to a computer system or service.

Reputable
Having a good reputation.

Encryption
The process of converting information or data into a code, especially to prevent unauthorized access.

Identity theft
The practice of using another person's name and personal information in order to obtain credit, loans, etc.

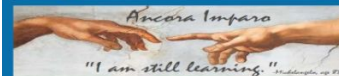
Shared image
A picture that is shared online for other people to see.

Plagiarism
The practice of taking someone else's work or ideas and passing them off as one's own.

Citations
A quotation from or reference to a book, paper, or author, especially in an academic work.

Reference
A mention of a source of information in a book or article including online.

Bibliography
A list of all the books and articles used in a piece of work.



What I already know:

- How to protect myself from online identity theft.
- Understand that information put online leaves a digital footprint
- 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'
 - To identify appropriate behaviour when participating or contributing to collaborative online projects
 - 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.



Unit: 5.3 Spreadsheets

Key Learning

- Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.
- To copy and paste within 2Calculate.
- Using 2Calculate tools to test a hypothesis.
- To add a formula to a cell to automatically make a calculation in that cell.
- Using a spreadsheet to model a real-life situation and answer questions.

Key Resources



Key Questions

How would you add a formula so that the cell shows the product of two other cells?

Click on the cell where you want the product to be displayed then click the formula wizard button. Click on the cell that contains the first number. Choose the x operation then click on the second number. Click OK.

What would you use in 2Calculate to have a cell that automatically calculates the number of days since a certain date?

You could use formulae and the totalling tools. To make the spreadsheet easier to understand, you could use named variables.

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

It represents the data of a situations 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. Using the existing data to predict what time your shadow will be a certain length etc.



Unit: 5.3 Spreadsheets

Key Vocabulary

Average
Symbols used to represent comparing two values

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.

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.

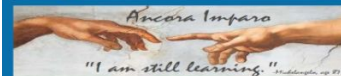
Random tool
Click to give a random value between 0 and 9 to the cell.

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, 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:

- 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.



Unit: 5.4 Databases

Key Learning

- To learn how to search for information in a database.
- To contribute to a class database.
- To create a database around a chosen topic.

Key Resources

purple
mash



2Investigate



Avatar builder

Key Questions

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.

Why is the collaborative feature important?

Making a database collaborative allows lots of people to enter information into the database at the same time. This is a lot quicker than one person entering the data by themselves.

In what ways can I sort information in a database?

A database can hold lots of information so it is essential that information can be effectively investigated. In 2Investigate, data can be searched and sorted in a variety of ways. It can also be presented pictorially.



Unit: 5.4 Databases

Key Vocabulary

Avatar

An icon or figure representing a person in a video game, internet forum, etc.

Binary tree (branching database)

A way to sort information by dividing the information into groups based upon questions with yes or no answers.

Charts

Representing information in a pictorial form.

Collaborative

Produced by, or involving, two or more parties working together.

Data

Facts and statistics collected together for information.

Database

A set of data that can be held in a computer in a format that can be searched and sorted for information.

Find

Search for information in a database.

Record

A collection of data about one item entered into a database.

Sort, Group and Arrange

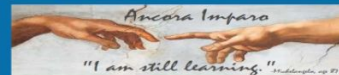
Different ways to sort information in a database to it is easy to read, understand and interpret.

Statistics and reports

To produce information about data in a database.

Table

Sorting information into rows and columns.



What I already know:

- . 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.



Unit: 5.5 Game creator

Key Learning

- To set the scene.
- To create the game environment.
- To create the game quest.
- To finish and share the game.
- To evaluate their and peers' games.

Key Resources



Key Vocabulary

Animation

Creating an illusion of movement.

Computer game

A game played using a computer, typically a video game.

Customise

Modify (something) to suit an individual or task.

Evaluation

The making of a judgement about the value of something.

Image

In this case, a picture displayed on the computer screen.

Instructions

Detailed information about how something should be done or operated.

Interactive

Responding to a user's input on a computer or device.

Screenshot

An image of the data displayed on the screen of a computer or mobile device.

Texture

High frequency detail or colour information on a computer-generated graphic.

Perspective

Representing three-dimensional objects on a two-dimensional surface to give the right impression of their height, width, depth, and position in relation to each other.

Playability

A measure of either the ease by which a video game may be played, or of the overall quality of its gameplay.



Unit: 5.5 Game creator

Key Images



Open, close and share work



Change the settings of your game



Insert treasure into your game



Insert enemies into your game



Drag to set the start position of your game



Play your game



Add images to your game

Key Questions

What is the 2DIY3D tool on Purple Mash?

2DIY 3D allows users to create a playing area, such as a maze, in 2D and then turn it into a 3D computer game. The aim is to avoid the 'baddies' and collect 'treasure'.

What makes a good computer game?

A good game designer gives the player continuous challenges in a visually stimulating environment, each of which leads to another challenge, to keep the game challenging and fun.

Why is it important to continually evaluate your game?

Evaluating your game as you make it allows you to think about ways in which it can be improved. Evaluation may also involve the views of other people who play your game.



What I already know:

Animation

- 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.



Unit: 5.6 3D modelling

Key Learning

- To be introduced to 2Design and Make and the skills of computer aided design.
- To explore the effect of moving points when designing.
- To understand designing for a purpose.
- To understand printing and making.

Key Resources

purple
mash



2D&M

Key Vocabulary

CAD - Computer aided Design

A CAD computer program or app allows you to design a 3D object or environment in 2D and visualise it in 3D on the screen from many angles.

Modelling

The activity of making models.

3D

Something that has three dimensions; height, width and depth.

Viewpoint

A person's opinion or point of view.

Polygon

An object with at least three straight sides and angles, and typically five or more.

2D

Something that has only two dimensions; height and width.

Net

A pattern that you can cut and fold to make a model of a solid shape.

3D Printing

The action or process of making a physical object from a three-dimensional digital model, typically by laying down many thin layers of a material in succession.

Points

An exact position or location on a 2D surface.

Template

Something that serves as a model for others to copy.



Unit: 5.6 3D modelling

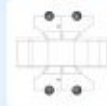
Key Images



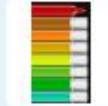
2D Image



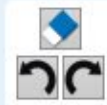
3D Image



Net View



Colour Palette



Clear, Undo and Redo



Fill Options



Magnify

Key Questions

What are the different views of an object available in 2Design and Make?

Net, Points and 3D.

How can the objects designed in 2Design and Make be turned into 3D objects?

You can print the net and then cut and fold this into shape or you can convert the file into a format recognised by 3D printers.

How is CAD software used in industry? Give some examples.

It is used to design 3D objects in a 2D environment.

Some examples are; Architectural plans for buildings; designing layouts for interiors; designing objects such as packaging and designing mechanical components; designing shoes and clothing.



What I already know:

Game Creation

- To set the scene.
- To create the game environment.
- To create the game quest.
- To finish and share the game.
- To evaluate their and peers' games.



Unit: 5.7 Concept Maps

Key Learning

- To understand the need for visual representation when generating and discussing complex ideas.
- To understand and use the correct vocabulary when creating a concept map.
- To create a concept map.
- To understand how a concept map can be used to retell stories and present information.
- To create a collaborative concept map and present this to an audience.

Key Resources



Key Vocabulary

Audience

People giving attention to something.

Collaboratively

Something that is produced by, or involves, two or more parties working together.

Concept

An idea.

Concept Map

A tool for organising and representing knowledge. They form a web of ideas which are all interconnected.

Connection

A relationship or link between two nodes or ideas.

Idea

An opinion or belief.

Node

A way to represent concepts or ideas.

Thought

An idea or opinion produced by thinking or occurring suddenly in the mind.

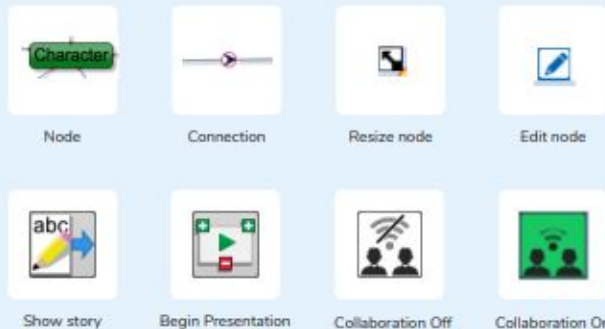
Visual

A picture, piece of film or display used to illustrate or accompany something.



Unit: 5.7 Concept Maps

Key Images



Key Questions

What is a concept map?

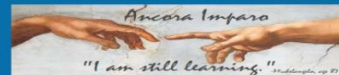
A concept map is a pictorial way of showing relationships between concepts and ideas. A concept map allows you to show information, pictures and links to support an idea or concept.

How is information arranged on a concept map?

On a concept map ideas or concepts are organised into nodes which are linked together with lines to show how the concepts and ideas link together.

How does a concept map help share ideas safely?

A concept map in 2Connect allows many users to contribute to the map which means that ideas or concepts can be quickly amended or additional information provided.



What I already know:

Writing for different audiences

- 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.



Unit: 5.8

Word Processing with Microsoft Word

Key Learning

- To know what a word processing tool is for.
- To add and edit images to a word document.
- To know how to use word wrap with images and text.
- To change the look of text within a document.
- To add features to a document to enhance its look and usability.
- To use tables within MS Word to present information.
- To introduce pupils to templates and the pdf format.
- To consider page layout including heading and columns.

Key Resources



Key Questions

What is a word processing tool used for?

A word processing tool is used to create, edit and print off a document. This can contain text, images, tables or charts. Documents are a type of file that portray information.

What features can you use to make a document more readable?

You can change the font format to give the document a theme and make it more readable. By changing the paragraph formatting, you can ensure the words are spaced evenly. You can add images and use text wrapping to ensure they are positioned well on the page.

How do you successfully add an image to a document?

If you have an image saved onto your computer, you click on insert – pictures – insert image from this device. You can resize and move the image and ensure it fits well on the page by changing the text wrap setting.



Unit: 5.8

Word Processing with Microsoft Word

Key Vocabulary

Copyright

When an image, logo or idea has a legal right to not be copied or used without the owner's permission.

Cursor

The flashing vertical line that shows your place in a Word document.

Document

A type of file which shows written information and/or images and sometimes charts and tables.

Font

A set of type which shows words and numbers in a particular style and size.

In-built styles

A bank of ready-made styles which you can use to make sure your style (font, headers, spacing, size etc) is consistent throughout the document.

Merge cells

A tool you can use when making a table to join cells which are next to each other in columns or rows.

Paragraph formatting

When you change the format of the text in a paragraph, including how the text is aligned and spaced.

Readability

How easy and pleasant it is to read and understand a document.

Template

A ready-made outline of a document you might want to adapt, such as a letter or certificate.

Text formatting

When you change the format of text on a page, including the font and the size and whether it is bold, underlined or in italics.

Text wrapping

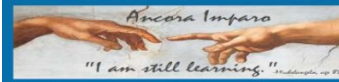
A feature which helps you place and position an image neatly on a page or within a paragraph of text.

Word Art

A way to treat text as a graphic so that you can add special effects to text.

Word Processing tool

A programme which allows you to write, edit and print different documents.



What I already know:

Concept Maps

- To understand the need for visual representation when generating and discussing complex ideas.
- To understand and use the correct vocabulary when creating a concept map.
- To create a concept map.
- To understand how a concept map can be used to retell stories and present information.
- To create a collaborative concept map and present this to an audience.



Unit: 5.8

Word Processing- with Google Docs

Key Learning

- To know what a word processing tool is for.
- To add and edit images to a word document.
- To know how to use word wrap with images and text.
- To change the look of text within a document.
- To add features to a document to enhance its look and usability.
- To use tables within to present information.
- To consider page layout including heading and styles.
- To understand how to share Google Docs files.

Key Resources



ZConnect



Google Docs

Key Questions

What is a word processing tool used for?

A word processing tool is used to create, edit and print off a document. This can contain text, images, tables or charts. Documents are a type of file that portray information.

What features can you use to make a document more readable?

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How do you successfully add an image to a document?

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Unit: 5.8

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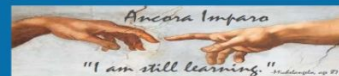
A feature which helps you place and position an image neatly on a page or within a paragraph of text.

Textbox

A way to include text in a position that you want out of the usual flow of the document.

Word Processing tool

A programme which allows you to write, edit and print different documents.



What I already know:

Concept Maps

- To understand the need for visual representation when generating and discussing complex ideas.
- To understand and use the correct vocabulary when creating a concept map.
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- To understand how a concept map can be used to retell stories and present information.
- To create a collaborative concept map and present this to an audience.