



## Unit: 6.1 Coding

### Key Learning

- To use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program.
- To code, test and debug from these designs.
- To use functions and tabs in 2Code to improve the quality of the code.
- To code user interactivity using input functions.

### 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.



## Unit: 6.1 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

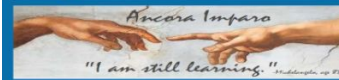
A model that represents a real or imaginary situation.

#### 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 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 Gorilla
- To program a playable game with timers and scorepad.



## Unit: 6.2 Online Safety

### Key Learning

- Identify benefits and risks of mobile devices broadcasting the location of the user/device.
- Identify secure sites by looking for privacy seals of approval.
- Identify the benefits and risks of giving personal information.
- To review the meaning of a digital footprint.
- To have a clear idea of appropriate online behaviour.
- To begin to understand how information online can persist.
- To understand the importance of balancing game and screen time with other parts of their lives.
- To identify the positive and negative influences of technology on health and the environment.

### Key Resources



## Unit: 6.2 Online Safety

### Key Vocabulary

#### Digital footprint

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

#### Password

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

#### PEGI rating

A rating that shows what age a game is suitable for.

#### Phishing

The 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

#### Screen time

Time spent using a device such as a computer, television, or games console.

#### Spoof website

A website that uses dishonest design to trick users into thinking that it represents the truth.

### Key Questions

#### Why do I need to be aware of the dangers of being online?

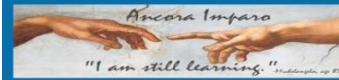
Although the Internet is a brilliant resource for learning and entertainment some people use the Internet to cause you harm. Being aware of these dangers can help keep you safe and protect your privacy.

#### What is meant by my digital footprint?

The term digital footprint is used to describe the traces that people leave behind when they have visited a website or used social media. Your digital footprint is unique to you.

#### Why is it important to think about how much time use a screen for?

Using a screen can help you surf the Internet or enjoy computer games but you need to be careful how much time you spend using a screen. For instance, using a screen at night can damage your sleep patterns. Turn your screen off regularly and enjoy the world outside.



## What I already know:

- To gain a greater understanding of the impact that sharing digital content can have.
- To review sources of support when using technology
- To know how to maintain secure passwords.
- To understand the advantages, disadvantages, permissions and purposes of altering an image digitally.
- 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 check validity and understand the impact of incorrect information.
- Ensuring reliability through using different methods of communication



## Unit: 6.3 Spreadsheets

### Key Learning

- To use a spreadsheet to investigate the probability of the results of throwing many dice.
- Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.
- To create graphs showing the data collected.
- To type in a formula for a cell to automatically make a calculation in that cell.
- Using a spreadsheet to create computational models and answer questions.

### Key Resources



### Key Vocabulary

#### Average

Symbols used to represent comparing two values

#### Columns

Vertical reference points for the cells in a spreadsheet.

#### Count (how many) tool

Counts the number of whatever value object is in the cell to its immediate left and puts the answer in the cell to its immediate right.

#### 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.

#### Dice

When clicked, this will simulate a dice roll by switching to one of the faces of a die.

#### 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: 6.3 Spreadsheets

### Key Vocabulary

#### 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.

#### 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.

#### 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.

#### 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.

#### Formula Wizard

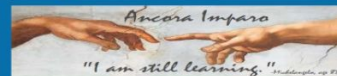
The wizard guides you in creating a variety of formulae for a cell such as calculations, totals, averages, minimum and maximum for the selected cells.

#### 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 add 1 to the value of the cell to its right every second until it is clicked again.



## What I already know:

- 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.



## Unit: 6.4 Blogging

### Key Learning

- To identify the purpose of writing a blog and its key features.
- To plan the theme and content for a blog and write the content.
- To consider the effect upon the audience of changing the visual properties of the blog.
- To understand the importance of regularly updating the content of a blog.
- To understand how to contribute to an existing blog.
- To understand how and why blog posts are approved by the teacher.
- To understand the importance of commenting on blogs.

### Key Resources

purple  
mash



2Blog



2Connect

### Key Questions

#### What is a blog?

A blog is a website or webpage that is regularly updated by the author. A blog also allows the reader to post comments or opinion based on what is written.

#### What can a blog be about?

A blog can be written about any subject. You could write a blog about school such as information about the subject you are studying. Alternatively, you could write a blog about your favourite team or movie.

#### How are the audience involved in a blog?

A key feature of blogs is that the audience can leave a comment or opinion about what they have read on the blog.



## Unit: 6.4 Blogging

### Key Vocabulary

#### Audience

In this case the readership of the blog.

#### 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.

#### Blog page

A webpage onto which blog posts are hosted.

#### Blog post

A piece of writing or other item of content published on a blog.

#### Collaborative

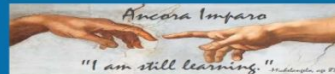
Produced by or involving two or more parties working together.

#### Icon

A symbol or graphic representation on a screen.



Riverside  
Primary  
School





## Unit: 6.5 Text Adventures

### Key Learning

- To find out what a text adventure is.
- To plan a story adventure.
- To make a story-based adventure.
- To introduce map-based text adventures.
- To code a map-based text adventure.

### Key Resources



2Create a Story



2Connect

### Key Vocabulary

#### Text-based adventure

A computer game that uses text instead of graphics.

#### Concept map

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

#### Debug

Identify and remove errors from (computer hardware or software).

#### Sprite

A computer graphic which may be moved on-screen.

#### Function

In this context, a section of code that gets run when it is called from the main code. A function in a program is usually a piece of code that gets run lots of times.



## Unit: 6.5 Text Adventures

### Key Images



Create an adventure story in 2Create a Story



Plan out your story



Add a button to the story



Add a sprite to the story



Add sound to the story



Choose a background



Undo or redo the last action



Play your text based adventure

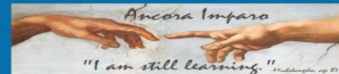
### Key Questions

#### What is a text based adventure?

A text based adventure is a type of game that uses text rather than graphics to tell the story. The player normally selects the next move from a series of text based options.

#### Why is it important to plan a text based adventure?

Text based adventures can often be complicated and give the player lots of options about what to do next. Planning the game ensures the player doesn't make a decision that has no outcome.



What I already know:

Coding

- To use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program.
- To code, test and debug from these designs.
- To use functions and tabs in 2Code to improve the quality of the code.
- To code user interactivity using input functions.



## Unit: 6.6 Networks

### Key Learning

- To learn about what the Internet consists of.
- To find out what a LAN and a WAN are.
- To find out how the Internet is accessed in school.
- To research and find out about the age of the Internet.
- To think about what the future might hold.

### Key Resources

purple  
mash



Tim Berners-Lee  
Profile



Communication  
Questionnaire

### Key Vocabulary

#### Internet

A global computer network providing a variety of information and communication facilities consisting of interconnected networks using standardized communication protocols.

#### Network

Several interconnected computers, machines, or operations.

#### Router

A device which forwards data packets to the appropriate parts of a computer network.

#### Local area network (LAN)

A computer network that links devices within a building or group of adjacent buildings, especially one with a radius of less than 1 km.

#### Network cables

Used to connect and transfer data and information between computers and routers.

#### World Wide Web

An information system on the Internet which allows documents to be connected to other documents by hypertext links, enabling the user to search for information by moving from one document to another.

#### Wide area network (WAN)

A computer network in which the computers connected may be far apart, generally having a radius of more than 1 km.

#### Wireless

The ability to transmit data from one device to another without using wires.



## Unit: 6.6 Networks

### Key Questions

What is the difference between the Internet and the World Wide Web?

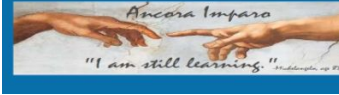
The Internet is a global network of networks while the Web, also referred formally as the World Wide Web (www) is collection of information which is accessed via the Internet.

What is the difference between a LAN and a WAN?

Both are networks that connect computers together. A LAN (Local Area Network) is normally for computers connected less than 1KM distance whilst a WAN

Who is Tim Berners-Lee?

Tim Berners-Lee is the inventor of the World Wide Web. The WWW is the system that delivers webpages over the internet.



What I already  
know:

Hardware Investigators

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



## Unit: 6.7 Quizzing

### Key Learning

- To create a picture-based quiz for young children.
- To learn how to use the question types within 2Quiz.
- To explore the grammar quizzes.
- To make a quiz that requires the player to search a database.
- Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.

### Key Resources



### Key Vocabulary

#### Audience

the people giving attention to something.

#### Collaboration

the action of working with someone to produce something.

#### Concept map

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

#### Database

a structured set of data held in a computer, especially one that is accessible in various ways.

#### Quiz

a test of knowledge, especially as a competition between individuals or teams as a form of entertainment.



## Unit: 6.7 Quizzing

### Key Images



Create a quiz using 2Do it Yourself



Create a quiz using Text Toolkit



Choose a question type in 2Quiz



Create a concept map from a blank or a template



Create a blank database

### Key Questions

What factors do you need to consider when creating a quiz

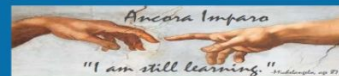
The intended audience; age and reading ability and interests.  
The aim of the quiz; is it for fun like a game, or to make sure that the user has learnt something?

Name three question types in 2Quiz

- Sequencing
- Grouping and Sorting
- Text based
- Multiple-choice
- Labelling

Apart from the questions, what else does a quiz need to contain?

A title screen and instructions for the user.  
Feedback for the user (some quizzes).  
Time limits (some quizzes)  
Images for interest as well as part of the questions





# Unit: 6.8 Binary

### Key Learning

- To know what the terms binary and denary mean and how they relate to the number system, the digital system and the terms base-10 and base-2
- To relate binary to the on and off states of electrical switches.
- To convert numbers from decimal to binary.
- To convert numbers from binary to decimal.
- To represent states of object in their own program using binary.

### Key Resources



### Key Vocabulary

#### Base 10

The number system commonly used in day-to-day life. Using the digits 0,1,2,3,4,5,6,7,8,9 to make. Also known as decimal or denary.

#### Bit

A single 0 or 1 in the binary system.

#### Gigabyte (GB)

1024 MB.

#### Byte

8 bits.

#### Integer

Any whole number. This includes negative and positive numbers but not fractions or decimals.

#### Base 2

A number system based only on the numerals 0 and 1. Also known as binary. The digits 1 and 0 used in binary reflect the on and off states of transistors.

#### Decimal

See Base-10.

#### Kilobyte (KB)

1024 bytes.

#### Denary

See Base-10.

#### Integer

Any whole number. This includes negative and positive numbers but not fractions or decimals.

#### Binary

See Base-2.

#### Digit

A single integer used to show a number.



# Unit: 6.8 Binary

### Key Vocabulary

#### Machine code

The code that signals to a computer which transistors should be on or off. Machine code is written in binary.

#### Switch

A component that can be one of two states at any time: on or off.

#### Variable

A variable is used in programming to keep track of things that can change while a program is running. A variable must have a name. The value of the variable is the information to store.

#### Megabyte (MB)

1024 KB.

#### Tetrabyte (TB)

1024 GB

#### Transistor

A tiny switch that is activated by the electronic signals it receives.

#### Nibble

4 bits.

### Key Images

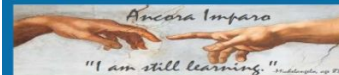
1

2

4

8

16



## What I already know:

### Text Adventures

- To find out what a text adventure is.
- To plan a story adventure.
- To make a story-based adventure.
- To introduce map-based text adventures.
- To code a map-based text adventure.





## Unit: 6.9

### Spreadsheets- with Microsoft Excel

#### Key Learning

- To know what a spreadsheet looks like.
- To navigate and enter data into cells.
- To introduce some basic data formulae in Excel for percentages, averages and max and min numbers.
- To demonstrate how the use of Excel can save time and effort when performing calculations.
- To use a spreadsheet to model a real-life situation.
- To demonstrate how Excel can make complex data clear by manipulating the way it is presented.
- To create a variety of graphs in Excel.

#### Key Resources



#### Key Questions

What is a spreadsheet used for?

Spreadsheets are used to display, organise and interpret information. They are easy to manipulate and carry out useful calculations quickly.

How do you carry out a multiplication calculation?

Within the formula bar for the cell, you will need to write = then the cells you want to multiply using the operator \*. For example, =A1\*B1 will show the answer of A1 multiplied by B1. You can change the contents of A1 or B1 and this will change your answer.

How does using the SUM function save time?

Using the SUM function allows you to add together the total of many cells without having to write them all out. For example, it is easier to write =SUM(A1:A6) rather than = A1+ A2+ A3+ A4+ A5+ A6.



## Unit: 6.9

### Spreadsheets- with Microsoft Excel

#### Key Vocabulary

##### Alignment

How the contents of a cell is lined up and arranged.

##### Calculate

A spreadsheet's ability to complete calculations in a cell by using the = sign.

##### Cell

Each box on a spreadsheet is a cell. It can contain a variety of data such as letters, numbers, symbols and calculations.

##### Cell reference

The letter and number combination which shows a cells location on the page.

##### Chart

A tool which is used to display information in a form of a graph.

##### Column

The letter labelled columns going vertically down the sheet.

##### Formula(e)

A group of letters, numbers, or other symbols which represent a mathematical rule. It allows a spreadsheet to carry out calculations.

##### Function

Ready-made mathematical formulae which help you quickly carry out calculations.

##### 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.

##### Row

The numbered rows going horizontally across the sheet.

##### Spreadsheet

The main part of the page of a software tool used to organise information.

##### Style

How the contents of a cell is presented.

##### Sum

A function which adds together the totals in a range of cells.

##### Text Wrapping

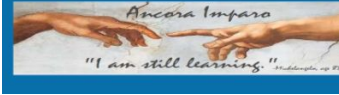
This displays the cells contents on multiple lines rather than one long line, allowing all the contents to be shown.

##### Value

What the data in a cell represents. This could be certain text e.g. blue/green, a date, or a number.

##### Workbook

A file can contain more than one 'sheet'. The complete file is called a spreadsheet workbook.



What I already know:

- To use a spreadsheet to investigate the probability of the results of throwing many dice.
- Using the formula wizard to add a formula to a cell to automatically make a calculation in that cell.
- To create graphs showing the data collected.
- To type in a formula for a cell to automatically make a calculation in that cell.
- Using a spreadsheet to create computational models and answer questions.



## Unit: 6.9

### Spreadsheets- with Google Sheets

#### Key Learning

- To know what a spreadsheet looks like.
- To navigate and enter data into cells.
- To introduce some basic data formulae for percentages, averages and max and min numbers.
- To demonstrate how the use of spreadsheets can save time and effort when performing calculations.
- To use a spreadsheet to model a real-life situation.
- To demonstrate how a spreadsheet can make complex data clear by manipulating the way it is presented.
- To create a variety of graphs in sheets.

#### Key Resources



Google  
Sheets

#### Key Questions

##### What is a spreadsheet used for?

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They are easy to manipulate and carry out useful calculations quickly.

##### How do you carry out a multiplication calculation?

Within the formula bar for the cell, you will need to write = then the cells you want to multiply using the operator \*. For example, =A1\*B1 will show the answer of A1 multiplied by B1. You can change the contents of A1 or B1 and this will change your answer.

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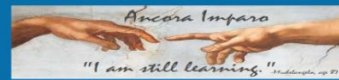
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