



# Computing

## Scheme of Work

# Year 6 Overview



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# Introduction

This document contains an overview of the units included in the Purple Mash Computing Scheme of Work for Year 6.

For detailed lesson plans and other information, see the documents for the individual units themselves.

Most lessons assume that children are logged onto Purple Mash with their own individual usernames and passwords, so their work will be saved in their own folders automatically and can be easily reviewed and assessed by the class teacher. If children have not used and logged onto Purple Mash before then they will need to spend some time before starting these lessons, learning how to do this. Children can be supported by having their printed logon cards (produced using [Create and Manage Users](#)) to hand.

Lesson plans also make use of the facility within Purple Mash to set activities for pupils which they can then complete and hand-in online (2Dos). This enables you to assess their work easily as well as distribute resources to all pupils. If children have not opened 2Dos before then they will need more detailed instructions about how to do this. A teacher's guide to 2Dos can be found in the teacher's section: [2Dos Guide](#).

If you are currently using a single login per class or group and would like to set up individual logins yourself, then please see our guide to doing so at [Create and Mange Users](#). Alternatively, please contact support at [support@2simple.com](mailto:support@2simple.com) or 0208 203 1781.

To force links within this document to open in a new tab, right-click on the link then select 'Open link in new tab'.

## Linking the lessons to curriculum objectives

At the end of this document you will find a breakdown showing how the units relate to the curricula of England, Wales, Northern Ireland and Scotland.

For England and Wales, guidance is also given about assessing children against each objective using the scheme of Work lessons. This will follow for other countries in due course.



Data

This information can be used in association with the Purple Mash Data Dashboard to make and record judgements about children's outcomes and demonstrate progress over time.

For more information about the Data Dashboard see the [Data Dashboard manual](#) or view the videos within the Data Dashboard tool.

## Differentiation

Where appropriate, guidance has been given on how to simplify tasks within lessons or challenge those who are ready for more stretching tasks.

# Year 6 Whole Year Overview

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
<b>YEAR 6</b>	<b>Unit 6.1 Coding</b>						<b>Unit 6.2 Online Safety</b>			<b>Unit 6.3 Spreadsheets</b>					<b>Unit 6.4 Blogging</b>				<b>Unit 6.5 Text Adventures</b>				<b>Unit 6.6 Networks</b>			<b>Unit 6.7 Quizzing</b>						
	<b>Number of Weeks – 6 Main Programs – 2Code</b>						<b>Weeks – 3 Programs - 2DIY 3D 2DIY 2Code 2Blog (Blogging)</b>			<b>Weeks – 5 Programs – 2Calculate</b>					<b>Weeks – 4 Programs – 2Blog</b>				<b>Weeks – 5 Programs – 2Code, 2Connect, 2Create a Story, Writing Templates</b>				<b>Weeks – 3 Programs – 2Connect (Mind Map) Writing Templates</b>			<b>Weeks – 6 Programs – 2DIY 2Quiz Text Toolkit 2Investigate (database)</b>						

\* There is an optional unit – **Unit 6.8 – Understanding Binary** that can be used in addition to the above units. It is a four-lesson unit. Tools used: 2Connect, (Mind Map), 2Question (Binary Databases), Writing Templates, 2Code

# Year 6 Unit Overview

## Unit 6.1 – Coding

Lesson	Aims	Success Criteria
1 & 2	<ul style="list-style-type: none"> <li>To review good planning skills.</li> <li>To design programs using their choice of objects, attributing specific actions to each using their new programming knowledge.</li> <li>To use variables within a game to keep track of the properties of objects.</li> </ul>	<ul style="list-style-type: none"> <li>Children can plan a program before coding to anticipate the variables that will be required to achieve the desired effect.</li> <li>Children can follow through plans to create the program.</li> <li>Children can debug when things do not run as expected.</li> </ul>
3	<ul style="list-style-type: none"> <li>To use functions and understand why they are useful in 2Code.</li> <li>To debug a program and organise the code into tabs.</li> <li>To organise code into functions and Call functions to eliminate surplus code in the program.</li> </ul>	<ul style="list-style-type: none"> <li>Children can explain what functions are and how they can be created and labelled in 2Code.</li> <li>Children can explain how to move code from one tab to another in 2Code.</li> <li>Children can explain how they organised code in a program into functions to make it easier to read.</li> </ul>
4	<ul style="list-style-type: none"> <li>To explore the options for getting text input from the user in 2Code.</li> <li>How to include interactivity in programming.</li> </ul>	<ul style="list-style-type: none"> <li>Children can code programs that take text input from the user and use this in the program.</li> <li>Children can attribute variables to user input.</li> <li>Children are aware of the need to code for all possibilities when using user input.</li> </ul>
5	<ul style="list-style-type: none"> <li>To use flowcharts to test and debug a program.</li> <li>To create a simulation of a room in which devices can be controlled.</li> </ul>	<ul style="list-style-type: none"> <li>Children can follow flowcharts to create and debug code.</li> <li>Children can create flowcharts for algorithms using 2Chart.</li> <li>Children can be creative with the way they code to generate novel visual effects.</li> </ul>
6	<ul style="list-style-type: none"> <li>To explore how 2Code can be used to make a text-based adventure game.</li> </ul>	<ul style="list-style-type: none"> <li>Children can follow through the code of how a text adventure can be programmed in 2Code.</li> <li>Children can adapt an existing text adventure to make it unique to their requirements.</li> </ul>

## Unit 6.2 – Online Safety

Lesson	Aims	Success Criteria
1	<p>Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location.</p> <p>Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon.</p> <p>Identify the benefits and risks of giving personal information and device access to different software.</p>	<ul style="list-style-type: none"> <li>• Children have used the example game and further research to refresh their memories about risks online including sharing location, secure websites, spoof websites, phishing and other email scams.</li> <li>• Children have used the example game and further research to refresh their memories about the steps they can take to protect themselves including protecting their digital footprint, where to go for help, smart rules and security software.</li> </ul>
2	<p>To review the meaning of a digital footprint and understand how and why people use their information and online presence to create a virtual image of themselves as a user.</p> <p>To have a clear idea of appropriate online behaviour and how this can protect themselves and others from possible online dangers, bullying and inappropriate behaviour.</p> <p>To begin to understand how information online can persist and give away details of those who share or modify it.</p>	<ul style="list-style-type: none"> <li>• Children understand how what they share impacts upon themselves and upon others in the long-term.</li> <li>• Children know about the consequences of promoting inappropriate content online and how to put a stop to such behaviour when they experience it or witness it as a bystander.</li> </ul>
3	<p>To understand the importance of balancing game and screen time with other parts of their lives, e.g. explore the reasons why they may be tempted to spend more time playing games or find it difficult to stop playing and the effect this has on their health.</p> <p>To identify the positive and negative influences of technology on health and the environment.</p>	<ul style="list-style-type: none"> <li>• Children can take more informed ownership of the way that they choose to use their free time. They recognise a need to find a balance between being active and digital activities.</li> <li>• Children can give reasons for limiting screen time.</li> <li>• Children can talk about the positives and negative aspects of technology and balance these opposing views.</li> </ul>

### Unit 6.3 - Spreadsheets

Lesson	Aims	Success Criteria
1	Exploring Probability	<ul style="list-style-type: none"> <li>Children can create a spreadsheet to answer a mathematical question relating to probability.</li> <li>Children can take copy and paste shortcuts.</li> <li>Children can problem solve using the count tool.</li> </ul>
2	Use of spreadsheets in 'real life' Creating a computational model	<ul style="list-style-type: none"> <li>Children can create a machine to help work out the price of different items in a sale.</li> <li>Children can use the formula wizard to create formulae.</li> <li>Children can use a spreadsheet to solve a problem.</li> </ul>
3	Use a spreadsheet to plan pocket money spending	<ul style="list-style-type: none"> <li>Children can use a spreadsheet to model a real-life situation and come up with solutions.</li> <li>Children can make practical use of a spreadsheet to help plan actions.</li> </ul>
4 & 5	Planning a school event	<ul style="list-style-type: none"> <li>Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.</li> </ul>

### Unit 6.4 – Blogging

Lesson	Aims	Success Criteria
1	To identify the purpose of writing a blog. To identify the features of successful blog writing.	<ul style="list-style-type: none"> <li>Children understand how a blog can be used as an informative text.</li> <li>Children understand the key features of a blog.</li> </ul>
2	To plan the theme and content for a blog.	<ul style="list-style-type: none"> <li>Children can work collaboratively to plan a blog.</li> </ul>
3	To understand how to write a blog. 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.	<ul style="list-style-type: none"> <li>Children can create a blog with a specific purpose.</li> <li>Children understand that the way in which information is presented has an impact upon the audience.</li> <li>Children understand that blogs need to be updated regularly to maintain the audience's interest and engagement.</li> </ul>
4	To understand how to contribute to an existing blog. To understand how and why blog posts are approved by the teacher.	<ul style="list-style-type: none"> <li>Children can post comments and blog posts to an existing class blog.</li> <li>Children understand the approval process that their posts go through and demonstrate an awareness of the issues surrounding inappropriate posts and cyberbullying.</li> </ul>
5	To understand the importance of commenting on blogs. To peer-assess blogs against the agreed success criteria.	<ul style="list-style-type: none"> <li>Children can comment on and respond to other blogs.</li> <li>Children can assess the effectiveness and impact of a blog.</li> </ul>

### Unit 6.5 – Text Adventures

Lesson	Aims	Success Criteria
1	To find out what a text adventure is. To plan a story adventure.	<ul style="list-style-type: none"> <li>Children can describe what a text adventure is.</li> <li>Children can map out a story-based text adventure.</li> <li>Children can use 2Connect to record their ideas.</li> </ul>
2	To make a story-based adventure.	<ul style="list-style-type: none"> <li>Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan.</li> <li>Children can split their adventure-game design into appropriate sections to facilitate creating it.</li> </ul>
3	To introduce map-based text adventures.	<ul style="list-style-type: none"> <li>Children can map out an existing text adventure.</li> <li>Children can contrast a map-based game with a sequential story-based game.</li> </ul>
4	To code a map-based text adventure.	<ul style="list-style-type: none"> <li>Children can create their own text-based adventure based upon a map.</li> <li>Children can use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game.</li> <li>Children make logical attempts to debug their code when it does not work correctly.</li> </ul>

### Unit 6.6 – Networks

Lesson	Aims	Success Criteria
1	To discover what the children know about the internet.	<ul style="list-style-type: none"> <li>Children know the difference between the World Wide Web and the internet.</li> </ul>
2	To find out what a LAN and a WAN are. To find out how we access the internet in school.	<ul style="list-style-type: none"> <li>Children know about their school network.</li> </ul>
3	To research and find out about the age of the internet. To think about what the future might hold.	<ul style="list-style-type: none"> <li>Children have researched and found out about Tim Berners-Lee.</li> <li>Children have considered some of the major changes in technology which have taken place during their lifetime and the lifetime of their teacher/another adult.</li> </ul>



## Unit 6.7 – Quizzing

Lesson	Aims	Success Criteria
1	To make a picture quiz for young children.	<ul style="list-style-type: none"> <li>• Children have used the 2DIY activities to create a picture-based quiz.</li> <li>• Children have considered the audience’s ability level and interests when setting the quiz.</li> <li>• Children have shared their quiz and responded to feedback.</li> </ul>
2 & 3	To learn how to use the question types within 2Quiz.	<ul style="list-style-type: none"> <li>• Children understand the different question types within 2Quiz.</li> <li>• Children have ideas about what sort of questions are best suited to the different question types.</li> <li>• Children have used 2Quiz to make and share a science quiz.</li> <li>• Children have considered the audience’s ability level and interests when setting the quiz.</li> <li>• Children have shared their quiz with peers.</li> <li>• Children have given and responded to feedback.</li> <li>• As a class, children have collaborated on a quiz.</li> </ul>
4	To explore the grammar quizzes.	<ul style="list-style-type: none"> <li>• Children have tried out the different types of Text Toolkit grammar games.</li> <li>• Children have chosen an appropriate Text Toolkit tool to make their own grammar game.</li> </ul>
5	To make a quiz that requires the player to search a database.	<ul style="list-style-type: none"> <li>• Children have used a 2Investigate quiz to answer quiz questions.</li> <li>• Children have designed their own quiz based on one of the 2Investigate example databases.</li> </ul>
6	Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.	<ul style="list-style-type: none"> <li>• Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.</li> </ul>

## Unit 6.8 OPTIONAL UNIT– Understanding Binary

Lesson	Aims	Success Criteria
1	<p>Examine how whole numbers are used as the basis for representing all types of data in digital systems through:</p> <p>Recognising that digital systems represent all types of data using number codes that ultimately are patterns of 1s and 0s (called binary digits, which is why they are called digital systems).</p> <p>Understand that binary represents numbers using 1s and 0s and these represent the on and off electrical states respectively in hardware and robotics.</p>	<p>Children have an understanding of binary as a number system and its purpose and application in computing.</p> <ul style="list-style-type: none"> <li>• Children can explain how all data in a computer is saved in the computer memory in a binary format.</li> <li>• Children can explain that binary uses only the integers 0 and 1.</li> <li>• Children can relate 0 to an 'off' switch and 1 to an 'on' switch.</li> </ul>
2 & 3	<p>Recognising that the numbers 0, 1, 2 and 3 could be represented by the patterns of two binary digits of 00, 01, 10 and 11</p> <p>Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.</p>	<ul style="list-style-type: none"> <li>• Children can count up from 0 in binary. Some may need visual aids to help them.</li> <li>• Children can relate bits to computer storage.</li> </ul>
4	<p>Representing whole numbers in binary, for example counting in binary from zero to 15, or writing a friend's age in binary.</p> <p>Exploring how division by two can be used as a technique to determine the binary representation of any whole number by collecting remainder terms</p>	<ul style="list-style-type: none"> <li>• Children can convert numbers to binary using the division by two method.</li> <li>• Children can check their own answers using the converter tool.</li> </ul>
5	<p>Representing the state of an object in a game as active or inactive using the respective binary values of 1 or 0</p>	<ul style="list-style-type: none"> <li>• Children can make use of a variable set to 0 or 1 to control game states.</li> </ul>
6	<p>Are you smarter than a 10- (or 11-) year-old? To make a quiz to test your teachers or parents.</p>	<ul style="list-style-type: none"> <li>• Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.</li> </ul>

## English National Curriculum Objectives (Key Stage 2)

National Curriculum Objective	Strand	Units
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Computer Science	6.1 6.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.1
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	6.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	6.1 6.5
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.2
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.4
Understand computer networks, including the Internet; how they can provide multiple services, such as the World Wide Web; and the opportunities they offer for communication and collaboration.	Computer Science	6.6
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	6.2
Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information.	Information Technology	6.1, 6.3 6.4, 6.5 6.7
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.	Digital Literacy	6.2 6.4

\*And discussed in other units.

# Welsh Digital Competence Framework

Strand	Element	Objective (Learners are able to...):	Units Covered
Citizenship <b>Note:</b> The Scheme of Work contains a unit on Online Safety in each year group. Taken as a whole, these units provide pupils with the citizenship knowledge.	Identity, image and reputation	Explain what metadata of a photograph can include, e.g. date, time and location	6.2
		Identify benefits and risks of mobile devices broadcasting the location of the user/device, e.g. apps accessing location.	6.2
		Identify secure sites by looking for privacy seals of approval, e.g. https, padlock icon.	6.2
		Identify the benefits and risks of giving personal information and device access to different software.	6.2
		Understand how and why people use their information and online presence to create a virtual image of themselves as a user.	6.2
	Health and well-being	Understand the importance of balancing game and screen time with other parts of their lives.	6.2
	Digital rights, licensing and ownership	Cite all sources when researching and explain the importance of this.	6.2 6.4
		Understand that photographs can be edited digitally and discuss rights and permissions associated with this.	6.2
	Online behaviour and cyberbullying	Demonstrate appropriate online behaviour and apply a range of strategies to protect themselves and others from possible online dangers, bullying and inappropriate behaviour.	6.2 6.4
Interacting and collaborating	Communication	Exchange online communication, making use of a growing range of available features.	6.4

		Show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each	6.2
	Collaboration	Work with others to create an online collaborative project for a specific purpose, sharing and appropriately setting permissions for other group members.	6.4
	Storing and sharing	Create and share hyperlinks to local, network and online files.	All Units Throughout Purple Mash most children can create a link by saving their work and then clicking on the share (world) button when their work is open. Children can then copy and save the link to a desired location.
		Password-protect a file	N/A Purple Mash is password protected. This can be contrasted to the need to password protect other files using different software.
Producing	Planning, sourcing and searching	Plan work independently before beginning the digital task	All Units Children will demonstrate strong independent planning skills before commencing any digital task. Their planning will be concise, apt to intended task, demonstrate deep awareness of audience/end users and state justification for planned ideas.
		Extend strategies for finding information; store previous searches and results for future use.	N/A This is not applicable to Purple Mash.
	Creating	Use a range of software to produce and refine multimedia components.	6.1, 6.3 6.4, 6.5 6.7
		Select and combine a range of text, image, sound, animation and video to produce an outcome for a selected purpose. Use software tools to enhance the outcomes for specific audiences.	6.1, 6.3 6.4, 6.5 6.7
	Evaluating and improving	Explain reasons for layout and content of own work.	All units Most children can explain, with evidenced based reasons, as to why they have chosen a specific layout and content for their digital creations e.g. 2Code programs (Unit 6.1),

			2Calculate spreadsheets for solving a problem (Unit 6.3) and 2DIY for quiz creation (Unit 6.7). They evaluate their work using given criteria, reflecting on previous learning concepts and by making appropriate generalisations.
		Ensure output is appropriate for specific purpose.	All units Most children can use given criteria, prior learning and both collaborative and independent approaches to ensure their digital output is appropriate for specific purpose.
		Comment on reasons for layout and content.	All units Most children comment on the reasons for layout and content across a range of digital content using both electronic (2Blog, Preview and Correct, 2Email) and non-electronic.
		Invite feedback/responses from others.	All units Most children use the range of software within Purple Mash and its features to invite feedback/responses from others, e.g. 2Blog, comment functionality for online-work, collaborative mode etc.
		Create groups and share work between them to allow review of work.	All units Most children can use 2Blog, 2Email, shared folders and comment functionality to share work and review it.
Data and Computational Thinking	Problem solving and modelling	Demonstrate how programs or processes run by following a sequence of instructions exactly and in order	6.1 6.5
		Demonstrate how an algorithm is useful for representing a solution to a problem through testing	6.1 6.5
		Understand that changing instructions can affect or even terminate a process, e.g. moving instructions around in a program could produce unexpected outcomes or cause the program to fail altogether.	6.1 6.5
	Data and information literacy	Construct, refine and interrogate data sets to test or support an investigation.	6.3 6.5

# Northern Ireland Levels of Progression and Desirable Features

	Objective	Units Covered
Explore	Access, select, interpret and research information from safe and reliable sources.	6.2
	Investigate, make predictions and solve problems through interaction with digital tools.	6.1, 6.3, 6.5
Express	Create, develop, present and publish ideas and information responsibly using a range of digital media and manipulate a range of assets to produce multimedia.	All units
Exchange	Communicate safely and responsibly using a range of contemporary digital methods and tools, exchanging, sharing, collaborating and developing ideas digitally.	All units
Evaluate	Talk about, review and make improvements to work, reflecting on the process and outcome, and consider the sources and resources used, including safety, reliability and acceptability.	All units
Exhibit	Manage and present their stored work and showcase their learning across the curriculum, using ICT safely and responsibly.	All Units

Desirable Features	Units Covered
Desktop Publishing	6.4, 6.7
Film and Animation	
Interactive Design	6.1, 6.5, 6.7
Managing data	6.3
Music and Sound	
Online Communication	6.4 and use of 2dos and blogging as part of lessons
Presenting	6.7
Working with Images	6.7

# Scottish Curriculum for Excellence (Second Level)

Technological developments in society	Units Covered
When exploring technologies in the world around me, I can use what I learn to help to design or improve my ideas or products.	6.5, 6.7
I can investigate how an everyday product has changed over time to gain an awareness of the link between scientific and technological developments	
Having analysed how lifestyle can impact on the environment and Earth's resources, I can make suggestions about how to live in a more sustainable way.	
I can investigate the use and development of renewable and sustainable energy to gain an awareness of their growing importance in Scotland or beyond.	
ICT to enhance learning	Units Covered
As I extend and enhance my knowledge of features of various types of software, including those which help find, organise, manage and access information, I can apply what I learn in different situations.	By covering a variety of units.
I can access, retrieve and use information from electronic sources to support, enrich or extend learning in different contexts.	By covering a variety of units.
Throughout all my learning, I can use search facilities of electronic sources to access and retrieve information, recognising the importance this has in my place of learning, at home and in the workplace.	By covering a variety of units.
I explore and experiment with the features and functions of computer technology and I can use what I learn to support and enhance my learning in different contexts.	By covering a variety of units.
I can create, capture and manipulate sounds, text and images to communicate experiences, ideas and information in creative and engaging ways.	By covering a variety of units.
Computing science contexts for developing technological skills and knowledge	Units Covered
I am developing my knowledge and use of safe and acceptable conduct as I use different technologies to interact and share experiences, ideas and information with others	6.2



Using appropriate software, I can work collaboratively to design an interesting and entertaining game which incorporates a form of control technology or interactive multimedia.	6.1, 6.5, 6.7
Craft, design, engineering and graphics contexts for developing technological skills and knowledge	<b>Units Covered</b>
By applying my knowledge and skills of science and mathematics, I can engineer 3D objects which demonstrate strengthening, energy transfer and movement	
Through discovery and imagination, I can develop and use problem-solving strategies to construct models.	6.3 Modelling real-life situations technologically
Having evaluated my work, I can adapt and improve, where appropriate, through trial and error or by using feedback.	All units
I can use drawing techniques, manually or electronically, to represent objects or ideas, enhancing them using effects such as light, shadow and textures.	
Throughout my learning, I experiment with the use of colour to develop an awareness of the effects and impacts it can have.	6.7