

**purple
mash**

Computing Scheme of Work Overview Year 4

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Introduction

This document contains an overview of the units included in the Purple Mash Computing Scheme of Work for Year 4.

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 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. Within each unit document is a section called Assessment Guidance with exemplars of how a child at emerging, expected and exceeding level of achievement could demonstrate this in their work through the unit. These statements could also be used for reporting.



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.

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Adapting and Refining the Scheme for your School

In an ideal world, pupils would be able to complete all units; this provides a wide range of different technological experiences using a variety of tools. The overlaps between units serve to deepen understanding of computational concepts and provide opportunities for pupils to apply and extend understanding and make links in their knowledge and capabilities.

However, as a school, you might decide that you need to refine the scheme for your own purposes and needs, meaning that not all units can be covered. This section Title to help you to do this whilst still being confident in curriculum coverage.

Firstly, use the colour coding to pick and choose units that cover the three strands of computing content to ensure a spread of complimentary opportunities and skills and to ensure curriculum coverage. Ideally, balance these strands over the whole school so that pupils cover and revisit all areas.

Secondly, look for opportunities to incorporate the computational skills into other subjects.

Resources could be adapted or created to match your topics. Here are some suggestions:

Units that link to the maths curriculum:

- 4.3 Spreadsheets

Units that could be part of English lessons:

- 4.4 Writing for Different Audiences

Units that could easily be topic linked; resources will need to be adapted to have a topic theme: Any of the data handling units suggested in the maths section.

- 4.6 Animation

For lessons taught more discretely as computing such as Email (3.5) and Blogging (6.4), topic themes could still be used to double-up on objectives covered.

Online safety units can be part of RSE\PSHE lessons; there is a strong link between the learning objectives related to online safety with many of the online safety lessons aligning with RSE\PSHE objectives.

Music topics could be incorporated into music lessons with a modelling of musical skills on both instruments and using the computer:




- 4.9 Making Music

We have a stand-alone spreadsheet unit for Y6, this does not rely upon having completed the other spreadsheet units so might be another way to familiarise pupils with spreadsheets without including a spreadsheet unit in each year groups. In this case, we would advise including the use of spreadsheets and other data programs within maths where there is a curricular link.

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Year 4 Whole Year Overview

Predominant Area of Computing*					
	Computer Science		Information Technology		Digital Literacy

*Most units will include aspects of all strands.

These units can be taught in any order to meet the needs of your wider curriculum.

<p>Unit 4.1 Coding</p> <p>Number of lessons – 6</p> <p>Main Programs – 2Code</p>	<p>Unit 4.2 Online safety</p> <p>Number of lessons – 4</p> <p>Programs – Various</p>	<p>Unit 4.3 Spreadsheets</p> <p>Number of lessons – 6</p> <p>Programs – 2Calculate</p>
<p>Unit 4.4 Writing for different audiences</p> <p>Number of lessons – 5</p> <p>Programs – 2Email, 2Connect, 2DIY</p>	<p>Unit 4.5 Logo</p> <p>Number of lessons – 4</p> <p>Programs – Logo</p>	<p>Unit 4.6 Animation</p> <p>Number of lessons – 3</p> <p>Programs – 2Animate</p>
<p>Unit 4.7 Effective Search</p> <p>Number of lessons – 3</p> <p>Programs – Browser</p>	<p>Unit 4.8 Hardware Investigators</p> <p>Number of lessons – 2</p>	<p>Unit 4.9 Making Music</p> <p>Number of Lessons – 4</p> <p>Main Program – Busy Beats</p>

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Year 4 Unit Overview

Unit 4.1 – Coding

Lesson	Title	Success Criteria
1	Design, Code, Test and Debug	<ul style="list-style-type: none"> Children can explore different object types in 2Code. Children can use a background and objects to create a scene. Children can plan an algorithm for their scene and use 2Code to program it.
2	IF Statements	<ul style="list-style-type: none"> Children can create a program that includes an IF statement. Children can interpret a flowchart that depicts an IF statement.
3	Co-ordinates	<ul style="list-style-type: none"> Children can make use of the X and Y properties of objects in their coding. Children can create a program that includes an IF statement.
4	Repeat Until and IF/ELSE Statements	<ul style="list-style-type: none"> Children can read code that includes repeat until and IF/ ELSE and explain how it works. Children can create a program that includes an IF/ ELSE statement. Children can interpret a flowchart that depicts an IF/ ELSE statement.
5	Number Variables	<ul style="list-style-type: none"> Children can explain what a variable is in programming. Children can create and use variables when programming.
6	Making a Playable Game	<ul style="list-style-type: none"> Children can read code that includes repeat until and IF/ ELSE and explain how it works. Children can create a program that includes and IF/ ELSE statement. Children can interpret a flowchart that depicts an IF/ ELSE statement.

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Unit 4.2 – Online Safety

Lesson	Title	Success Criteria
1	Going Phishing	<ul style="list-style-type: none"> Children know that security symbols such as a padlock protect their identity online. Children know the meaning of the term 'phishing' and are aware of the existence of scam websites. Children can explain what a digital footprint is and how it relates to identity theft. Children can give examples of things that they would not want to be in their digital footprint.
2	Beware Malware	<ul style="list-style-type: none"> Children can identify possible risks of installing free and paid for software. Children know that malware is software that is specifically designed to disrupt, damage, or gain access to a computer. Children know what a computer virus is.
3	Plagiarism	<ul style="list-style-type: none"> Children can determine whether activities that they undertake online, infringe another's' copyright. They know the difference between researching and using information and copying it <p>Children know about citing sources that they have used.</p>
4	Healthy Screen-Time	<ul style="list-style-type: none"> 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. Children can give reasons for limiting screen time.

Unit 4.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Formula Wizard and Formatting Cells	<ul style="list-style-type: none"> Children can use the number formatting tools within 2Calculate to appropriately format numbers. Children can add a formula to a cell to automatically make a calculation in that cell.
2	Using the Timer and Spin Buttons	<ul style="list-style-type: none"> Children can use the timer, random number and spin button tools. Children can combine tools to make fun ways to explore number.

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3	Line Graphs	<ul style="list-style-type: none"> Children can use a series of data in a spreadsheet to create a line graph. Children can use a line graph to find out when the temperature in the playground will reach 20°C.
4	Using a Spreadsheet for Budgeting	<ul style="list-style-type: none"> Children can make practical use of a spreadsheet to help them plan actions. Children can use the currency formatting in 2Calculate.
5	Exploring Place Value with a Spreadsheet	<ul style="list-style-type: none"> Children can allocate values to images and use these to explore place value. Children can use a spreadsheet made in 2Calculate to check their understanding of a mathematical concept.

Unit 4.4 – Writing for Different Audiences

Lesson	Title	Success Criteria
1	Font Styles	<ul style="list-style-type: none"> Children can look at and discuss a variety of written material where the font size and type are tailored to the purpose of the text. Children can use text formatting to make a piece of writing fit for its audience and purpose.
2 & 3	Using a Simulated Scenario to Produce a News Report	<ul style="list-style-type: none"> Children can role-play the job of a journalist in a newsroom. Children can interpret a variety of incoming communications and use these to build up the details of a story. Children can use the incoming information to write their own newspaper report.
4 & 5	Writing for a Campaign	<ul style="list-style-type: none"> Children can use 2Connect to mind-map ideas for a community campaign. Children can use these ideas to write a persuasive letter or poster as part of the campaign. Children can assess their texts using criteria to judge their suitability for the intended audience.

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Unit 4.5 - Logo

Lesson	Title	Success Criteria
1	Introduction to 2Logo	<ul style="list-style-type: none"> Children know what the common instructions are in 2Logo and how to type them. Children can follow simple 2Logo instructions to create shapes on paper. Children can follow simple instructions to create shapes in 2Logo.
2	Creating Letters using 2Logo	<ul style="list-style-type: none"> Children can create 2Logo instructions to draw patterns of increasing complexity. Children understand the pu and pd commands. Children can write 2Logo instructions for a word of four letters.
3	Using the 'Repeat' Command in 2Logo	<ul style="list-style-type: none"> Children can follow 2Logo code to predict the outcome. Children can create shapes using the Repeat command. Children can find the most efficient way to draw shapes.
4	Using Procedures	<ul style="list-style-type: none"> Children can use the Procedure feature. Children can create 'flowers' or 'crystals' using 2Logo.

Unit 4.6 - Animation

Lesson	Title	Success Criteria
1	Animating an Object	<ul style="list-style-type: none"> Children have put together a simple animation using paper to create a flick book. Children understand animation frames. Children have made a simple animation using 2Animate.
2	2Animate Tools	<ul style="list-style-type: none"> Children know what the Onion Skin tool does in animation. Children can use the Onion Skin tool to create an animated image.

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		<ul style="list-style-type: none"> • Children can use backgrounds and sounds to make more complex and imaginative animations.
3	Stop Motion Animation	<ul style="list-style-type: none"> • Children know what 'stop motion' animation is and how it is created. • Children have used ideas from existing 'stop motion' films to recreate their own animation. • Children have shared their animations and commented on each other's work using display boards and blogs in Purple Mash.

Unit 4.7 – Effective Searching

Lesson	Title	Success Criteria
1	Using a Search Engine	<ul style="list-style-type: none"> • Children can structure search queries to locate specific information.
2	Use Search Effectively to Answer Questions	<ul style="list-style-type: none"> • Children have used search to answer a series of questions. • Children have written search questions for a friend to solve.
3	Reliable Information Sources	<ul style="list-style-type: none"> • Children can analyse the contents of a web page for clues about the credibility of the information.

Unit 4.8 – Hardware Investigators

Lesson	Title	Success Criteria
1	Hardware	<ul style="list-style-type: none"> • Children can name the different parts of a desktop computer. • Children know what the function of the different parts of a computer is.
2	Parts of a Computer	<ul style="list-style-type: none"> • Children have created a leaflet to show the function of computer parts.

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Unit 4.9 – Making Music

Lesson	Title	Success Criteria
1	Understanding Music	<ul style="list-style-type: none"> • Children can use appropriate musical language to discuss a piece of music. • Children can identify sounds in a piece of music. • Children can explain how a piece of music makes them feel.
2	Rhythm and Tempo.	<ul style="list-style-type: none"> • Children can identify and recall a simple rhythm. • Children can explain what tempo is, and how changing it can change the mood of a piece of music. • Children can create their own simple rhythm using Busy Beats.
3	Melody and Pitch	<ul style="list-style-type: none"> • Children can show an understanding of melody. • Children can create a simple melodic pattern using 2Sequence and Busy Beats. • Children can use a variety of notes, experimenting with pitch.
4	Creating Music	<ul style="list-style-type: none"> • Children can explore and understand how music is created. • Children can experiment with pitch, rhythm, and melody to create a piece of house music on Busy Beats.

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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	4.1 4.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	4.1 4.5
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	Computer Science	4.1 4.5
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	4.2 4.7 4.8
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	4.7
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	4.1 4.3 4.4 4.6 4.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	4.2*

*And discussed in other units

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Welsh Digital Competence Framework

Strand	Element	Objective (Learners are able to...):	Units Covered
Citizenship Note: 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	Understand how to protect themselves from online identity theft.	4.2
		Understand that information put online leaves a digital footprint or trail.	4.2
		Identify risks and benefits of installing software.	4.2
	Health and well-being	Identify the positive and negative influences of technology on health and the environment	4.2
		Explain the importance of balancing game and screen time with other parts of their lives.	4.2
	Digital rights, licensing and ownership	Understand that copying the work of others and presenting it as their own is called 'plagiarism.'	4.2
		Recognise watermarks and copyright symbols	4.4
	Online behaviour and cyberbullying	Identify actions to report and prevent cyberbullying.	4.2
		Identify appropriate behaviour when participating or contributing to collaborative online projects for learning.	Multiple Units Most children will demonstrate appropriate behaviours during collaborative and shared projects e.g. Use of 2Email, 2Blog and collaboration in 2Connect.
	Interacting and collaborating	Communication	Exchange online communication with other learners in one or more languages, making use of a growing range of available features.

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			learners using a range of Purple Mash tools such as 2Email, 2Blog, collaborative functionality e.g. 2Dos, 2Connect and 2Investigate.
	Collaboration	Manage an online file, adding and responding to comments.	All units by using Purple Mash 2Dos and commenting. In all areas of Purple Mash, work created, shared, edited and then submitted by children can be marked, rewarded and commented on by the teacher. Children then can respond to the teacher's comments. This encourages reflective discussion.
	Storing and sharing	Understand that there are different types of storage, e.g. local, network, online, removable.	4.2
		Manage files and folders locally or online.	All units Throughout Purple Mash children can create their own subfolders within their 'My Work' folder and move work from one folder to another. Children can save their work in a range of formats including- locally, on a network, online and on removable devices.
Producing	Planning, sourcing and searching	Develop own success criteria to be used to plan a digital task.	All Units Throughout all the units, most children will be able to develop their own success criteria from a given objective to plan and then implement a digital task
		Find relevant information using different keywords and search techniques.	4.7

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		Select an appropriate website from search results and begin to consider if the content is reliable.	4.2 4.7
	Creating	Create and modify multimedia components using a range of software.	4.1 4.9 4.3 4.4 4.5 4.6
		Modify and present a range of text, image, sound, animation and video for selected purposes.	4.1 4.9 4.3 4.4 4.5 4.6
	Evaluating and improving	Give an opinion about their own and others' work and suggest improvements independently and collaboratively.	All units Most children will be able to provide opinions about their own and others' work and suggest improvements independently and collaboratively. They will be able to do this across a range of software and package features e.g. 2Calculte (Spreadsheets), 2Code (Coding), 2Animate (Animation), 2Publish (Publishing), 2Logo (Logo) and 2Blog (Blogging).
		Give reasons for choices made.	All units Most children can use the range of software and package features to justify their reasons for the choices they make when evaluating and improving.

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Data and Computational Thinking	Problem solving and modelling	Demonstrate how part of a solution might need repetition.	4.1
		Represent a simple solution in a flowchart that contains a looping element.	4.1
	Data and information literacy	Begin to create data sets and extract information from them with tables, charts, spreadsheets and databases.	4.3

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Northern Ireland Levels of Progression and Desirable Features

	Objective	Units Covered
Explore	Access, select, interpret and research information from safe and reliable sources.	4.2, 4.7
	Investigate, make predictions and solve problems through interaction with digital tools.	4.1, 4.3, 4.4, 4.5, 4.6
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.	4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.9
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	4.4
Film and Animation	4.6
Interactive Design	4.1, 4.5
Managing data	4.3
Music and Sound	4.9
Online Communication	Use of 2dos and blogging as part of lessons
Presenting	4.4, 4.6
Working with Images	4.6

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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.	4.4, 4.6, 4.9
I can investigate how an everyday product has changed over time to gain an awareness of the link between scientific and technological developments	4.8 provides opportunities to explore this area, 4.6
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	4.2

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Using appropriate software, I can work collaboratively to design an interesting and entertaining game which incorporates a form of control technology or interactive multimedia.	4.1
Craft, design, engineering and graphics contexts for developing technological skills and knowledge	Units Covered
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.	4.3 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.	4.6 see also 2.6
Throughout my learning, I experiment with the use of colour to develop an awareness of the effects and impacts it can have.	4.6, 4.4

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