Computing Scheme of Work Overview Year 5

Contents

Introduction

This document contains an overview of the units included in the Purple Mash Computing Scheme of Work for Year 5.

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.

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.

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 aims 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:

- 5.4 Databases
- 5.3 Spreadsheets

Units that could be part of English lessons:

- 5.8 Word Processing

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.

- 5.5 Game Creator

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.
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.

Crash Courses

There are crash course units for Spreadsheets using 2Calculate and Coding using 2Code.
Use these units instead of the standard Spreadsheets and Coding units if the children have not completed the prior year's spreadsheets or coding units. The crash courses are designed to enable children to catch up with the main features of the units from previous years and progress onto the standard units in the next year.
For example, if you are a school that starts in year 3 with children joining from different settings who have not used the Purple Mash Computing Scheme, you would start with the crash courses in year 3 for Coding and Spreadsheets and then children will be ready for the standard units for coding and spreadsheets in year 4.
Use these units if your school has just started using the scheme so children have not completed the prior year units.

Year 5 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.

Unit 5.1 **Coding** **Number of lessons** - 6 **Main Programs** - 2Code	**Unit 5.2** **Online safety** **Number of lessons** - 3 **Programs** - Various	**Unit 5.3** **Spreadsheets** **Number of lessons** - 6 **Programs** - 2Calculate
Unit 5.4 **Databases** **Number of lessons** - 4 **Programs** - 2Question, 2Investigate	**Unit 5.5** **Game Creator** **Number of lessons** - 5 **Programs** - 2DIY 3D	**Unit 5.6** **3D Modelling** **Number of lessons** - 4 **Programs** - 2Design and Make
Unit 5.7 **Concept Maps** **Number of lessons** - 4 **Programs** - 2Connect	**Unit 5.8** **Word processing (with Microsoft Word or Google Docs)** **Number of Lessons** - 8 **Main program** - MS Word or Google Docs	

Year 5 Unit Overview

Autumn 1

Unit 5.1 – Coding

Lesson	Title	Success Criteria
1	Coding Efficiently	• Children can use simplified code to make their programming more efficient. • Children can use variables in their code. • Children can create a simple playable game.
2	Simulating a Physical System	• Children can plan an algorithm modelling the sequence of traffic lights. • Children can select the right images to reflect the simulation they are making. • Children can use their plan to program the simulation to work in 2Code.
3	Decomposition and Abstraction	• Children can make good attempts to break down their task into smaller achievable steps. • Children recognise the need to start coding at a basic level of abstraction to remove superfluous details from their program that do not contribute to the aim of the task.
4 & 5	Friction and Functions	• Children can create a program which represents a physical system. • Children can create and use functions in their code to make their programming more efficient.
6	Introducing Strings	• Children can create and use strings in programming. • Children can set/change variable values appropriately. • Children know some ways that text variables can be used in coding.

Autumn 2

Unit 5.2 – Online Safety

Lesson	Title	Success Criteria
1	Responsibilities and Support when Online	• Children critically about the information that they share online both about themself and others. • Children know who to tell if they are upset by something that happens online. • Children can use the SMART rules as a source of guidance when online.
2	Protecting Privacy	• Children think critically about what they share online, even when asked by a usually reliable person to share something. • Children have clear ideas about good passwords. • Children can see how they can use images and digital technology to create effects not possible without technology. • Children have experienced how image manipulation could be used to upset them or others even using simple, freely available tools and little specialist knowledge.
3	Citing Sources	• Children can cite all sources when researching and explain the importance of this. • Children select keywords and search techniques to find relevant information and increase reliability.
4	Reliability	• Children show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.

Unit 5.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Conversions of Measurements	• Children can create a formula in a spreadsheet to convert m to cm. • Children can apply this to creating a spreadsheet that converts miles to km and vice versa.
2	The Count Tool	• Children can use a spreadsheet to work out which letters appear most often. • Children can use the 'how many' tool.

3	Formulae Including the Advanced Mode	• Children can use a spreadsheet to work out the area and perimeter of rectangles.

		• Children can use these calculations to solve a real-life problem.

Spring 1

Unit 5.4 – Databases

Lesson	Title	Success Criteria
1	Searching a Database	• Children understand the different ways to search a database. • Children can search a database to answer questions correctly.
2	Creating a Class Database	• Children can design an avatar for a class database. • Children can successfully enter information into a class database.
3 & 4	Creating a Topic Database	• Children can create their own database on a chosen topic. • Children can add records to their database. • Children know what a database field is and can correctly add field information. • Children understand how to word questions so that they can be effectively answered using a search of their database.

Spring 2

Unit 5.5 – Game Creator

Lesson	Title	Success Criteria
1	Setting the scene.	• Children can review and analyse a computer game. • Children can describe some of the elements that make a successful game. • Children can begin the process of designing their own game.
2	Creating the Game Environment	• Children can design the setting for their game so that it fits with the selected theme. • Children can upload images or use the drawing tools to create the walls, floor, and roof.
3	The Game Quest	• Children can design characters for their game. • Children can decide upon, and change, the animations and sounds that the characters make.
4	Finishing and Sharing	• Children can make their game more unique by selecting the appropriate options to maximise the playability. • Children can write informative instructions for their game so that other people can play it.
5	Evaluation	• Children can evaluate my their own and peers' games to help improve their design for the future.

Summer 1

Unit 5.6 – 3D Modelling

Lesson	Title	Success Criteria
1	Introducing 2Design and Make	• Children know what the 2Design and Make tool is for. • Children can explore the different viewpoints in 2Design and Make whilst designing a building.
2	Moving Points	• Children can adapt one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form.
3	Designing for a Purpose	• Children can explore how to edit the polygon 3D models to design a 3D model for a purpose.
4	Printing and Making	• Children can refine one of their designs to prepare it for printing. • Children can print their design as a 2D net and then created a 3D model. • Children can explore the possibilities of 3D printing.

Summer 2

Unit 5.7 – Concept Maps

Lesson	Title	Success Criteria
1	Introduction to Concept Mapping	• Children can make connections between thoughts and ideas. • Children can see the importance of recording concept maps visually.
2	Using 2Connect	• Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections.' • Children can create a basic concept map.
3	2Connect Story Mode	• Children have used 2Connect Story Mode to create an informative text.

4	Collaborative Concept Maps	• Children have used 2Connect collaboratively to create a concept map. • Children have used Presentation Mode to present their concept maps to an audience.

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	5.1 5.5
Use sequence, selection and repetition in programs; work with variables and various forms of input and output.	Computer Science	5.1
Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.	Computer Science	5.1
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	5.2
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.	Information Technology	Various Search technologies are taught more specifically in unit 4.7. Children will utilize this knowledge in many Internet based sessions in all areas of the curriculum.
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	5.1 5.3 5.4 5.5 5.6 5.7 5.8
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.	Digital Literacy	5.2 and discussed in other units

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