Computing Scheme of Work Overview Year 6

Contents

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 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.

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 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:

- 6.9 Spreadsheets
- 6.3 Spreadsheets with 2Calculate

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.

- 6.7 Quizzing

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 is a crash course unit for Coding using 2Code.
Use this unit instead of the standard Coding units if the children have not completed the prior years' coding units. The crash courses are designed to enable children to catch up with the main features of the units from previous years ready for next steps.

The year 6 Spreadsheet unit that uses 2Calculate (Unit 6.3) also assumes children have completed the Spreadsheets units in previous years. If your year 6 children have not completed these units, look at unit 6.9 as an alternative. This unit offer a choice of Microsoft Excel or Google Sheets that assume no prior knowledge and can be used instead of 2Calculate. If you do wish to use 2Calculate, we advise using the Year 5 crash course unit.

Year 6 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 6.1 Coding **Number of lessons** - 6 **Main Programs** - 2Code	**Unit 6.2 Online safety** **Number of lessons** - 2 **Programs** - Various	**Unit 6.3 Spreadsheets** **Number of lessons** - 5 **Programs** - 2Calculate
Unit 6.4 Blogging **Number of lessons** - 4 **Programs** - 2Blog	**Unit 6.5 Text Adventures** **Number of lessons** - 5 **Programs** - 2Code, 2Connect	**Unit 6.6 Networks** **Number of lessons** - 3
Unit 6.7 Quizzing **Number of lessons** - 6 **Programs** - 2Quiz, 2DIY, Text Toolkit, 2Investigate	**Unit 6.8 Understanding Binary** **Number of Lessons** - 4 **Main Program** - 2Code	**Unit 6.9 Spreadsheets (with Microsoft Excel or Google Sheets)** **Number of Lessons** - 8 **Main program** - MS Excel or Google Sheets

Year 6 Unit Overview

Autumn 1

Unit 6.1 – Coding

Lesson	Title	Success Criteria
1 &2	Designing and Making a more Complex Program	• Children can plan a program which includes a timer and a score. • Children can follow their plans to create a program. • Children can debug when things do not run as expected.
3	Using Functions	• Children can create a program that makes use of functions. • Children can create a program that uses multiple functions with the code arranged in tabs. • Children can explain how their code executes when their program is run.
4	Flowcharts and Control Simulations	• Children can follow flowcharts to create and debug code. • Children can create flowcharts for procedures. • Children can be creative with the way they code to generate novel visual effects.
5	User Input	• Children can code programs that take text input from the user and use this in the program. • Children can attribute variables to user input. • Children are aware of the need to code for all possibilities when using user input.

6	Using Text-based Adventures	• Children can follow through the code of how a text adventure can be programmed in 2Code. • Children can design their own text-based adventure game based on one they have played. • Children can adapt an existing text adventure so it reflects their own ideas.

Autumn 2

Unit 6.2 – Online Safety

Lesson	Title	Success Criteria
1	Message in a Game	• 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. • 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.
2	Online Behaviour	• Children understand how what they share impacts upon themselves and upon others in the long-term. • 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. • **Extension:** Children' actions demonstrate that they also feel a responsibility to others when communicating and sharing content online.
3	Screen Time	• 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. • Children can talk about the positives and negative aspects of technology and balance these opposing views. • **Extension:** Children have an internalised in-depth understanding of the risks and benefits of an online presence.

Unit 6.3 - Spreadsheets

Lesson	Title	Success Criteria
1	Exploring Probability	• Children can create a spreadsheet to answer a mathematical question relating to probability. • Children can take copy and paste shortcuts. • Children can problem solve using the count tool.
2	Creating a Computational Model	• Children can create a machine to help work out the price of different items in a sale. • Children can use the formula wizard to create formulae. • Children can use a spreadsheet to solve a problem.
3	Use a Spreadsheet to Plan Pocket Money Spending	• Children can use a spreadsheet to model a real-life situation and come up with solutions. • Children can make practical use of a spreadsheet to help plan actions.
4 & 5	Planning a School Event	• Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life.

Spring 1

Unit 6.4 – Blogging

Lesson	Title	Success Criteria
1	What is a Blog?	• Children understand how a blog can be used as an informative text. • Children understand the key features of a blog.
2	Planning a Blog	• Children can work collaboratively to plan a blog.
3	Writing a Blog	• Children can create a blog or blog post with a specific purpose. • Children understand that the way in which information is presented has an impact upon the audience.

4	Sharing Posts and Commenting	• Children can post comments and blog posts to an existing class blog. • Children understand the approval process that their posts go through and demonstrate an awareness of the issues

		surrounding inappropriate posts and cyberbullying. • Children can assess the effectiveness and impact of a blog. • Children understand that content included in their blog carefully considers the end user.

Spring 2

Unit 6.5 – Text Adventures

Lesson	Title	Success Criteria
1	What Is a Text Adventure? Planning a Story Adventure	• Children can describe what a text adventure is. • Children can map out a story-based text adventure. • Children can use 2Connect to record their ideas. • **Extension:** Children can turn a simple story with 2 or 3 levels of decision making into a logical design
2	Making a Story-based Adventure Game	• Children can use the full functionality of 2Create a Story Adventure mode to create, test and debug using their plan. • Children can split their adventure-game design into appropriate sections to facilitate creating it.
3	Introducing Map-Based Text Adventures	• Children can map out an existing text adventure. • Children can contrast a map-based game with a sequential story-based game. • **Extension:** Children can make a comprehensive design map with a sequence of rooms including rooms in which the player needs to make a choice and collect items in a certain order to complete the game.
4	Coding a Map-Based Text Adventure	• Children can create their own text-based adventure based upon a map. • Children can use coding concepts of functions, two-way selection (if/else statements) and repetition in conjunction with one another to code their game. • Children make logical attempts to debug their code when it does not work correctly.

Unit 6.6 – Networks

Lesson	Title	Success Criteria
1	The World Wide Web and the Internet	• Children know the difference between the World Wide Web and the internet. • **Extension:** Children can provide examples of the difference between the World Wide Web and the Internet.
2	Our School Network and Accessing the Internet	• Children know about their school network. • **Extension:** Children can explain the differences between more than two network types such as: LAN, WAN, WLAN and SAN.
3	Research	• Children have researched and found out about Tim Berners-Lee. • 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.

Summer 1

Unit 6.7 – Quizzing

Lesson	Title	Success Criteria
1	Introducing 2DIY	• Children have used the 2DIY activities to create a picture-based quiz. • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz and responded to feedback.

2 & 3	Using 2Quiz	• Children understand the different question types within 2Quiz. • Children have ideas about what sort of questions are best suited to the different question types. • Children have used 2Quiz to make and share a science quiz (or another subject). • Children have considered the audience's ability level and interests when setting the quiz. • Children have shared their quiz with peers. • Children have given and responded to feedback.

4	Exploring Grammar Quizzes	• Children have tried out the different types of Text Toolkit grammar games. • Children have chosen an appropriate Text Toolkit tool to make their own grammar game(s).
5	A Database Quiz	• Children have used a 2Investigate quiz to answer quiz questions. • Children have designed their own quiz based on one of the 2Investigate example databases.
6	Are you Smarter than a 10- (or 11-) Year-Old?	• Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.

Summer 2

Unit 6.8– Understanding Binary

Lesson	Title **Examine how whole numbers are used as the basis for representing all types of data in digital systems through:**	Success Criteria **Children have an understanding of binary as a number system and its purpose and application in computing.**
1	What is Binary?	• Children can explain how all data in a computer is saved in the computer memory in a binary format. • Children can explain that binary uses only the integers 0 and 1. • Children can relate 0 to an 'off' switch and 1 to and 'on' switch.
2	Counting in Binary	• Children can count up from 0 in binary using visual aids if needed. • Children can relate bits to computer storage.
3	Converting from Decimal to Binary	• Children can convert numbers to binary using the division by two method. • Children can check their own answers using the converter tool.
4	Game States	• Children can make use of a variable set to 0 or 1 to control game states.

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, 6.9
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, 6.9
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, 6.9
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.	Digital Literacy	6.2 6.4

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