purple mash

Computing

Scheme of Work

Year 5 Overview

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.

Year 5 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
YEAR 5	**Unit 5.1 Coding** **Number of Weeks** – 6 **Main Programs** – 2Code						**Unit 5.2 Online Safety** **Weeks** – 3 **Programs** - 2Publish Plus Writing Templates Display boards 2Connect (Mind Map)			**Unit 5.3 Spreadsheets** **Weeks** – 6 **Programs** – 2Calculate						**Unit 5.4 Databases** **Weeks** – 4 **Programs** – 2Investigate (database) Avatar creator				**Unit 5.5 Game Creator** **Weeks** – 5 **Programs** – 2DIY 3D Writing Templates 2Blog (Blogging)				**Unit 5.6 3D Modelling** **Weeks** – 4 **Programs** – 2Design and Make Writing Templates				**Unit 5.7 Concept Maps** **Weeks** – 4 **Programs** – 2Connect			

Year 5 Unit Overview

Unit 5.1 – Coding

Lesson	Aims	Success Criteria
1	• To review coding vocabulary. • To use a sketch or storyboard to represent a program design and algorithm. • To use the design to create a program.	• Children can use sketching to design a program and reflect upon their design. • Children can create code that conforms to their design.
2	• To design and write a program that simulates a physical system.	• Children can explain how their program simulates a physical system. • Children can select the relevant features of a situation to incorporate into their simulation by using decomposition and abstraction. • Children can reflect upon the effectiveness of their simulation.
3	• To review the use of number variables in 2Code. • To explore text variables.	• Children can explain what a variable is in programming. • Children can set/change the variable values appropriately. • Children know some ways that text variables can be used in coding.
4 & 5	• To create a playable, competitive game. • To combine the use of variables, If/else statements and Repeats to achieve the desired effect in code. • To read code so that it can be adapted, personalised and improved.	• Children can create a game which has a timer and score pad. • Children can use variables to control the objects in the game. • Children can create loops using the timer and If/else statements.
6	• To explore the launch command and use buttons within a program that launch other programs or open websites. • To create a program to inform others.	• Children can include buttons and objects that launch windows to websites and programs. • Children can code a program that informs others.

Unit 5.2 – Online Safety

Lesson	Aims	Success Criteria
1	To gain a greater understanding of the impact that sharing digital content can have. To review sources of support when using technology. To review children's responsibility to one another in their online behaviour.	• Children know what Childnet SMART CREW is and have thought critically about the information that they share online both about themselves 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	To know how to maintain secure passwords. To understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. To be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online.	• 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	To learn about how to reference sources in their work To search the Internet with a consideration for the reliability of the results of sources to check validity and understand the impact of incorrect information. Ensuring reliability through using different methods of communication	• 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 • 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	Aims	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	Novel use of 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.
4	Using text variables to perform calculations.	• Children can create simple formulae that use different variables. • Children can create a formula that will work out how many days there are in x number of weeks or years.
5	Using a spreadsheet to plan an event.	• Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.

Unit 5.4 – Databases

Lesson	Aims	Success Criteria
1	To learn how to search for information on a database.	• Children understand the different ways to search a database. • Children can search a database in order to answer questions correctly.
2	To contribute to a class database.	• Children have designed an avatar for a class database. • Children have successfully entered information into a class database.
3 & 4	To create a database around a chosen topic.	• 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.

Unit 5.5 – Game Creator

Lesson	Aims	Success Criteria
1	To set 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	To create 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	To create 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	To finish and share the game	• 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	To evaluate their and peers' games.	• Children can evaluate my their own and peers' games to help improve their design for the future.

Unit 5.6 – 3D Modelling

Lesson	Aims	Success Criteria
1	To be introduced to 2Design and Make.	• Children know what the 2Design and Make tool is for. • Children have explored the different viewpoints in 2Design and Make whilst designing a building.
2	To explore the effect of moving points when designing.	• Children have adapted one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form.
3	To understand designing for a purpose.	• Children have explored how to edit the polygon 3D models to design a 3D model for a purpose.
4	To understand printing and making.	• Children have refined one of their designs to prepare it for printing. • Children have printed their design as a 2D net and then created a 3D model. • Children have explored the possibilities of 3D printing.

Unit 5.7 – Concept Maps

Lesson	Aims	Success Criteria
1	To understand the need for visual representation when generating and discussing complex ideas.	• Children can make connections between thoughts and ideas. • Children can see the importance of recording concept maps visually.
2	To understand and use the correct vocabulary when creating a concept map. To create a concept map.	• Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections'. • Children can create a basic concept map.
3	To understand how a concept map can be used to retell stories and information.	• Children have used 2Connect Story Mode to create an informative text.
4	To create a collaborative concept map and present this to an audience.	• 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
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

Welsh Digital Competence Framework

Strand	Element	Objective (Learners are able to…):	Units Covered
Citizenship	Identity, image and reputation	Talk about the impact that the digital content created can have.	5.2
		Explain why it is important to discuss their use of technology with an adult.	5.2
		Maintain secure passwords on a regular basis applying the characteristics of strong passwords and refrain from using the same password more than once	5.2
	Health and well-being	Understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this.	5.2
			5.5
	Digital rights, licensing and ownership	Cite all sources when researching and explain the importance of this.	5.2
	Online behaviour and cyberbullying	Understand that photographs can be edited digitally and the rights and permissions associated with this.	5.2
		Demonstrate appropriate online behaviour and apply a range of strategies to protect themselves and others from possible online dangers, bullying and inappropriate behaviour	5.2 Also as part of blogging about their work in various units.
Interacting and collaborating	Communication	Exchange online communication with other learners in one or more languages, making use of a growing range of available features.	Most Units Most children will successfully exchange online communication with other learners for a variety of purposes, using a range of Purple Mash tools such as 2Email, 2Blog, collaborative functionality e.g. 2Dos, 2Connect and 2Investige. Their skill at using more advanced features such as searching for 2Dos.

		Show an understanding of the advantages and disadvantages of different forms of communication and when it is appropriate to use each.	5.2
	Collaboration	Work with others to create an online collaborative project for a specific purpose, sharing and appropriately setting permissions for other	5.7
	Storing and sharing	Back up files to a second or third storage device	Through Blogging covered in several units. Using Purple Mash collaborative tools. Throughout Purple Mash, most children will understand that as well as files being stored in the cloud, they can also be downloaded and backed up locally, on a network or on a portable device.
		Search for a specific file	Most Units Most children will be able to use the search feature in the 'My Work' area to find files that meet a specific search criteria e.g. name of file, date (if used to name the file), subject etc.
		Upload files from a local drive to online storage.	Most Units Most children can use the image upload feature in various tools used for example: (Unit-5.4-2Investigate, 5.3-2calculate, 5.6- 2DIY3D and 5.7-2connect) to upload an image from a local drive to Purple Mash.
Producing	Planning, sourcing and searching	Create a written plan using a template provided.	5.1 5.5 5.6
		Adjust keywords and search techniques to find relevant information; begin to reference sources used in their work; consider if the content is reliable.	5.2,
	Creating	Combine a range of multimedia components to produce an appropriate outcome.	5.1 5.5
		Create, collect and combine a range of text, image, sound, animation and video for selected purposes.	5.1 5.5

	Evaluating and improving	Explain reasons for layout and content of own work	5.1 5.3 5.4 5.5 5.6 5.7
		Comment on reasons for layout	5.1 5.3 5.4 5.5 5.6 5.7
		Invite feedback/responses from others	5.1 5.3 5.4 5.5 5.6 5.7
		Create groups and share work between them to allow review of work.	Most Units Opportunities exist in all units for children to share work between them, both electronically or physically, and use this sharing as an opportunity to review others' work.
Data and Computational Thinking	Problem solving and modelling	Design simple sequences of instructions (algorithms) including the use of Boolean values (i.e. yes/no/true/false), e.g. within the algorithm, demonstrate the correct use of Boolean values giving an either/or response.	5.1
	Data and information literacy	Create, explore and analyse data sets, highlighting relationships within them	5.3 5.4

Northern Ireland Levels of Progression and Desirable Features

	Objective	Units Covered
Explore	Access, select, interpret and research information from safe and reliable sources.	5.2
	Investigate, make predictions and solve problems through interaction with digital tools.	5.1, 5.3, 5.4, 5.7
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	5.5, 5.6, 5.7
Film and Animation	5.5
Interactive Design	5.1, 5.5
Managing data	5.4
Music and Sound	See unit 2.7
Online Communication	Use of 2dos and blogging as part of lessons
Presenting	5.5, 5.6, 5.7
Working with Images	5.5, 5.6

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.	5.5, 5.6
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	5.2

Using appropriate software, I can work collaboratively to design an interesting and entertaining game which incorporates a form of control technology or interactive multimedia.	5.1, 5.5
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	5.6
Through discovery and imagination, I can develop and use problem-solving strategies to construct models.	5.3 Modelling real-life situations technologically, 5.6
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.	45.5, 5.6
Throughout my learning, I experiment with the use of colour to develop an awareness of the effects and impacts it can have.	5.6