Computing Scheme of Work - Overview

Contents

Introduction

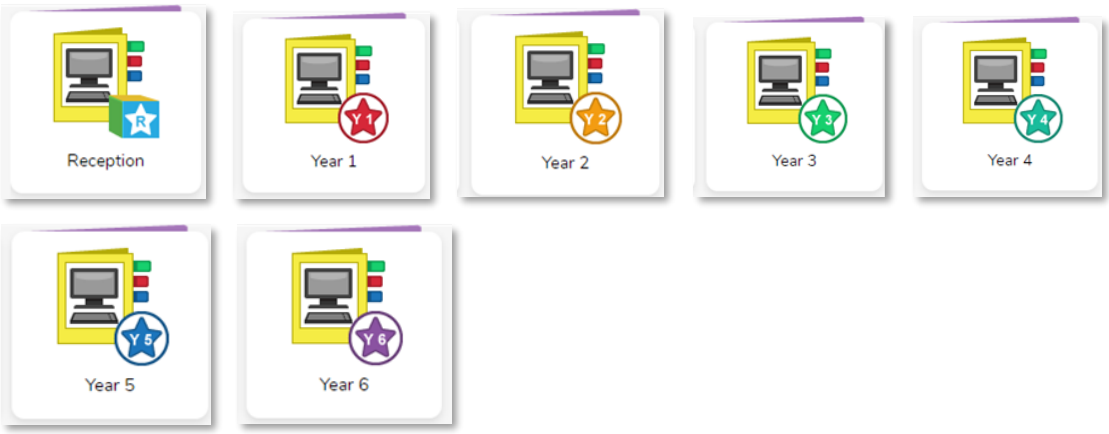
This document contains an overview of the units included in the Purple Mash Computing Scheme of Work for all year groups.

The scheme for Early Years (Reception) shows opportunities for using Mini Mash or Purple Mash as part of the Early Years classroom to support children in working towards early learning goals.'

Individual year group overview documents for years 1-6, detail the unit lessons for that year group and contain relevant curriculum maps for England, Wales, Scotland and Northern Ireland.

Year group pages also contain assessment documents for these units.

These can be found by clicking the following links or from the Purple Mash Computing Scheme of Work page.



The Purple Mash tools used within each unit are detailed in the Tools section below.
To make the best use of the scheme, children need to be logged onto Purple Mash with their own individual usernames and passwords, using 2dos to complete work 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.

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

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:

- 1.2: Grouping and Sorting
- 1.3 Pictograms
- 2.4 Questioning
- 3.6 Branching Databases
- 3.8 Graphing
- 5.4 Databases
- 6.9 Spreadsheets
- All years: Spreadsheet units

Units that could be part of English lessons:

- 3.7: Simulations
- 4.4 Writing for Different Audiences
- 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.

- 1.6 Animated stories
- 2.6 Creating Pictures
- 2.8 Presenting Ideas
- 3.9 Presenting
- 4.6 Animation
- 5.5 Game Creator
- 5.7 Concept maps
- 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.

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

- 2.7 Making Music
- 4.9 Making Music

Typing could be covered during a regular 10-minute morning session over a term rather than during dedicated computing lessons (unit 3.4).

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

For years 2 to 5* there are crash course units for Spreadsheets using 2Calculate

For years 2 to 6 there are crash course units for 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.

*There is no crash course for the use of 2Calculate in year 6 because there is a Spreadsheets unit of work that uses Microsoft Excel or Google Sheets that assumes no prior knowledge and can be used instead of 2Calculate. If you wish to use 2Calculate, we advise using the Year 5 crash course unit.

All Unit Summary

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Year 1

	Unit 1.1	Unit 1.2	Unit 1.3	Unit 1.4	Unit 1.5	Unit 1.6	Unit 1.7	Unit 1.8	Unit 1.9
	Online Safety & Exploring Purple Mash	Grouping & Sorting	Pictograms	Lego Builders	Maze Explorers	Animated Story Books	Coding	Spreadsheets	Technology outside school
Number of lessons	4	2	3	3	3	5	6	3	2
Main tool			2Count		2Go	2Create A Story	2Code	2Calculate	

Year 2

	Unit 2.1	Unit 2.2	Unit 2.3	Unit 2.4	Unit 2.5	Unit 2.6	Unit 2.7	Unit 2.8
	Coding	Online Safety	Spreadsheets	Questioning	Effective Searching	Creating Pictures	Making Music	Presenting Ideas
Number of lessons	6	3	4	5	3	5	3	4
Main tool	2Code		2Calculate	2Question 2Investigate		2Paint A Picture	2Sequence	

Year 3

	Unit 3.1	Unit 3.2	Unit 3.3	Unit 3.4	Unit 3.5	Unit 3.6	Unit 3.7	Unit 3.8	Unit 3.9
	Coding	Online safety	Spreadsheets	Touch Typing	Email (inc. email safety)	Branching Databases	Simulations	Graphing	Presenting
Number of lessons	6	3	3 4 lessons for Crash Course	4	6	4	3	3	5\6*
Main tool	2Code		2Calculate	2Type	2Email	2Question	2Simulate	2Graph	PowerPoint or Google Slides

*Platform dependent

Year 4

	Unit 4.1	Unit 4.2	Unit 4.3	Unit 4.4	Unit 4.5	Unit 4.6	Unit 4.7	Unit 4.8	Unit 4.9
	Coding	Online Safety	Spreadsheets	Writing for Different Audiences	Logo	Animation	Effective Searching	Hardware Investigators	Making Music
Number of lessons	6	4	6	5	4	3	3	2	4
Main tool	2Code		2Calculate		2Logo	2Animate			Busy Beats

Year 5

	Unit 5.1	Unit 5.2	Unit 5.3	Unit 5.4	Unit 5.5	Unit 5.6	Unit 5.7	Unit 5.8
	Coding	Online Safety	Spreadsheets	Databases	Game Creator	3D Modelling	Concept Maps	Word Processing
Number of lessons	6	3	6	4	5	4	4	8
Main tool	2Code		2Calculate	2Investigate	2DIY 3D	2Design & Make	2Connect	MS Word or Google Docs

Year 6

	Unit 6.1	Unit 6.2	Unit 6.3	Unit 6.4	Unit 6.5	Unit 6.6	Unit 6.7	Unit 6.8	6.9
	Coding	Online Safety	Spreadsheets	Blogging	Text Adventures	Networks	Quizzing	Understanding Binary	Spreadsheets
Number of lessons	6	2	5	4	5	3	6	4	8
Main tool	2Code		2Calculate	2Blog			2Quiz		Excel or Google Sheets

Exemplar

Year 1\2 – Cycle A

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Unit 1.1 **Online Safety & Exploring Purple Mash** **Number of lessons** – 4 **Programs** – Various	**Unit 2.5** **Effective Searching** **Number of lessons** – 3 **Programs** – Browser	**Unit 1.4** **Lego Builders** **Number of lessons** – 3 **Programs** – 2DIY
Unit 1.9 **Technology outside school** **Number of lessons** – 2 **Programs** – Various	**Unit 1.2** **Grouping & Sorting** **Number of lessons** – 2 **Programs** – 2DIY	**Unit 2.6** **Creating Pictures** **Number of lessons** – 5 **Programs** – 2PaintAPicture
Unit 1.8 **Spreadsheets** **Number of lessons** – 3 **Programs** – 2Calculate	**Unit 1.7** **Coding** **Number of lessons** – 6 **Programs** – 2Code	**Unit 2.1** **Coding** **Number of lessons** – 5 **Programs** – 2Code

Year 1\2 – Cycle B

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Unit 1.1 **Online Safety & Exploring Purple Mash** **Number of lessons** – 4 **Programs** – Various	**Unit 1.5** **Maze Explorers** **Number of lessons** – 3 **Programs** – 2Go	**Unit 2.4** **Questioning** **Number of lessons** – 5 **Programs** – 2Question, 2Investigate
Unit 2.2 **Online Safety** **Number of lessons** – 3 **Programs** – Various	**Unit 1.6** **Animated Story Books** **Number of lessons** – 5 **Programs** – 2Create A Story	**Unit 2.7** **Making Music** **Number of lessons** – 3 **Programs** – 2Sequence
Unit 2.3 **Spreadsheets** **Number of lessons** – 4 **Programs** – 2Calculate	**Unit 1.3** **Pictograms** **Number of lessons** – 3 **Programs** – 2Count	**Unit 2.8** **Presenting Ideas** **Number of lessons** – 4 **Programs** – Various

Year 3\4 – Cycle A

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Coding **Number of lessons** – 6 **Main Programs** – 2Code **See table below for breakdown.**	**Unit 3.2** **Online safety** **Number of lessons** – 3 **Programs** – Various	**Unit 3.3** **Spreadsheets** **Number of lessons** – 3 **Programs** – 2Calculate
Unit 3.4 **Touch Typing** **Number of lessons** – 4 **Programs** – 2Type	**Unit 3.5** **Email** (including email safety) **Number of lessons** – 6 **Programs** – 2Email, 2Connect, 2DIY	**Unit 3.6** **Branching Databases** **Number of lessons** – 4 **Programs** – 2Question
Unit 3.7 **Simulations** **Number of lessons** – 3 **Programs** – 2Simulate, 2Publish	**Unit 3.8** **Graphing** **Number of lessons** – 3 **Programs** – 2Graph	

Year 3\4 – Cycle B

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Coding Number of lessons – 6 Main Programs – 2Code See table below for breakdown.	**Unit 4.2** **Online safety** Number of lessons – 4 Programs – Various	**Unit 4.3** **Spreadsheets** Number of lessons – 6 Programs – 2Calculate
Unit 4.4 **Writing for different audiences** Number of lessons – 5 Programs – 2Email, 2Connect, 2DIY	**Unit 4.5** **Logo** Number of lessons – 4 Programs – Logo	**Unit 4.6** **Animation** Number of lessons – 3 Programs – 2Animate
Unit 4.7 **Effective Search** Number of lessons – 3 Programs – Browser	**Unit 4.8** **Hardware Investigators** Number of lessons – 2	

Coding Breakdown

YEAR 3 & 4 - CYCLE A					
Using Flowcharts Unit 3.1, Lesson 1	Using Timers Unit 3.1, Lesson 2	'if' statements Unit 4.1, Lesson 2	Coordinates Unit 4.1, Lesson 3	Code, Test and Debug – Unit 3.1, Lesson 4	Design, Code, Test and Debug Unit 4.1, Lesson 1
YEAR 3 & 4 - CYCLE B					
Using Repeat Unit 3.1, Lesson 3	Repeat Until and 'if/else' Statements Unit 4.1, Lesson 4	Number Variables Unit 4.1, Lesson 5	Design and Make an Interactive scene Unit 3.1, Lesson 5-6		Making a Playable game – Unit 4.1, Lesson 6

Additional Units

You may choose to do these in addition to or instead of any of the above units. They have not been included above due to the number of weeks in a school year and the number of weeks for each unit.

Unit 3.9 Presenting (with Microsoft PowerPoint or Google Slides) **Number of Lessons** – 5 or 6 (version dependent) **Main Program** – MS PowerPoint or Google Slides	Unit 4.9 Making Music **Number of Lessons** – 4 **Main Program** – Busy Beats

Year 5\6 – Cycle A

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Coding **Number of lessons** – 6 **Main Programs** – 2Code **See table below for breakdown.**	**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		

Year 5\6 – Cycle B

Predominant Area of Computing*		
Computer Science	Information Technology	Digital Literacy

*Most units will include aspects of all strands.

Coding **Number of lessons** – 6 **Main Programs** – 2Code **See table below for breakdown.**	**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		

Coding Breakdown

YEAR 5 & 6 - CYCLE A					
Coding Efficiently Unit 5.1, Lesson 1	Simulating a physical system Unit 5.1, Lesson 2	Friction and Functions Unit 5.1, Lesson 4	Introducing Strings Unit 5.1, Lesson 5	Text Variable and Concatenation Unit 5.1, Lesson 6	User Input Unit 6.1, Lesson 5
YEAR 5 & 6 - CYCLE B					
Designing and writing a more complex program Unit 6.1, Lessons 1 & 2		Decomposition and Abstraction Unit 5.1, Lesson 3	Using Functions Unit 6.1, Lesson 3	Flowcharts and control simulations Unit 6.1, Lesson 4	Text Adventure Unit 6.1, Lesson 6

Additional Units

You may choose to do these in addition to or instead of any of the above units. They have not been included above due to the number of weeks in a school year and the number of weeks for each unit.

Unit 5.8 Word processing (with Microsoft Word or Google Docs)	Unit 6.9 Spreadsheets (with Microsoft Excel or Google Sheets)	Unit 6.8 Understanding Binary
Number of Lessons – 8 **Main program** – MS Word or Google Docs	**Number of Lessons** – 8 **Main program** – MS Excel or Google Sheets	**Number of Lessons** – 4 **Main Program** – 2Code

Tools by Unit

Year	Unit	Title	Tools used
Y1	1.1	Online Safety and Exploring Purple Mash	Avatar creator
			Paint Projects
			Writing Templates
			2Count (Pictograms)
			2Explore (Music)
	1.2	Grouping & Sorting	2Quiz
	1.3	Pictograms	2Connect (Mind Map)
			2Count (Pictograms)
	1.4	Lego Builders	Paint Projects
			Writing Templates
			2Quiz
	1.5	Maze Explorers	2Go (coding)
	1.6	Animated Stories	2Create a Story
	1.7	Coding	2Code
	1.8	Spreadsheets	2Calculate
	1.9	Technology Outside School	Writing Templates

Year	Unit	Title	Tools used
Y2	2.1	Coding	2Code
	2.2	Online Safety	Writing Templates
			Displayboards
			2Respond (2Email)
	2.3	Spreadsheets	2Calculate
	2.4	Questioning	2Question (Binary Databases)
			2Calculate (spreadsheet)
			2Investigate (database)
	2.5	Effective Searching	2Quiz
			Writing Templates

	2.6	Creating Pictures	2Paint a Picture
			Writing Templates
	2.7	Making Music	2Sequence (Music)
	2.8	Presenting Ideas	2Connect (Mind Map)
			2Create a Story (ebook)
			2Quiz
			Writing Templates

Year	Unit	Title	Tools used
Y3	3.1	Coding	2Code
	3.2	Online Safety	2Connect (Mind Map)
			2Blog (Blogging)
			Writing Templates
			Displayboards
	3.3	Spreadsheets	2Calculate
	3.4	Typing	2Type
	3.5	Email	2Email
	3.6	Branching Databases	2Question (Binary Databases)
	3.7	Simulations	2Simulate
			Writing Templates
	3.8	Graphing	2Graph
			Writing Templates
			2Blog (Blogging)
	3.9	Presenting (with Microsoft PowerPoint or Google Slides)	Microsoft PowerPoint or Google Slides

Year	Unit	Title	Tools used
Y4	4.1	Coding	2Code
	4.2	Online Safety	2Connect (Mind Map)
			2Publish Plus
			Displayboards
	4.3	Spreadsheets	2Calculate
	4.4	Writing for Different Audiences	Writing Templates
			2Simulate
			2Connect (Mind Map)
			2Publish Plus
	4.5	Logo	2Logo (text-based coding)
	4.6	Animation	2Animate
	4.7	Effective Searching	2Quiz
			2Connect (Mind Map)
	4.8	Hardware Investigators	2Quiz
			2Connect (Mind Map)
			Writing Templates
	4.9	Making Music	Busy Beats
			2Sequence
			Writing Templates

Year	Unit	Title	Tools used
Y5	5.1	Coding	2Code
	5.2	Online Safety	2Publish Plus
			Writing Templates
			Displayboards
			2Connect (Mind Map)
	5.3	Spreadsheets	2Calculate
	5.4	Databases	2Investigate (database)
			Avatar creator
	5.5	Game Creator	2DIY 3D
			Writing Templates
			2Blog (Blogging)
	5.6	3D Modelling	2Design and Make
			Writing Templates
	5.7	Concept Maps	2Connect (Mind Map)
	5.8	Word Processing (with Microsoft Word or Google Docs)	MS Word or Google Docs

Year	Unit	Title	Tools used
Y6	6.1	Coding	2Code
	6.2	Online Safety	2DIY 3D 2DIY 2Code
			2Blog (Blogging)
	6.3	Spreadsheets	2Calculate
	6.4	Blogging	2Blog (Blogging)
	6.5	Text Adventures	2Code
			2Connect (Mind Map)
			Writing Templates
	6.6	Networks	2Connect (Mind Map)
			Writing Templates
	6.7	Quizzing	2DIY
			2Quiz
			Text Toolkit

			2Investigate (database)
	6.8	Understanding Binary	2Connect (Mind Map)
			2Question (Binary Databases)
			Writing Templates
			2Code
	6.9	Spreadsheets (with Microsoft Excel or Google Sheets)	MS Excel or Google Sheets

Cultural Capital

Defining Cultural Capital

> "As part of making the judgement about the quality of education, inspectors will consider the extent to which schools are equipping pupils with the knowledge and cultural capital they need to succeed in life. Our understanding of 'knowledge and cultural capital' is derived from the following wording in the national curriculum: 'It is the essential knowledge that pupils need to be educated citizens, introducing them to the best that has been thought and said and helping to engender an appreciation of human creativity and achievement.'"
>
> (Ofsted's definition of cultural capital – Extract: Ofsted School Inspection Handbook 2019)

When we consider cultural capital in relation to a child starting their journey of learning in a school setting, it's the idea that they all have started school with their own experiences and knowledge. These experiences and knowledge will link to their culture and wider family. Pierre Bourdieu, a French sociologist, developed the concept of cultural capital in the 1960s, arguing heavily that children's attainment in schools was not defined by solely economic factors. Various research indicates a strong correlation between the value placed on children's cultures and the progress they make in formal education settings.

It's important to note that cultural capital shouldn't be defined as just academic achievement, cultural capital should be thought of enabling a child to grow into educated citizens who have had broad experiences and knowledge with a strong appreciation of human achievement and creativity.

Cultural capital is one of the key things that a child will utilise throughout their life in order to become successful in society.

How schools play a part

Schools have a duty to ensure that their children are given a rich educational diet that supports the notion of Cultural Capital.

Schools should consider several key things:

- **Culturally relevant pedagogy: Embracing all their children's cultural identities, personal experiences, knowledge, and heritage in order to make learning more relevant to them and in thus doing so, giving rise to greater engagement and subsequently greater achievement.**
- **Culturally responsive teaching: Using a range of teaching strategies that supports children's personal experiences and cultural identities.**
- **Provision: Providing broad and rich experiences that their learners may not have experienced before, including the immersion of different cultures, traditions and approaches to everyday activities.**
- **Knowledge: Giving children a diet of knowledge that supports them in becoming educated citizens.**

Purple Mash Computing Scheme of Work and Cultural Capital

We understand the importance of supporting opportunities for all children. Our future workforce should reflect a broad cross section of society, including but not limited to: age, gender, race, religious beliefs, cognitive and physical differences. If we consider computing and the potential career opportunities and pathways this may lead to, it's vital that a broad workforce is in place, particularly when decisions on design and implementation of systems is required to limit bias. Computing should be integrated within different cultures and experiences of people, for example, farmers using technology to maximise yield of crops.

The Purple Mash Computing Scheme of Work is a comprehensive set of resources aligned to the National Curricula for Computing, Technology and Digital Competence. The Scheme of Work is intended to facilitate teachers in achieving the very best outcomes for all children. It exposes children to a wide variety of digital tools, technological skills and innovations to enable them to become informed members of the digital community.

It contains everything that is needed to deliver inspiring and engaging lessons whilst allowing for the flexibility to meet individual school needs. The scheme provides the scaffolding for teaching key skills alongside the flexibility to change the context to meet needs of individuals. For example, relating graphing to the local environment; tailoring blogging to individual cultures, experiences and interests. Lessons are delivered from lesson plans with accompanying slide shows. We have included additional units that go beyond the expectations of National Curricula, whilst also providing 'Catch-Up' units to close gaps in learning. The activity ideas for Early Years (Reception) show opportunities for using Mini Mash or Purple Mash as part of the Early Years classroom to support children in working towards early learning goals.

The scheme's flexibility is not just limited to adaptation of teaching approaches or contexts used within lessons. Functionality within the delivery platform allows for a range of devices to be used to access and deliver content. Additionally, features such as collaboratively enabled tools, means that children don't always require individual devices.

Supplementary resources such as Code Club and Digital Leaders give rise to opportunities for broadening horizons for all children regardless of their starting point. They support experience of leadership, developing skills and give exposure to new experiences and responsibilities such as leadership.