Computing

Intent

Technology is changing the lives of everyone. Through teaching computing we equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. At Kingsthorne, we aim to prepare our learners for their future by giving them the opportunities to gain knowledge and develop skills that will equip them for an ever changing digital world. Knowledge and understanding of ICT is of increasing importance for children's future both at home and for employment. Our Computing curriculum focuses on a progression of skills in digital literacy, computer science, information technology and online safety to ensure that children become competent in safely using, as well as understanding, technology. These strands are revisited repeatedly through a range of themes during children's time in school to ensure the learning is embedded and skills are successfully developed. Not only do we want them to be digitally literate and competent end-users of technology but through our computer science lessons we want them to develop creativity, resilience and problem-solving and critical thinking skills. Our intention is that Computing also supports children's creativity and cross curricular learning to engage children and enrich their experiences in school.

Implementation

At Kingsthorne, computing is taught in discreet computing lessons. The computing curriculum is delivered using support from the Purple Mash scheme of work, which has been organised to link with other subjects and provide the children with an immersive experience. We have chosen to use Purple Mash as the scheme has been closely referenced against the 2014 National Curriculum attainment targets in order to ensure progression and coverage, it is easily accessible to both pupils and staff, and it also provides extensive support for our teachers to deliver effective and meaningful computing lessons. Having discreet lessons means that the children are able to develop depth in their knowledge and skills over the duration of each of their computing topics. Where appropriate, meaningful links will be made between the computing curriculum at the wider curriculum. In computing lessons, the children will use either the iPads or laptops in order to access a range of apps and software. Discreet computing lessons will focus on the curriculum skills of information technology, digital literacy and computer science. These skills are regularly revisited and embedded through the themes we use: Coding and computational thinking, Spreadsheets, Internet and Email, Databases and graphing, Writing and presenting, Communication and networks, Using technology for Art, Design and Music.   Children will be given feedback and ways to improve their work either verbally or via Purple Mash.

What we teach and why	Adaptations and experiences that are specifically chosen for our community and make links to the wider world. What do we hang the
Topic Title	
National Curriculum Skill	
Key Knowledge/Vocabulary	
Sequence of Lesson (Learning Objectives)	

Autumn	Spring	Summer	

Nursery

Communication and Language	Expressive Arts and Design	Physical Development	Personal, Social and Emotional Development	Understanding the World
•Pay attention to more than one thing at a time, which can be difficult. •Be able to express a point of view and to debate when they disagree with an adult or a friend, using words as well as actions. •Understand 'why' questions, like: "Why do you think the caterpillar got so fat?"	•Create closed shapes with continuous lines, and begin to use these shapes to represent objects. • Draw with increasing complexity and detail, such as representing a face with a circle and including details. • Show different emotions in their drawings and paintings, like happiness, sadness, fear, etc. • Respond to what they have heard, expressing their thoughts and feelings.	•Use one-handed tools and equipment, for example, making snips in paper with scissors. •Show a preference for a dominant hand.	•Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen, or one which is suggested to them. • Increasingly follow rules, understanding why they are important. •Talk about their feelings using words like 'happy', 'sad', 'angry' or 'worried'. •Make healthy choices about food, drink, activity and toothbrushing.	• Show interest in different occupations. •Explore how things work.

Topic Title	Topic Title	Topic Title	The children in
Aut 1: All About Me	Aut 1:People who help us	Aut 1:Bears	nursery have free access to the ICT equipment during child-led learning. They are shown how to use it and then use it to aid and document their learning. They have free access to- iPads, computers, interactive whiteboard, Kiddizoom cameras, CD player.
Aut 2: Nursery Rhymes and Celebrations	Aut 2: Colours and Patterns	Aut 2: Seaside	
Key Knowledge & Vocabulary	**Key Knowledge & Vocabulary**	**Key Knowledge & Vocabulary**	
Children will be introduced to the technology we use in Nursery and reception- computers, iPads, Kiddizoom cameras, interactive whiteboards	Same as Autumn term	Same as Autumn term	
	Sequence of Lessons	They will learn the names and sounds of technologies such as hairdryers, telephones, vacuums through phase 1 phonics listening games	
Sequence of Lessons	During group times the IPads and the interactive whiteboard are used to research People who help us and Colours and Patterns. The children are encouraged to talk about what they would type into the browser. The children use the Ipad to find patterns that they can interpret through the art and craft materials available.		
The children have access to IPads during free flow sessions, they can access games and pre-loaded learning opportunities. on the computers the chidren have access to mini mash.		**Sequence of Lessons**	
During carpet time and group time the interactive whiteboard is used to play songs such as Head Shoulders Knees and Toes and Nursery Rhymes. It also used to show clips form CBeebies and other child orientated sites to investigate celebrations around the world.		The children listen to the sounds of different technologies such as the telephone and they have to match it to the correct picture card. They use the IPad and interactive whiteboard to research Seaside images that they can create using arts and craft materials.	
	How does this link build on previous learning?	**How does this link build on previous learning?**	
How does this link build on previous learning?			

Reception

Communication and Language	Expressive Arts and Design	Physical Development	Personal, Social and Emotional Development	Understanding the World	
•Connect one idea or action to another using a range of connectives. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.	• Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. •Listen attentively, move to and talk about music,	• Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.	Show resilience and perseverance in the face of challenge. • Know and talk about the different factors that support their overall health and wellbeing: - sensible amounts of 'screen time' - having a good sleep routine	• Draw information from a simple map. • Recognise that people have different beliefs and celebrate special times in different ways. • Recognise some similarities and differences between life in this country and life in other countries.	

	expressing their feelings and responses. • Watch and talk about dance and performance art, expressing their feelings and responses. • Explore and engage in music making and dance, performing solo or in groups.		

| **Topic Title**
Aut 1- Local Environment
Aut 2- Up in the Air
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Key Knowledge &
Vocabulary
Children will be introduced to the technology we use in reception- computers, iPads, Kiddizoom cameras.
Sequence of Lessons
All the below will be taught to the children during adult-led group times. They will then be able to access them independently during child-led learning.
To use the All About Me section on mini mash to discuss themselves and what they like, their family, etc
To talk about different environments and use simple city to create their own.
To use mashcam to add the children's face and voice to the astronaut. Talk about what it is like to be an astronaut.
To use the 2 Go program to move the spaceship around space (encouraging directional language).
To use 2Design and Make – 2DAM to create their own vehicle design
Use 2 Connect to discuss the trip to Legoland
Extra ICT experiences- | **Topic Title**
Spr 1- Changes
Spr 2- Tea Party
Key Knowledge &
Vocabulary
Same as Autumn
Sequence of Lessons
All the below will be taught to the children during adult-led group times. They will then be able to access them independently during child-led learning.
To use Wetpaint to explore colour mixing
To use 2 Paint a Project to learn about the lifecycle of a butterfly.
To use 2 Beat to explore changes in sounds of instruments.
Extras-Design a superhero cape and tallest quiz.
To create their own tea party story adding voice recordings and pictures.
To use Paint Projects to design their own cake.
To use 2 Count to create a tally chart of the children's favourite fruit.
Use the Growing PIN when learning about changes in height
Use the Baby Animals PIN when learning about changes. | **Topic Title**
Sum 1- Water and Under the Sea
Sum2- Cooking and Growing
Key Knowledge &
Vocabulary
Names of different technologies used such as- microwave, toaster, fridge, phone.
Sequence of Lessons
All the below will be taught to the children during adult-led group times. They will then be able to access them independently during child-led learning.
To listen to a talking story and discuss their own experience of the seaside.
To watch a slideshow and discuss what has happened when planting flowers.
To use the 2 Go program to move the fish around the sea (encouraging directional language).
To use 2 Paint a Picture to create their own sea creature paintings.
To use 2 Paint a Project to make the polar bear warm when learning about different climates
To use Mashcam to take photographs of each other and make them deep sea divers.
To use Simple City to create a class garden. | The children in reception have free access to the ICT equipment during child-led learning. They are shown how to use it and then use it to aid and document their learning. They have free access to- iPads, computers, interactive whiteboard, Kiddizoom cameras, CD player.
The children have free access to minimash on the stand alone computers. |

In Autumn 1 we do a traffic survey. The children use the Kiddizoom cameras to take photos of the vehicles they see.

When investigating space, astronauts and the planets we use the interactive whiteboard to share information on the planets and what astronauts do.

Use the feelings section on purple mash when discussing feelings during Wellcomm.

Children to use Minimash and explore the different activities independently during child-led learning

Use 2 Connect to find out at the beginning and end of each topic what the children know.

NATIONAL ONLINE SAFETY

Self-image and identity – Video and Activities 1- 5
(Activities 6-9 can be set as free flow activities)

Online relationships – Video and Activities 1-2
(Activities 3 and 4 can be set as free flow activities)

Online Reputation – Video and Activities 1-2
(Activities 3 and 4 can be set as free flow activities)

Extra ICT experiences-
We use a variety of technology in the home to effect changes to food and water. We use the freezer to freeze ice cubes and the toaster to make toast, then the oven to melt cheese.

NATIONAL ONLINE SAFETY

Online Bullying - Video and Activities 1-2-
(Activities 3 -6 can be set as free flow activities)

Managing online information – Video and Activities 1-2
(Activities 3 and 4 can be set as free flow activities)

Health, wellbeing and lifestyle – Video and Activities 1-2
(Activities 3 and 4 can be set as free flow activities)

To use Simple City to discuss the different technology that different people use
Use the garden PIN when learning about growing.

Extra ICT experiences-
When cooking, we use the microwave and the cooker.
Then the children will read clues to match to the correct equipment to assess if they know what different equipment is used in the home and in school.

NATIONAL ONLINE SAFETY

Privacy and security – Video and Activities 1-2
(Activities 3 – 5 can be set as free flow activities)

Copyright and ownership – Video and Activities 1-2
(Activities 3 and 4 can be set as free flow activities)

Year 1

Coding and Computational thinking	Spreadsheets	Internet and Email	Art and design
Children have sorted items using a range of criteria on the carpet as a class and in pairs.	Children can navigate around a spreadsheet. Children can explain what rows and columns are.	Children can login to Purple Mash using their own login.	Children know the difference between a traditional book and an e-book.
Children have used Purple Mash activities to sort various items online using a variety of criteria.	Children can save and open sheets. Children can enter data into cells.	Children have created their own avatar and understand why it is useful.	Children can use the different drawing tools to create a picture on the page.
Children know that to achieve the effect they want when building something, they need to follow accurate instructions.	Children can open the Image toolbox and find and add clipart.	Children can add their name to a picture they created on the computer.	Children can add text to a page and change the colour, font and size of the text.
		Children are beginning to develop an understanding of ownership of work online.	Children can save their work.

Children know that by following the instructions correctly, they will get the correct result. Children know that an algorithm is a precise, step-bystep set of instructions used to solve a problem or achieve an objective. Children can follow instructions in a computer program. Children can explain the effect of carrying out a task with no instructions. Children know that computers need precise instructions to follow. Children understand how the order in which the steps of a recipe are presented affects the outcome. Children can organise instructions for a simple recipe. Children know that correcting errors in an algorithm or program is called 'debugging'. Children know that an algorithm written for a computer to follow is called a program. Children know how to use the direction keys in 2Go to move forwards, backwards, left and right. Children know how to add a unit of measurement to the direction and how to undo their last move. Children know how to move their character back to the starting point. Children can use diagonal direction keys to move the characters in the right direction. Children know how to create a simple algorithm. Children know how to debug their algorithm.	Children can use the 'move cell' tool so that images can be dragged around the spreadsheet. Children can use the 'lock' tool to prevent changes to cells. Children can give images a value that the spreadsheet can use to count them. Children can add the count tool to count items. Children can add the speak tool so that the items are counted out loud. Children can use a spreadsheet to help work out a fair way to share items .	Children can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work. Children can find their saved work in the Online Work area of Purple Mash. Children can find messages that their teacher has left on Purple Mash. Children can search Purple Mash to find resources Children will be able to confidently use the different types of topic templates in the Topic section. Children will be confident with the functionality of the icons in the topic templates. Children will know how to use the different icons to add pictures and text to their work. Children have explored the Tools section on Purple Mash and become familiar with some of the key icons, save, print, open and new. Children have explored the Games section and looked at Table Toons (2x tables). Children can logout of Purple Mash when they have finished using it and know why that is important.	Children can open work that they saved in my last lesson. Children can add an animation to their picture. Children can play the pages they have created. Children can save their changes and overwrite the file. Children can add a sound to the page. Children can add their own voice recording to the page. Children can create their own music and add it to their page. Children can add a background to the page. Children can copy and paste a page in the book. Children can enhance the features of their story book by adding additional pages and animations. Children can share their storybook on a class story book display board.

Children can use the additional direction keys to create a new algorithm. Children can challenge themselves by using the longer algorithm to complete challenges. Children can change the background images in their chosen challenge and save their new challenge. Children can explain what coding means. Children know that for the computer to make something happen, it needs to follow clear instructions. Children can explain what a block of code is. Children can read through combined blocks of code. Children can make a background using Design Mode. Children can add characters using Design Mode. Children can use the drop-down menu to change backgrounds and characters. Children can design a simple program and then create the program using 2Code. Children can write a program that controls how a character will move. Children can make a character move when clicked. Children can program a character to move given a variety of input events. Children can use collision detection to make objects interact.			

Children can program a sound to play when objects collide.			
Music	**Database and Graphing**	**Writing and Presenting**	**Communication and Networks**
Not covered this year.	Children can discuss and illustrate the transport used to travel to school.	**Not covered this year.**	Children can login to Purple Mash using their own login.
	Children can contribute to the collection of class data.		Children have created their own avatar and understand why it is useful.
	Children have used these illustrations to create a simple pictogram.		Children can add their name to a picture they created on the computer.
	Children can contribute to a class pictogram. Children can discuss what the pictogram shows		Children are beginning to develop an understanding of ownership of work online.
	Children can collect data from rolling a die 20 times and recording the results.		Children can save work into the My Work folder in Purple Mash and understand that this is a private saving space just for their work.
	Children can represent the results as a pictogram.		Children can find their saved work in the Online Work area of Purple Mash.
			Children can find messages that their teacher has left on Purple Mash.
			Children can search Purple Mash to find resources
			Children will be able to confidently use the different types of topic templates in the Topic section.
			Children will be confident with the functionality of the icons in the topic templates.
			Children will know how to use the different icons to add pictures and text to their work.
			Children have explored the Tools section on Purple Mash and become

familiar with some of the key icons, save, print, open and new.

Children have explored the Games section and looked at Table Toons (2x tables).

Children can logout of Purple Mash when they have finished using it and know why that is important.

Children understand what is meant by 'technology'.

Children have considered types of technology used in school and out of school.

Children have recorded 4 examples of where technology is used away from school.

Topic Title
Unit 1.1 - Online Safety & Exploring Purple Mash

Links to NC

Digital Literacy
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Key Knowledge & Vocabulary
log-in, username, password, avatar, log-out, save, notification, topic, tools, my work, print

Sequence of Lessons

I am learning to log in safely.
I am learning to start to understand the idea of 'ownership' of their creative work.

Topic Title
Unit 1.6 - Animated Story Books

Links to NC

Information Technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Key Knowledge & Vocabulary
animation, e-book, font, file, sound effect, display board

Sequence of Lessons
I am learning to be introduced to e-books and to 2Create a Story.

I am learning to continue a previously saved story. To add animation to a story.

I am learning to add sound to a story including voice recording and music the children have created.

Topic Title
Unit 1.5 - Maze Explorers

Links to NC

Computer Science
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.

Create and debug simple programs

Use logical reasoning to predict the behaviour of simple programs.

Key Knowledge & Vocabulary
Direction, challenge, arrow, undo, rewind, forward, backwards, right turn, left turn, debug, instruction, algorithm

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Yearly Unit Breakdown
Autumn
Units - 1.1, 1.2, 1.4

Spring
Units - 1.6, 1.7

Autumn
Units – 1.3, 1.5, 1.8, 1.9

Lego building- links to architect jobs, planning for buildings etc…

Animated story book- links to Literacy work, story from a different culture

I am learning how to find saved work in the Online Work area and find teacher comments.
I am learning how to search Purple Mash to find resources.

I am learning to become familiar with the types of resources available in the Topics section.
I am learning to become more familiar with the icons used in the resources in the Topics section.
I am learning start adding pictures and text to work.

I am learning to explore the Tools section of Purple Mash and to learn about the common icons used in Purple Mash for Save, Print, Open, New.
I am learning to explore the Games section on Purple Mash.
I am learning to understand the importance of logging out when they have finished.

How does this link build on previous learning?
In Reception children are supported to logon to Bug Club and 'Helping Monsters to Read' apps.

Topic Title
Unit 1.2 - Sorting & Grouping

Links to NC
Information Technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Key Knowledge & Vocabulary
sort, criteria, activities

Sequence of Lessons
I am learning to sort items using a range of criteria.

I am learning to sort items on the computer using the 'Grouping' activities in Purple Mash.

How does this link build on previous learning?

I am learning to work on a more complex story including adding backgrounds and copying and pasting pages.

I am learning to use additional features to enhance their stories. To share their e-books on a class display board.

How does this link build on previous learning?
In Reception children share a Big book once a day as a class.

Topic Title
Unit 1.7 - Coding

Links to NC
Computer Science & Information Technology
Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions.

Create and debug simple programs.

Use logical reasoning to predict the behaviour of simple programs.

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.

Key Knowledge & Vocabulary
action, background, button, character, code block, code design, coder, coding, collision detection, command, design mode, input, object, program, properties, scale, stop demand, sound, when clicked, when key

Sequence of Lessons
I am learning to understand what coding means in computing.
I am learning to create unambiguous instructions like those required by a computer. To build one- and two-step instructions using the printable code cards

I am learning to introduce 2Code.

Sequence of Lessons
I am learning to understand the functionality of the basic direction keys in Challenges 1 and 2.
I am learning to be able to use the direction keys to complete the challenges successfully.

I am learning to understand the functionality of the basic direction keys in Challenges 3 and 4.
I am learning to understand how to create and debug a set of instructions (algorithm).

I am learning to use the additional direction keys as part of their algorithm.
I am learning to understand how to change and extend the algorithm list.
I am learning to create a longer algorithm for an activity

I am learning to provide an opportunity for the children to set challenges for each other.
I am learning too provide an opportunity for the teacher to set these new challenges as 2Dos for all the class to try.

How does this link build on previous learning?
Children have access to Beebots, Ipads and computers, during continuour provision
Topic Title
Unit 1.3 - Pictograms

Links to NC
Information Technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content

Key Knowledge & Vocabulary
pictogram, data, collate, experiment

Sequence of Lessons
I am learning to understand that data can be represented in picture format

I am learning to contribute to a class pictogram

Coding links – jobs, coders are responsible for creating what we see on computers.

Maze- children can create a physical maze. Look at images of mazes from around the world

Pictographs- link to maths, when they would be used.

Spreadsheets- what jobs may use spreadsheets, why they might be useful.

In Reception children group colours, numbers etc. through continuous provision and during focused work. **Topic Title** Unit 1.4 - Lego Builders **Links to NC** **Computer Science** Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions. **Key Knowledge &** **Vocabulary** instruction, algorithm, computer, program, debug **Sequence of Lessons** I am learning to emphasise the importance of following instructions. I am learning to follow and create simple instructions on the computer. I am learning to consider how the order of instructions affects the result. **How does this link build on previous learning?** In Reception children explore Beebots independently and during focus work. Children take part in activities where in partners they direct each other to a variety of destinations. **NATIONAL ONLINE SAFETY** *Self-image and identity – Video and Activities 1- 2* *(Activities 5 and 6 can be set up in the classroom throughout the week)*	I am learning to use the 2Code program to create a simple program. I am learning to use Design Mode to add and change backgrounds and characters. They will use the Properties table to change the look of the objects. I am learning to use the Properties table to change the look of the objects. I am learning to design a scene for a program. I am learning to use code blocks to make the characters move automatically when the green Play button is clicked. I am learning to add an additional character who moves when clicked. I am learning to explore the When Key and When Swiped commands (on tablets if available). I am learning to use the Stop button to make characters stop when the background is clicked. I am learning to explore a method to code interactivity between objects. I am learning to use Collision Detection to make objects perform actions. I am learning to use the sound property. **How does this link build on previous learning?** **I**n Reception children explore Beebots independently and during group focus work. **NATIONAL ONLINE SAFETY** *Online Bullying - Video and Activities 1 and 4* *Managing online information – Video and Activities 2 and 3* *(Activity 1 could be set in another lesson)* *Health, wellbeing and lifestyle – Video and Activity 1*	I am learning to use a pictogram to record the results of an experiment **How does this link build on previous learning?** During a variety of topics children create class pictograms **Topic Title** Unit 1.8 - Spreadsheets **Links to NC** **Information Technology** Use technology purposefully to create, organise, store, manipulate and retrieve digital content **Key Knowledge &** **Vocabulary** arrow keys, backspace key, cursor, columns, cells, clipart, count tool, delete key, image toolbox, lock tool, move cell tool, rows, speck tool, spreadsheet **Sequence of Lessons** I am learning to introduce spreadsheets. I am learning to add images to a spreadsheet and use the image toolbox. I am learning to use the 'speak' and 'count' tools in 2Calculate to count items. **How does this link build on previous learning?** In Reception children are exposed to spreadsheets during focused learning. **Topic Title** Unit 1.9 - Technology Outside School **Links to NC** **Digital Literacy** Recognise common uses of information technology beyond school **Key Knowledge &**	

Vocabulary
technology

Sequence of Lessons
I am learning to walk around the local community and find examples of where technology is used.

I am learning to record examples of technology outside school.

How does this link build on previous learning?
Children explore the different technologies in school and in the home.

NATIONAL ONLINE SAFETY
Privacy and security – Video and Activity 1

Copyright and ownership – Video and Activity 1

Year 2

Coding and computational thinking	Spreadsheets	Internet and Email	Art and design
Children can explain that an algorithm is a set of instructions.	Children can explain what rows and columns are in a spreadsheet.	Children can use the search facility to refine searches on Purple Mash by year group and subject.	Children can explain what is meant by impressionist art.
Children can describe the algorithms they created.	Children can open, save and edit a spreadsheet.	Children can share the work they have created to a display board.	Children can use 2Paint a Picture to create art based upon this style.
Children can explain that for the computer to make something happen, it needs to follow clear instructions.	Children can add images from the image toolbox and allocate them a value.	Children understand that the teacher approves work before it is displayed.	Children can explain what pointillism is.
Children know that the Turtle and Character objects have different properties and move in different ways. They can begin to make choices about which object type to use.	Children can add the count tool to count items.	Children are beginning to understand how things can be shared electronically for others to see both on Purple Mash and the Internet.	Children can use 2Paint a Picture to create art based upon this style.
Children are beginning to understand that the Repeat and Timer commands both make objects repeat actions but function differently and the type of object can affect which is the best command to use.	Children can use copying a pasting to help make spreadsheets.	Children understand how 2Repond can teach about how to use email.	Children can describe the main features of Piet Mondrian's work.
Children can include a button in their programs.	Children can use tools in a spreadsheet to automatically total rows and columns.		Children can use 2Paint a Picture to create art based upon his style.
	Children can use a spreadsheet to solve a mathematical puzzle.		

Children can explain what debug (debugging) means. Children have a clear idea of how to use a design document to start debugging a program. Children can debug simple programs. Children can explain why it is important to save their work after each functioning iteration of the program they are making. Children can create a computer program using different objects. Children can predict what the objects in classmates' programs will do, based on my knowledge of the objects' limitations, e.g. a turtle can only move in specific ways. Children can explain how they know that certain objects can only move in certain ways. Children can plan and use algorithms in programs successfully to achieve a result. Children can plan and use algorithms in programs successfully to achieve the desired a result. Children can code a program using a variety of objects, actions, events and outputs successfully.	Children can use images in a spreadsheet. Children can work out how much they need to pay using coins by using a spreadsheet to help calculate. Children can create a table of data on a spreadsheet. Children can use the data to create a block graph manually.	Children can open and send an email to a 2Respond character. Children have discussed their own experiences and understanding of what email is used for. Children have discussed what makes us feel happy and what makes us feel sad? Children can explain what a digital footprint is. Children can give examples of things that they wouldn't want to be in their digital footprint. Children can recall the meaning of key internet terms. Children have completed a quiz about the Internet. Children can identify the basic parts of a web search engine search page. Children have learnt to "read" a web search results page. Children can search for answers to a quiz on the internet. Children have created a leaflet to consolidate their knowledge of effective Internet searching.	Children can describe the main features of art that uses repeating patterns. Children can use 2Paint a Picture to create art by repeating patterns in a variety of ways. Children can combine more than one effect in 2Paint a Picture to enhance their patterns. Children can describe surrealist art. Children can use the eCollage function in 2Paint a Picture to create surrealist art using drawing and clipart.
Music	**Database and Graphing**	**Writing and Presenting**	**Communication and networks**
Children understand what 2Sequence is and how it works. Children have used the different sounds within 2Sequence to create a tune. Children have explored how to speed up and slow down tunes. Children understand what happens to the tune when sounds are moved.	Children understand that the information on pictograms cannot be used to answer more complicated questions. Children have used a range of yes/no questions to separate different items. Children understand what is meant by a binary tree. Children have designed a binary tree to sort pictures of children.	Children have examined a traditional tale presented as a mind map, as a quiz, as an e-book and as a fact file. Children know that digital content can be represented in many forms. Children have made a quiz about a story using 2Quiz. Children can talk about their work and make improvements to solutions based on feedback received.	**Not covered this year.**

Children have added sounds to a tune they've already created to change it. Children have considered how music can be used to express feelings. Children can change the volume of the background sounds. Children have created two tunes which depict two feelings. Children have uploaded and used their own sound chosen from a bank of sounds. Children have created, uploaded and used their own recorded sound. Children have created their own tune using some of the chosen sounds.	Children understand that questions are limited to 'yes' and 'no' in a binary tree. Children understand that the user cannot use 2Question to find out answers to more complicated questions. Children have matched the 2Simple Avatar pictures to names using a binary tree. Children understand what is meant by a database. Children have used a database to answer simple and more complex search questions.	Children have extracted information from a 2Connect file to make a publisher fact file on a nonfiction topic. Children have added appropriate clipart. Children have added an appropriate photo. Children know that data can be structured in tables to make it useful. Children can use a variety of software to manipulate and present digital content and information. Children can collect, organise and present data and information in digital content. Children can create digital content to achieve a given goal by combining software packages.	
Topic Title Coding **Links to NC** Computer Science Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise instructions. Create and debug simple programs. Use logical reasoning to predict the behaviour of simple programs. **Key Knowledge & Vocabulary** 2Code; program; algorithm; repeat; debug; command; **Sequence of Lessons** I am learning to understand what an algorithm is; To create a computer program using simple algorithms; I am learning to compare Turtle & character objects; To use the button object; To understand how to repeat a command; to understand how to use the timer command.	**Topic Title** Questioning **Links to NC** Information Technology Use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. Recognise common uses of information technology beyond school. **Key Knowledge & Vocabulary** Database, Avatar, Binary Tree, Pictogram **Sequence of Lessons** I am learning to show that the information provided on pictograms is of limited use beyond answering questions. I am learning to use YES or NO questions to separate information. I am learning to use 2Question (binary tree) to answer questions.	**Topic Title** Creating Pictures **Links to NC** Information Technology Use logical reasoning to predict the behaviour of simple programs. Use technology purposefully to create, organise, store, manipulate and retrieve digital content. **Key Knowledge & Vocabulary** Paint, draw, colour, pointillism, lines, **Sequence of Lessons** I am learning to be introduced to 2Paint A Picture. To look at the impressionist style of art. I am learning to recreate pointillist art and look at the work of pointillist artists such as Seurat. I am learning to look at the work of Piet Mondrian and recreate it using the lines template.	Coding links – jobs, coders are responsible for creating what we see on computers- showing a range of apps that use a repeat command. Creating pictures- artists and styles from around the world Seraut, Mondrian, Morris, Impressionist, Surrealism Questioning- applying to where yes no questions would be useful. Spreadsheets- what jobs may use

I am learning to know what debugging means; To understand the need to test and debug a program repeatedly; To debug simple programs.

I am learning to create programs using different kinds of objects whose behaviours are limited to specific actions; To predict what the objects will do in other programs, based on their knowledge of what the object is capable of; To discuss how logic helped them understand that they could only predict specific actions, as that is what the objects were limited to.

I am learning to use all the coding knowledge they have learned throughout their programming lessons to create a more complex program that tells a story.

How does this link build on previous learning?
This unit builds on the Year 1 Coding unit and builds on skills taught in other Year 1 units such as Grouping and sorting and Maze Explorers.

Topic Title
Online Safety

Links to NC
Digital Literacy
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet t other online technologies.

Key Knowledge &
Vocabulary
Search tool, e mail, share, communicate, internet, open and send e mails, digital footprint, trail, safety, secure,

Sequence of Lessons
I am learning to know how to refine searches using the search tool; To know how to share work electronically using the display boards; To use digital technology to share work on Purple Mash to communicate and connect with others; To have some knowledge and understanding about sharing more globally on the internet;

I am learning to introduce e mail as a communication tool using the 2Respond simulations; To understand how we talk to others

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I am learning to use a database to answer more complex search questions. To use the search tool to find information.

How does this link build on previous learning?
This unit builds on the Year 1 unit, Pictgrams

Topic Title
Effective Searching
Links to NC
Information Technology/Digital Literacy
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Recognise common uses of information technology beyond school.
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact t on the internet t other online technologies.

Key Knowledge &
Vocabulary
Search, internet, safely,
Sequence of Lessons
I am learning to understand the terminology associated with searching.

I am learning to gain a better understanding about searching on the internet.

I am learning to create a leaflet to help someone search for information on the internet.
How does this link build on previous learning?
This unit builds on the Year 1 unit, Online safety and exploring Purple Mash.

NATIONAL ONLINE SAFETY
Online Bullying - Video and Activities 2 and 3

I am learning to look at the work of William Morris to recreate it using the Patterns template.

I am learning to explore surrealism and eCollage.

How does this link build on previous learning?
This unit builds on the Year 1 unit, Animated Storybooks

Topic Title
Making Music
Links to NC
Information Technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact t on the internet t other online technologies.

Key Knowledge &
Vocabulary
Explore sounds, edit, combine, sequence, add, create, upload, record,
Sequence of Lessons
I am learning to be introduced to making music digitally using 2Sequence. To explore, edit and combine sounds using 2Sequence.

I am learning to add sounds to a tune they've already created to change it. To think about how music can be used to express feelings and create tunes which depict feelings.

I am learning to upload a sound from a bank of sounds section. To record their own sound and upload it into the Sounds section. To create their own tune using the sounds which they have added to the sounds section.
How does this link build on previous learning?
The link to ICT and music is not made in Year 1, this is the first time this skill is taught.

Topic Title
Presenting Ideas

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spreadsheets, why they might be useful.

Making music – music used in animations, games

Presenting ideas- link to literacy story

Searching- links to safety

when they aren't there in front of us; To open and send simple online communications in the form of an e mail;

I am learning to understand that information put online leaves a digital footprint or trail; To begin to think critically about the information they leave online; To identify steps that can be taken to keep personal data and hardware secure.

How does this link build on previous learning?

This unit builds on the Year 1 unit- Online safety and exploring Purple Mash.

Topic Title

Spreadsheets

Links to NC

Information Technology

Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Recognise common uses of information technology beyond school.

Key Knowledge & Vocabulary

Rows, columns, spreadsheet, open, save, edit, copy, paste, add images, toolbar, table of data,

Sequence of Lessons

I am learning to review previous use of spreadsheets.

I am learning to use copying and pasting totaling tools.

I am learning to use a spreadsheet to add amounts.

I am learning to create a table and block graph.

How does this link build on previous learning?

This unit builds on the previous Year 1 unit on spreadsheets.

NATIONAL ONLINE SAFETY

Self-image and identity – Video and Activities 3- 4
(Activities 5 and 6 can be set up in the classroom throughout the week)

Online relationships – Video and Activity 2

Managing online information –Video and Activities 4 and 5
(Activity 1 could be set in another lesson)

Health, wellbeing and lifestyle – Video and Activity 1

Links to NC

Information Technology
Use technology purposefully to create, organise, store, manipulate and retrieve digital content.
Recognise common uses of information technology beyond school.
Use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact t on the internet t other online technologies.

Key Knowledge & Vocabulary

Story, quiz, presentation, fact file,

Sequence of Lessons

I am learning to explore how a story can be presented in different ways.

I am learning to make a quiz about a class story or topic.

I am learning to make a fact file on a non-fiction topic.

I am learning to make a class presentation

How does this link build on previous learning?

The skills in this unit are not taught in Year 1.

NATIONAL ONLINE SAFETY

Privacy and security – Video and Activity 1

Copyright and ownership – Video and Activity 1

Online Reputation – Video and Activities 3 and 4			

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Year 3

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Coding and computational thinking	**Spreadsheets**	**Internet and Email**	**Art and design**
Children can create a design that represents a sequential algorithm.	Children can create a table of data on a spreadsheet.	Children understand what makes a good password for use on the Internet.	**Not covered this year**
Children can use a flowchart design to create the code.	Children can use a spreadsheet program to automatically create charts and graphs from data.	Children are beginning to realise the outcomes of not keeping passwords safe.	
Children can explain what Object, Action, Output, Control and Event are in computer programming.	Children can use the 'more than', 'less than' and 'equals' tools to compare different numbers and help to work out solutions to sums.	Children can contribute to a concept map of all the different ways they know that the Internet can help us to communicate.	
Children can explain how their program simulates a physical system, i.e. my vehicles move at different speeds and angles.	Children can use the 'spin' tool to count through times tables.	Children have contributed to a class blog with clear and appropriate messages.	
Children can describe what they did to make their vehicle change angle.	Children can describe a cell location in a spreadsheet using the notation of a letter for the column followed by a number for the row.	Children understand that some information held on websites may not be accurate or true.	
Children can show that their vehicles move at different speeds	Children can find specified locations in a spreadsheet.	Children are beginning to understand how to search the Internet and how to think critically about the results that are returned.	
Children can make use of the X and Y properties of objects in their coding.		Children have accessed and assessed a 'spoof' website, creating and sharing their own 'spoof' webpage mock-up.	
Children can create an if statement in their program.		Children can identify some physical and emotional effects of playing/watching inappropriate content/games.	
Children can use a timer and if statement to introduce selection in their program.		Children relate cyberbullying to bullying in the real-world and have strategies for dealing with online bullying including screenshot and reporting.	
Children can explain what a variable is in programming.			
Children can explain why variables need to be named.			
Children can create a variable in a program.			
Children can set/change the variable values appropriately to create a timer.			

Children can show how their character repeats an action and explain how they caused it to do so. Children are beginning to understand how the use of the timer differs from the repeat command and can experiment with the different methods of repeating blocks of code. Children can explain how they made objects repeat actions. Children can explain what debug (debugging) means. Children have a clear idea of how to use a design document to start debugging a program. Children can debug simple programs. Children can explain why it is important to save their work after each functioning iteration of the program they are making.		Children can list a range of different ways to communicate and use 2Connect to highlight the strengths and weaknesses of each method. Children can open an email and respond to it, sending emails to other children in the class. Children have written rules about how to stay safe using email. Children have created a quiz about email safety which explores scenarios that they could come across in the future. Children can attach work to an email. Children know what CC means and how to use it. Children can read and respond to a series of email communications. Children can attach files appropriately and use email communication to explore ideas.	
Music	**Database and Graphing**	**Writing and Presenting**	**Communication and networks**
Not covered this year	Children understand how YES/NO questions are structured and answered. Children have used YES/NO questioning to play a simple game with a friend. Children have contributed to a class branching database about fruit. Children have completed a branching database about vegetables. Children can choose a suitable topic for a branching database. Children can select and save appropriate images. Children can create a branching database.	To understand the names of the fingers. To understand what is meant by – home, bottom, and top rows. Developed ability to touch type the home, bottom, and top rows. Children can use two hands to type the letters on the keyboard. Children can touch type using the left hand. Children can touch type using the right hand.	Children know that a computer simulation can represent real and imaginary situations. Children can give some examples of simulations used for fun and for work. Children can give suggestions of advantages and problems of simulations Children can explore a simulation. Children can use a simulation to try out different options and to test predictions. Children can begin to evaluate simulations by comparing them with

	Children know how to use and debug their own branching database. Children can set up a graph with a given number of fields. Children can enter data for a graph. Children can produce and share graphs made on the computer. Children have solved a maths investigation. Children can present the results in a range of graphical formats.		real situations and considering their usefulness. Children can recognise patterns within simulations and make and test predictions. Children can identify the relationships and rules on which the simulations are based and test their predictions. Children can evaluate a simulation to determine its usefulness for purpose.

Topic Title	**Topic Title**	**Topic Title**	
3.1 – coding	3.3 – spreadsheets	3.5 – Email	
Links to NC	**Links to NC**	**Links to NC**	
Computer Science	Information Technology	Computer Science	
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs	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. **Key Knowledge & Vocabulary** Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command, data handling, co-ordinates	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. Digital Literacy Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. Information Technology 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.	
Key Knowledge & Vocabulary Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command	**Sequence of Lessons** 1 – L.O. I am learning to create pie charts and bar graphs 2 – L.O. I am learning to use the inequality tools 3 – L.O. I am learning to explore co-ordinates		
Sequence of Lessons 1 – L.O. I am learning to write a simple code 2 – L.O. I am learning to design and write a program 3 – L.O. I am learning to introduce selection 4 – L.O. I am learning to understand a program variable 5 – L.O. I am learning to explore the use of the repeat command 6 – L.O. I am learning to explore debugging	**How does this link build on previous learning?**	**Key Knowledge & Vocabulary** Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm,	

How does this link build on previous learning?
Children extend knowledge of creating simple algorithms in Y2

Children continue to build their knowledge of internet safety techniques from Y1 and Y2 and introduce reliability of published materials online

Topic Title
3.2 – online safety
Links to NC
Digital Literacy
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Key Knowledge &
Vocabulary
 Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command
Sequence of Lessons

1 – L.O. I am learning to understand password safety
2 – L.O. I am learning to consider the validity of online material
3 – L.O. I am learning to understand age restrictions

How does this link build on previous learning?

Children continue to build their knowledge of internet safety techniques from Y1 and Y2 and introduce reliability of published materials online

NATIONAL ONLINE SAFETY
Self-image and identity – Video and Activity 1

Children build on their knowledge of Y1 pictograms and Y2 binary trees

Topic Title
3.4 – Touch-typing
Links to NC
Information Technology

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.

Key Knowledge &
Vocabulary
Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command, data handling, co-ordinates

Sequence of Lessons

1 – L.O. I am learning to introduce typing and buttons
2 – L.O. I am learning to practice typing for home, bottom and top rows
3 – L.O. I am learning to practice the keys typed with the left hand
4 – L.O. I am learning to practice the keys typed with the left hand

How does this link build on previous learning?

Children build on their knowledge of Y1 pictograms and Y2 binary trees

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debug, coding, selection, variable, repeat, command, email, attachment, simulated, simulation
Sequence of Lessons
1 – L.O. I am learning to think about the different methods of communication.
2 - L.O. I am learning to open and respond to an email. To write an email to someone, using an address book.
3 – L.O. I am learning to learn how to use email safely
4 – L.O. I am learning to learn how to use email safely
5 – L.O. I am learning to add an attachment
6 – L.O. I am learning to explore a simulated email scenario

How does this link build on previous learning?
Children build their knowledge from Y1 and Y2 searching in emails.

Topic Title
3.6 – Branching databases
Links to NC
Information Technology

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.

Key Knowledge &
Vocabulary
Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command, email, attachment, simulated, simulation
Sequence of Lessons

Online relationships – Video and Activities 1 and 2 *Online Reputation – Video and Activity 1*	**NATIONAL ONLINE SAFETY** *Online Bullying - Video and Activity 1* *Managing online information – Video and Activity 1* *Health, wellbeing and lifestyle – Video and Activity 1*	1 – L.O. I am learning to sort objects using just YES/NO questions. 2 – L.O. I am learning to complete a branching database using 2Question 3 – L.O. I am learning to create a branching database of the children's choice. **How does this link build on previous learning?** Children build their knowledge from Y1 and Y2 searching in emails. This is the first time they look at networking. **Topic Title** 3.7 - simulations **Links to NC** Information Technology 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. **Key Knowledge &** **Vocabulary** Search engine, e-safety, reliable, unreliable, publish, program, sequence, output, network input, algorithm, debug, coding, selection, variable, repeat, command, email, attachment, simulated, simulation **Sequence of Lessons** 1 – L.O. I am learning to explore simulations 2 – L.O. I am learning to explore simulations 3 – L.O. I am learning to analyse and evaluate **How does this link build on previous learning?**	

Children build their knowledge from Y1 and Y2 searching in emails.

This is the first time they look at networking.

NATIONAL ONLINE SAFETY

Privacy and security – Video and Activity 1

Copyright and ownership – Video and Activity 1

Year 4

Coding and computational thinking	Spreadsheets	Internet and Email	Art and Design
Children can use sketching to design a program and reflect upon their design. Children can create code that conforms to their design Children can create an 'If/else' statement. Children understand what a variable is in programming. Children can set/change the variable values appropriately. Children can interpret a flowchart that depicts an if/else flowchart. Children can show how a character repeats an action and explain how they caused it to do so. Children can make a character respond to user keyboard input. Children can explain what a variable is when used in programming. Children can create a timer that prints a new number to the screen every second.	Children can use the number formatting tools to appropriately format numbers. Children can add a formula to a cell to automatically make a calculation in that cell. Children can use the timer, random number and spin button tools. Children can combine tools to make fun ways to explore number. Children can use a series of data in a spreadsheet to create a line graph and interpret data from it. Children can make practical use of a spreadsheet to help them plan actions. Children can use the currency formatting Children can allocate values to images and use these to explore place value. Children can use a spreadsheet made to check their understanding of a mathematical concept.	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 wouldn't want to be in their digital footprint. 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. Children are able to determine whether activities that they undertake online, infringe another's' copyright knowing the difference between researching and using information and copying it	Children have put together a simple animation using paper to create a flick book. Children have an understanding of animation 'frames'. Children have made a simple animation using 2Animate Children know what the Onion Skin tool does in animation and can use it to create an animated image. Children can use backgrounds and sounds to make more complex and imaginative animations. 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

Children can explain how they made their program change the number every second

Children can create an algorithm modelling the sequence of a simple event.

Children can manipulate graphics in the design view to achieve the desired look for the program.

Children can use an algorithm when making a simulation of an event on the computer.

Children can make good attempts to break down their aims for a coding 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.

Children know what the different instructions are in Logo and how to type them.

Children can follow simple Logo instructions to create shapes on paper and in Logo

Children can create Logo instructions to draw letters of increasing complexity.

Children can write Logo instructions for a word of four letters.

Children can predict what shapes will be made from Logo instructions.

Children can create shapes using the Repeat function.

Children can find the most efficient way to draw shapes.

Children can use the Build feature.

Children can create 'flowers' using Logo. | | Children know about citing sources that they have used.

Children are able to take more informed ownership of the way that they choose to use their free time, recognising a need to find a balance between being active and digital activities.

Children can give reasons for limiting screen time

Children can structure search queries to locate specific information.

Children have used search to answer a series of questions.

Children have written search questions for a friend to solve

Children can analyse the contents of a web page for clues about the credibility of the information. | |
| **Music** | **Databases and Graphing** | **Writing and Presenting** | **Communication and networks** |

		Children have looked at and discussed a variety of written material where the font size and type are tailored to the purpose of the text. Children have used text formatting to make a piece of writing fit for its audience and purpose. Children have interpreted a variety of incoming communications and used these to build up the details of a story- writing their own newspaper report. Children have mind-mapped ideas for a community campaign, using the ideas to create a persuasive text. Children have assessed their texts using criteria to judge their suitability for the intended audience.	Children can name the different parts of a desktop computer. Children know what the function of the different parts of a computer is. Children have created a leaflet to show the function of computer parts

Topic Title Coding-4.1 **Links to NC** **Computer Science** Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs Use sequence, selection, and repetition in programs; work with variables and various forms of input and output Solve problems by decomposing them into smaller parts **Key Knowledge &** **Vocabulary** Coding, sketch, storyboard, program, design, algorithm, If/else statement, variable, flowchart, command, counting machine, timer, simulation, **Sequence of Lessons** LO I am learning to use a sketch or storyboard to represent a program design and algorithm and then use the design to create a program.	**Topic Title** Spreadsheets-4.3 **Links to NC** **Information Technology** 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 **Key Knowledge &** **Vocabulary** Average, advance mode, copy and paste, columns, cells, charts, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer **Sequence of Lessons** LO I am learning to explore how the numbers entered into cells can be set to either currency, decimal or fraction. LO I am learning to explore how tools can be combined to use 2Calculate to make number games. LO I am learning to use the line graphing tool in 2Calculate with appropriate data and to interpret a line graph to estimate values between data readings.	**Topic Title** Animation-4.6 **Links to NC** **Information Technology** 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 **Key Knowledge &** **Vocabulary** Animation, flipbook, frame, onion skinning, background, play, sound, stop motion, video clip **Sequence of Lessons** LO I am learning to discuss what makes a good animated film or cartoon and find out how 2Animate can be created in a similar way using the computer. LO I am learning about onion skinning in animation to add backgrounds and sounds to animations.	Animation- links to ones seen in the world- job links as an animator. Logo- importance of being able t control things remotely- submersibles, space exploration Writing for a purpose- links to rainforest topic and impacts of deforestation

LO I am learning to create a variable and explore a flowchart design for a program with an if/else statement •

LO I am learning to create a program with a character that repeats actions.

Lo I am learning to make timers and counting machines using variables to print a new number to the screen every second.

I am learning to explore how 2Code can be used to investigate control by creating a simulation

LO I know what decomposition and abstraction are in computer science and make it a feature of a real-life situation.

How does this link build on previous learning?
Children extend knowledge of creating simple algorithms in Y2
In Year 3 the children have written a simple code with a variable

Topic Title
Online safety-4.2
Links to NC
Digital Literacy
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.
Key Knowledge &
Vocabulary
Computer virus, cookies, copyright, digital footprint, email, identity theft, malware, phishing, plagiarism, spam
Sequence of Lessons
LO I am learning to understand how children can protect themselves from online identity theft and understand that information put online leaves a digital footprint or trail and that this can aid identity theft.

LO I am learning to Identify the risks and benefits of installing software including apps.

LO I am learning to use the currency formatting tool in 2Calculate to create a model of a real-life situation.

I am learning to use the functions of allocating value to images in 2Calculate to make a resource to teach place value.

How does this link build on previous learning?
Children build on their knowledge of Y1 pictograms and Y2 binary trees
In year 3 the children have explored pie charts, bar graphs, co-ordinates and used the inequality tools

Topic Title
Logo-4.5
Links to NC
Computer Science
Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems
Key Knowledge &
Vocabulary
Logo, bk, fd, rd, lt, retreat, setpc, setps, py, pd
Sequence of Lessons
LO I am learning the structure of the coding language of Logo.

 LO I am learning to input simple instructions in Logo. Using 2Logo to create letter shapes.

LO I am learning to use the Repeat function in Logo to create shapes.

 I am learning to use and build procedures in Logo.
How does this link build on previous learning?

In Year 3 the children have written a simple code with a variable

LO I am being introduced to 'stop motion' animation. To share animation on the class display board and by blogging.

How does this link build on previous learning?

This is the first time they are introduced to animation

Topic Title
Effective searching-4.7
Links to NC
Information Technology
Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
Key Knowledge &
Vocabulary
Easter egg, internet, internet browser, search, search engine, spoof website, website

Sequence of Lessons
LO I am learning to locate information on the search results page

LO I am learning to use search effectively to find out information

LO I am learning to assess whether an information source is true and reliable

How does this link build on previous learning?

In year 2 the children have explored effective searching

Topic Title
Hardware investigators-4.8
Links to NC

Spreadsheets-tool that can be used in business

Hardware-computer technician role

Searching- roles of people who create data bases for companies such as google.

LO I am learning to understand that copying the work of others and presenting it as their own is called 'plagiarism' and to consider the consequences of plagiarism.

LO I am learning to identify the positive and negative influences of technology on health and the environment.
LO I am learning to understand the importance of balancing game and screen time with other parts of their lives.

How does this link build on previous learning?
In year 3 children have looked at the need for secure passwords

Topic Title
Writing for different purposes-4.4
 (Rainforest information)
Links to NC
Information Technology
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
Key Knowledge &
Vocabulary
Font, bold, italic, underline
Sequence of Lessons
LO I am learning to explore how font size and style can affect the impact of a text.

LO I am learning to use a simulated scenario to produce a news report.

LO I am learning to use a simulated scenario to write for a community campaign.

NATIONAL ONLINE SAFETY
Self-image and identity – Video and Activity 2

Online relationships – Video and Activities 3 and 4

NATIONAL ONLINE SAFETY
Online Bullying - Video and Activity 2

Managing online information – Video and Activity 1

Health, wellbeing and lifestyle – Video and Activity 2

Key Knowledge &
Vocabulary
Motherboard, CPU, RAM, graphics card, network card, monitor, speakers, keyboard and mouse
Sequence of Lessons
LO I am learning to understand the different parts that make up a computer.

 LO I am learning to recall the different parts that make up a computer.
How does this link build on previous learning?

NATIONAL ONLINE SAFETY
Privacy and security – Video and Activity 2

Copyright and ownership – Video and Activity 2

Online Reputation – Video and Activity 1			

Year 5

Coding and computational thinking	Spreadsheets	Internet and Email	Art and Design
Children can create code that conforms to their design. 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. 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 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. Children can include buttons and objects that launch windows to websites and programs. Children can code a program that informs others.	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. Children can use a spreadsheet to work out which letters appear most often. Children can use the 'how many' tool. 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. 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. Children can use a spreadsheet to model a real-life situation and come up with solutions that can be practically applied.	Can think critically about the information that they share online both about themselves and others. Know who to tell if they am upset by something that happens online. Can use the SMART rules as a source of guidance when 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. Children are able to 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..	Children can begin the process of designing their own game. Children can design the setting for their game so that it fits with the selected theme. Children can design characters for their game, deciding upon, and changing, the animations and sounds that the characters make. 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. Children can evaluate their own and peers' games to help improve their design for the future. Children know what the 2Design and Make tool is for exploring the different viewpoints whilst designing a building. Children have adapted one of the vehicle models by moving the points to alter the shape of the vehicle while still maintaining its form. Children have explored how to edit the polygon 3D models to design a 3D model for a purpose. 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
Music	**Databases and Graphing**	**Writing and Presenting**	**Communication and networks**
Not covered this year	Children understand the different ways to search a database. Children can search a database in order to answer questions correctly. Children have designed an avatar for a class database. Children have successfully entered information into a class 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.	Children can make connections between thoughts and ideas. Children can see the importance of recording concept maps visually Children understand what is meant by 'concept maps', 'stage', 'nodes' and 'connections'. Children can create a basic concept map. Children have used 2Connect Story Mode to create an informative text. Children have used 2Connect collaboratively to create a concept map. Children have used Presentation Mode to present their concept maps to an audience.	**Not covered this year**

Topic Title Coding – Unit 5.1 **Links to NC** Computer science: Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts. Use sequence, selection and repetition in programs; work with variables and various forms of input and output. Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. Information tech:	**Topic Title** Spreadsheets- 5.3 **Links to NC** Information tech: Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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. **Key Knowledge & Vocabulary**	**Topic Title** 3D modelling – 5.6 **Links to NC** Information tech: Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content. 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. **Key Knowledge & Vocabulary**	Coding links – jobs, coders are responsible for creating what we see on computers. Online safety- password protection- dangers of fraud Database- link to crimes and punishments through time.

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

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.

Key Knowledge & Vocabulary
Action, alert, algorithm, bug, code design, command, control, code design, debug, design mode, Event, Get Input, If, If/else, Input, Output, Object, Repeat, Sequence, Selection, stimulation, timer, number variable, text variable, 2Code

Sequence of Lessons
L.O. I am learning to design and create an algorithm.

L.O. I am learning to design and write a program that stimulates a physical system.

L.O. I am learning to review the use of number variables and explore text variables.

L.O. I am learning to create a competitive game, which uses variables, if/else statements and repeats to achieve the desired effect in code.

L.O. I am learning to read code so that it can be adapted, personalised and improved.

L.O. I am learning about launch commands and can create a program to inform others.

How does this link build on previous learning?

Average, Advance mode, Copy and Paste, Columns, Cells, Charts, Equals Tool, Formula, Formula Wizard, Move Cell Tool, Random Tool, Rows, Spin Tool, Spreadsheet, Timer

Sequence of Lessons
L.O. I am learning about conversions of measurements.

L.O. I am learning about novel use of the count tool.

L.O. I am learning about formulae including the advanced mode.

L.O. I am learning to use text variables to perform calculations.

L.O. I am learning to use a spreadsheet to plan an event.

How does this link build on previous learning?
Children have learnt to set numbers as currency, decimals and fractions. Have created number games using timer, random number and spin the wheel. Have used line graph tools and interpreted data from these. have used the currency formatting tool and created a model of a real-life situation. Used the functions of allocating value to images to make a resource to teach place value.

Topic Title
Game Creator – 5.5

Links to NC
Computer science:

CAD- Computer Aided Design, 3D, Modelling, Viewpoint, Polygon, 2D, Net, 3D Printing, points, template, 2Deisgn

Sequence of Lessons
L.O. I am learning about 2Design and Make.

L.O. I am learning to explore the effect of moving points when designing.

L.O. I am learning to understand designing for a purpose.

L.O. I am learning to understand printing and making.

How does this link build on previous learning?

Topic Title
Concept maps 5.7

Links to NC

Information tech:

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

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.

Key Knowledge & Vocabulary
Audience, Collaboratively, concept, concept map, connection, idea, Node, Thought, Visual

Sequence of Lessons

Game designer- job opportunity to be part of a game designing team.

3D modelling- impact of models and nets- use of 3D printer in modern world. Links to maths and shape topic

Concept maps- how it can be used in the designing world to support manufacturing/ creating.

Children have previously planned and designed programs for a purpose. Children have introduced variables using If/else statement, repeat commands and timers. Children have learnt to control characters on screen using keyboard input and simulation. Learnt about decomposition and abstraction.

Topic Title
Online Safety – 5.2
Links to NC
Computer science:

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.

Information tech:

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Digital Literacy:

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

**Key Knowledge &
Vocabulary**
Online safety, Smart Rules, Password, Reputable, Encryption, Identity theft, Shared image, Plagarism, Citations, Reference, Bibliography

Sequence of Lessons

Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.

Information tech:

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

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.

**Key Knowledge &
Vocabulary**
Animation, Computer game, Customise, Evaluation, Image, Instructions, Interactive, Screenshot, Texture, Perspective, Playability
Sequence of Lessons
L.O. I am learning to set the scene.

L.O. I am learning to create the game environment.

L.O. I am learning to create the game quest.

L.O. I am learning to finish and share the game.

L.O. I am learning to evaluate my own and other's games.

How does this link build on previous learning?
Children have made animations. They have learnt how animations are created by hand and how 2Animate can be created in a similar way using the computer. They understand about onion skinning in animation and adding backgrounds and sounds to animations. They have been

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L.O. I am learning to understand the need for visual representation when generating and discussing complex ideas.

L.O. I am learning to understand and use the correct vocabulary when creating a concept map.

L.O. I am learning to understand how a concept map can be used to retell stories and information.

L.O. I am learning to create a collaborative concept map and present this to an audience.

How does this link build on previous learning?

Children have previously considered typing for different audiences- Y4, experimenting with the impact that font and style can have.

NATIONAL ONLINE SAFETY
Privacy and security – Video and Activities 3 and 5

Copyright and ownership – Video and Activity 3

L.O. I am learning about the impact that sharing digital content can have and reviewing sources of support when using technology. L.O. I am learning about my responsibility others in my online behaviour. L.O. I am learning how to maintain secure passwords. L.O. I am learning to understand the advantages, disadvantages, permissions and purposes of altering an image digitally and the reasons for this. L.O. I am learning to be aware of appropriate and inappropriate text, photographs and videos and the impact of sharing these online. L.O. I am learning to reference sources in my work L.O. I am learning 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. **How does this link build on previous learning?** Children have learnt about identity theft and digital footprint. have learnt about risks and benefits of installing software. Children have learnt about plagarism, its consequences, and appropriate behaviour for online collaborative work. Children have learnt about the effects of technology on health and environment. **Topic Title** Databases – 5.4 **Links to NC** Information tech:	introduced to 'stop motion' animation and shared animation on the class display board and by blogging. **NATIONAL ONLINE SAFETY** *Online Bullying - Video and Activity 1* *Managing online information – Video and Activity 2* *Health, wellbeing and lifestyle – Video and Activity 3*		

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

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.

Key Knowledge &
Vocabulary
Avatar, binary tree, charts, collaborative, data, database, find, record, sort group and arrange, statistics and reports, table
Sequence of Lessons
L.O. I am learning how to search for information on a database

L.O. I am learning to contribute to a class database.

L.O. I am learning to create a database around a chosen topic.
How does this link build on previous learning?
In Year 3 children organised using yes no questions and created branching databases using these. Children have used the internet as a searching tool. They have located information on the search results page and used search effectively to find out information. They have assessed whether an information source is true and reliable

NATIONAL ONLINE SAFETY
Self-image and identity – Video and Activities 3 & 4

Online relationships – Video and Activities 5 and 6

Online Reputation – Video and Activity 2

Year 6

Coding and computational thinking	Spreadsheets	Internet and Email	Writing and Presenting
Children can plan a program before coding to anticipate the variables that will be required to achieve the desired effect.	Children can create a spreadsheet to answer a mathematical question relating to probability.	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 understand how a blog can be used as an informative text.
Children can follow through plans to create the program.	Children can take copy and paste shortcuts.	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.	Children understand the key features of a blog.

Children can work collaboratively to plan a blog.

Children can create a blog with a specific purpose. |
| Children can debug when things do not run as expected.

Children can explain what functions are and how they can be created and labelled. | Children can problem solve using the count tool.

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 understand how what they share impacts upon themselves and upon others in the long-term. | Children understand that the way in which information is presented has an impact upon the audience.

Children understand that blogs need to be updated regularly to maintain the audience's interest and engagement. |
| Children can explain how to move code from one tab to another.

Children can explain how they organised code in a program into functions to make it easier to read.

Children can code programs that take text input from the user and use this in the program. | Children can use a spreadsheet to solve a problem.

Children can use a spreadsheet to model a real-life situation and come up with solutions. | 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.

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 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 attribute variables to user input.

Children are aware of the need to code for all possibilities when using user input.

Children can follow flowcharts to create and debug code.

Children can create flowcharts for algorithms. | Children can make practical use of a spreadsheet to help plan actions.

Children can use a spreadsheet to model a real-life situation and come up with solutions that can be applied to real life. | Children can give reasons for limiting screen time.

Children can talk about the positives and negative aspects of technology and balance these opposing views | Children can comment on and respond to other blogs.

Children can assess the effectiveness and impact of a blog. |
| Children can be creative with the way they code to generate novel visual effects.

Children can follow through the code of how a text adventure can be programmed.

Children can adapt an existing text adventure to make it unique to their requirements. | | | Children have used the 2DIY activities to create a picturebased quiz.

Children have considered the audience's ability level and interests when setting the quiz.

Children have shared their quiz and responded to feedback. |

Children can describe what a text adventure is and map out a story-based text adventure. Children can create, test and debug using their plan. Children can split their adventure-game design into appropriate sections to facilitate creating it. Children can map out an existing text adventure. Children can contrast a map-based game with a sequential story-based game 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			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. Children have considered the audience's ability level and interests when setting the quiz. . Children have chosen an appropriate Text Toolkit tool to make their own grammar game. Children have designed their own quiz based on one of the 2Investigate example databases. Children have used their knowledge of quiz types to create a quiz show quiz based on a curriculum area.
Music	**Databases and Graphing**	**Art and Design**	**Communication and networks**
Not covered in this year	**Not covered in this year**	**Not covered in this year**	Children know the difference between the World Wide Web and the internet. Children know about their school network. 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.

Topic Title Vikings vs Anglo Saxons **Unit 6.1 – Coding (6 weeks)** **Links to NC** <u>Computer Science</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts	**Topic Title** Extreme Earth **Unit 6.3 – Spreadsheets (5 weeks)** **Links to NC** <u>Information Technology</u> 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	**Topic Title** What was Life like for Children in WW2? **Unit 6.5 - Text Adventures (5 weeks)** **Links to NC** <u>Computer Science</u> Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts.	Coding links – jobs, coders are responsible for creating what we see on computers. Text adventure-links to literacy/ WW2 project.

Use sequence, selection, and repetition in programs; work with variables and various forms of input and output

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

Information Technology
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

Key Knowledge &
Vocabulary
Action, alert, algorithm, bug, code design, command, control, debug, event, function, get input, if/else, input, output, object, repeat, sequence, selection, simulation, tabs, timer, variable

Sequence of Lessons
L.O. I am learning to use the program design process, including flowcharts, to develop algorithms for more complex programs using and understanding of abstraction and decomposition to define the important aspects of the program.
L.O. I am learning to code, test and debug from these designs.
L.O. I am learning to use functions and tabs in 2Code to improve the quality of the code.
L.O. I am learning to code user interactivity using input functions.

How does this link build on previous learning?
Each year group has focused on a Coding unit.

Unit 6.2 - Online Safety (2 weeks)
Links to NC
Computer Science
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.

Information Technology

accomplish given goals, including collecting, analysing, evaluating and presenting data and information.

Key Knowledge &
Vocabulary
Average, advance mode, copy/paste, columns, cell, charts, count tool, dice, equals tool, formula, formula wizard, move cell tool, random tool, rows, spin tool, spreadsheet, timer

Sequence of Lessons
L.O. I am learning to use a spreadsheet to investigate the probability of the results of throwing many dice.
L.O. I am learning to use the formula wizard to add a formula to a cell to automatically make a calculation in that cell.
L.O. I am learning to create graphs showing the data collected.
L.O. I am learning to type in a formula for a cell to automatically make a calculation in that cell. L.O. I am learning to use a spreadsheet to create computational models and answer questions.

How does this link build on previous learning?
Following an introduction to spreadsheets in Years 1 and 2, children have learnt how to:
Y3 – create a table of data and produce charts and graphs from this. Identify a cell's location. (3.3)
Y4 – format and enter values. Produce a line graph. (4.3)
Y5 – Use formulae, count tools and perform calculations. (5.3)

Unit 6.4 - Blogging (5 weeks)
Links to NC
Computer Science
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.

Information Technology
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.

Digital Literacy

Use sequence, selection and repetition in programs; work with variables and various forms of input and output.

Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs.

Information Technology
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.

Key Knowledge &
Vocabulary
Text-based adventure, concept map, debug, sprite, function.

Sequence of Lessons
L.O. I am learning what a text adventure is.
L.O. I am learning to plan a story adventure.
L.O. I am learning to make a story-based adventure. L.O. I am learning about map-based text adventures.
L.O. I am learning to code a map-based text adventure.
How does this link build on previous learning?
Children will build on their coding experience.
Y5 – Children have created own game. Game Creator (5.5)
Y6 – Coding (6.1)

Unit 6.6 – Networks (3 weeks)
Links to NC
Computer Science
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.

Key Knowledge &
Vocabulary
Internet, World Wide Web, Network, Local Area Network (LAN), Wide Area Network, (WAN), router, network cables, wireless.
Sequence of Lessons
L.O. I am learning what the Internet consists of.
L.O. I am learning what a LAN and a WAN are.

Networks- importance of Internet- how it started, how it is used both in homes and work. How it is used in school

Blogs- looking a blogs written by storm chasers, nature activists, geologists, meteorologists etc...

Quiz- based on WW2 project/ an area of interest for the children.

Binary- look at how coding is written in binary form.

Use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content.

Digital Literacy
Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.
* And discussed in other units
Key Knowledge &
Vocabulary
Digital footprint, password, PEGI rating, phishing, screen time, spoof website.
Sequence of Lessons
L.O. I am learning to identify benefits and risks of mobile devices broadcasting the location of the user/device.
 L.O. I am learning to identify secure sites by looking for privacy seals of approval.
L.O. I am learning to identify the benefits and risks of giving personal information.
L.O. I am learning to review the meaning of a digital footprint.
L.O. I am learning to have a clear idea of appropriate online behaviour.
L.O. I am learning to understand how information online can persist.
L.O. I am learning to understand the importance of balancing game and screen time with other parts of my life.
 L.O. I am learning to identify the positive and negative influences of technology on health and the environment.
How does this link build on previous learning?
Children have had regular teaching of online safety/behaviour throughout school.
Each year group has focused on an online safety unit.

NATIONAL ONLINE SAFETY
Self-image and identity – Video and Activity 5

Online relationships – Video and Activities 7 and 8

Online Reputation – Video and Activity 3

Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact*.
* And discussed in other units

Key Knowledge &
Vocabulary
Audience, blog, blog page, blog post, collaborative, icon
Sequence of Lessons
L.O. I am learning to identify the purpose of writing a blog and its key features.
L.O I am learning to plan the theme and content for a blog and write the content.
L.O. I am learning to consider the effect upon the audience of changing the visual properties of the blog.
L.O. I am learning to understand the importance of regularly updating the content of a blog.
L.O. I am learning to understand how to contribute to an existing blog.
L.O. I am learning to understand how and why blog posts are approved by the teacher.
How does this link build on previous learning?
Y3 – Children have covered Writing and Presenting objectives.
Y4 – As part of their Rainforest topic, children have written a news report. (4.4,Writing for different purposes)
NATIONAL ONLINE SAFETY
Online Bullying - Video and Activity 2

Managing online information – Video and Activity 2 or 3

Health, wellbeing and lifestyle – Video and Activity 2

L.O. I am learning how the Internet is accessed in school.
L.O. I am learning to research the age of the Internet.
To think about what the future might hold.
How does this link build on previous learning?
Y4 – Children have looked at the hardware involved in computing in Hardware Investigations (4.8)
Y3 – Children have looked at how e-mail systems work.

Unit 6.7 – Quizzing (6 weeks)
Links to NC
Information Technology
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.
Key Knowledge &
Vocabulary
Audience, Collaboration, Concept map, Database, Quiz
Sequence of Lessons
L.O. I am learning to create a picture-based quiz for young children.
L.O. I am learning how to use the question types within 2Quiz.
L.O. I am learning to explore the grammar quizzes.
L.O. I am learning how to make a quiz that requires the player to search a database.
How does this link build on previous learning?
Y5 – Children have created a class database to answer questions (Databases, 5.4)
Y3 – Children have used branching databases to answer questions (Branching Databases, 3.6)
Y2 – Children have used a database to answer yes/no questions (Questioning, 2.4)

OPTIONAL UNIT –
Unit 6.8 – Understanding Binary (4 weeks)
Links to NC
None given.
Key Knowledge &
Vocabulary
Base 10, Base 2, Binary, Bit, Byte, Decimal, Denary, Digit, Gigabyte (GB), Integer, Kilobyte (KB), Machine code,

Megabyte (MB), Nibble, Switch, Tetrabyte (TB), Transistor, Variable

Sequence of Lessons

L.O. I am learning what the terms binary and denary mean and how they relate to the number system, the digital system and the terms base-10 and base-2.

L.O. I am learning to relate binary to the on and off states of electrical switches

L.O. I am learning to convert numbers from decimal to binary.

L.O. I am learning how to to convert numbers from binary to decimal.

L.O. I am learning how to represent states of object in their own program using binary.

How does this link build on previous learning?

Y4 – Children have looked at the hardware involved in computing in Hardware Investigations (4.8)

NATIONAL ONLINE SAFETY

Privacy and security – Video and Activity 4

Copyright and ownership – Video and Activity 3