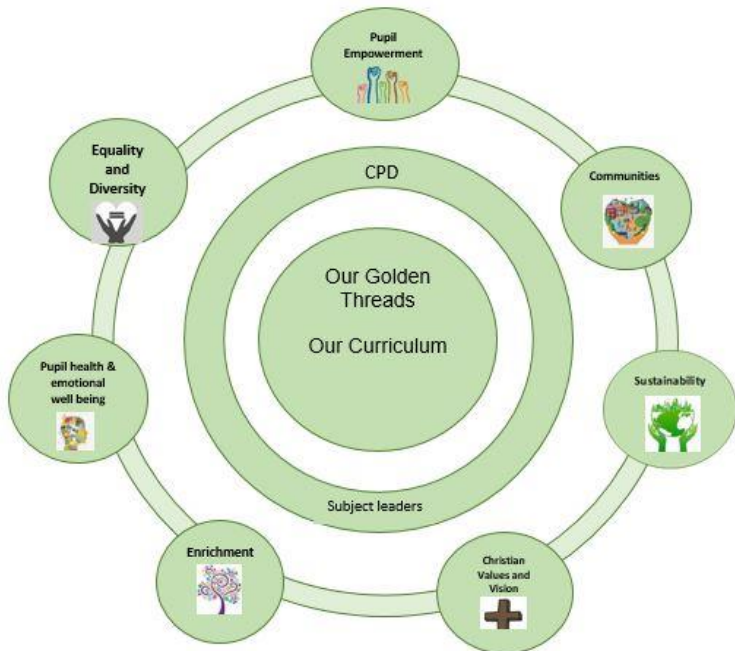


Kenn C of E Primary

Curriculum Design for Computing



Curriculum Intent

At Kenn Church of England Primary School, the intention of our Computing curriculum is to provide a high-quality education that equips our children to use computational thinking and creativity in the modern world.

We aim to teach the foundations of computing through computer science, in which children are taught the principles of information and computation, how digital systems work and how to use this knowledge through programming.

We aim for our children to become digitally literate, so that they are able to use and develop their ideas through information and communication technology, in an increasingly digital world.

Our Christian Vision and Values

Our teaching of Computing will contribute towards our Christian vision:

'Sowing Kindness, Courage and Faith so all can Flourish.

Our Values are *Kindness, Courage and Faith.*

Our mission statement is to:

Do Good, Be Good, Feel Good

This has its roots in the parable of the Sower. It is about providing a nurturing environment to enable children to flourish into happy, kind and well rounded individuals.

In Computing lessons, we make reference to the fact that children have to make the right choices when using technology and the Internet, to ensure that themselves and others can feel safe and flourish.

We learn how we will have a collaborative approach in computing projects, and this is an opportunity for children to show kindness to their peers when working in teams.

We learn about how children are encouraged to show courage in their own beliefs and knowledge, when sharing their ideas and thoughts in computing lessons.

Meeting the needs of all children

Our Computing curriculum is inclusive and accessible - all of our children achieve their potential in Computing. Pupils who may find other curriculum areas challenging have the opportunity to excel in this area of the curriculum. Children are encouraged to be independent in their learning and to have a thirst to do well. New knowledge is broken down into meaningful components and introduced sequentially. This supports all children when learning concepts and developing the skills of the application of new technology and software. Computing learning outcomes are rarely recorded in a written format, which can often remove a barrier for our disadvantaged children. Children may work in groups to explore ideas and complete practical activities to support their learning and give them access to positive role models. Our enriched curriculum gives our more disadvantaged children the opportunity to increase their vocabulary and develop their computing capital.

Implementation

Implementation: how do we carry it out? We follow the programme 'Teach Computing' – which is a government accredited scheme that has been created by The National Centre for Computing Education. This scheme is organised in a sequential manner that enables the development of new skills and knowledge, and offers a wide range of opportunities to practice and apply these skills. There is a true cross – curricular approach to Computing at Kenn C of E Primary. As well as the structured, specific computing lessons, children have a wide range of opportunities to develop their computing skills in different subjects, to share their knowledge and present their work. This real-world context validates their learning and offers a true sense of purpose.

The Primary National Curriculum for Computing is split into three strands: information technology, digital literacy and computer science. Our Computing lessons form teaching sequences which encompass these strands. We use The National Centre for Computing Education funded by the DfE as our programme of study, alongside various resources such as SCARF and Barefoot to support us with our teaching. These build on prior knowledge and follow a progression of skills and knowledge and vocabulary for each year group. Lessons also include regular teaching of e-safety to ensure that children feel confident when using computers and the Internet. We want our children to know what to do if they come across something either inappropriate or uncomfortable. We encourage our children to develop a love of the digital world and see its place in their future.

Impact

Impact Our Computing curriculum will promote a love of learning where children show a progression in their skills and vocabulary to become confident, digital citizens. The National Curriculum requirements are covered by ensuring that all children are taught to:

- understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- be responsible, competent, confident and creative users of information and communication technology.

Pupil Voice

(Quotes from children in Year 6 and Year 2 in February 2024)

It is fun researching things using computers.

I love using the computers to create Google Slides about different subjects.

I did stop – animation ...it was brilliant! I do it home now.

I really love it when we do art on the computers and use different tools and colours.

I really like using computers to create different things to show other people what we have learnt.

I have learnt that we never give our personal information to stranger online.

Teaching Order and Coverage – A Rolling Programme

Year A

Years 1 + 2

Computing systems and networks		Creating Media		Data and information	
Technology around us 1.1 Recognising technology in school and using it responsibly	Information technology around us 2.1 Identifying IT and how its responsible use improves our world in school and beyond	Digital Painting 1.2 Choosing appropriate tools in a program to create art, and making comparisons with working non-digitally	Digital photography 2.1 Digital photography Capturing and changing digital photographs for different purposes.	Grouping data 1.4 Exploring object labels, then using them to sort and group objects by properties	Pictograms 2.4 Collecting data in tally charts and using attributes to organise and present data on a computer

Years 3 + 4

Computing systems and networks		Creating Media		Data and information (Maths- statistic - potential for Science/ data analysis)	
Connecting computers 3.1 Identifying that digital device have inputs, processes, and outputs, and how devices can be connected to make networks.	The internet 4.1 Recognising the internet as a network of networks including the WWW, and why we should evaluate online content.	Stop-frame animation 3.2 Capturing and editing digital still images to produce a stop-frame animation that tells a story	Audio editing 4.2 Capturing and editing audio to produce a podcast, ensuring that copyright is considered.	Branching databases 3.4 Building and using branching databases to group objects using yes/no questions.	Data logging 4.4 Recognising how and why data is collected over time, before using data loggers to carry out an investigation.

Years 5 + 6

Computing systems and networks		Creating Media		Data and information	
Sharing information 5.1 Identifying and exploring how information is shared between digital systems.	Internet communication 6.2 Recognising how the WWW can be used to communicate and be searched to find information.	Video editing 5.2 Planning, capturing, and editing video to produce a short film	Webpage creation 6.2 Designing and creating webpages, giving consideration to copyright, aesthetics, and navigation.	Flat-file databases 5.4 Using a database to order data and create charts to answer questions.	Introduction to spreadsheets 6.4 Answering questions by using spreadsheets to organise and calculate data.

Year B

Years 1 + 2

Creating Media		Programming A		Programming B	
Digital Writing 1.5 Using a computer to create and format text, before comparing to writing non-digitally	Making Music 2.5 Using a computer as a tool to explore rhythms and melodies, before creating a musical composition.	Moving a robot 1.3 Writing short algorithms and programs for floor robots, and predicting program outcomes.	Robot algorithms 2.3 Creating and debugging programs, and using logical reasoning to make predictions.	Programming animations 1.6 Designing and programming the movement of a character on screen to tell stories.	Programming quizzes 2.6 Designing algorithms and programs that use events to trigger sequences of code to make an interactive quiz

Years 3 + 4

Creating Media		Programming A1 and B1		Programming A2 and B 2	
Desktop publishing 3.5	Photo editing 3.6	Sequencing sounds 3.3	Events and actions in programs	Repetition in shapes 4.3	Repetition in games 4.6

Creating documents by modifying text, images, and page layouts for a specified purpose.	Manipulating digital images, and reflecting on the impact of changes and whether the required purpose is fulfilled	Creating sequences in a block-based programming language to make music.	3.6 Writing algorithms and programs that use a range of events to trigger sequences of actions	Using a text-based programming language to explore count-controlled loops when drawing shapes..	Using a block-based programming language to explore count-controlled and infinite loops when creating a game
-----------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------

Years 5 + 6

Creating Media		Programming A1 and B1		Programming A2 and B2	
Vector drawing 5.5 Creating images in a drawing program by using layers and groups of objects	3D modelling 6.5 Planning, developing, and evaluating 3D computer models of physical objects.	Selection in physical computing 5.3 Exploring conditions and selection using a programmable microcontroller	Selection in quizzes 5.6 Exploring selection in programming to design and code an interactive quiz.	Variables in games 6.3 Exploring variables when designing and coding a game	Sensing 6.6 Designing and coding a project that captures inputs from a physical device

Skills Progression in Computing

Key Stage 1

Year Group	Unit Name	Lesson	Learning Objectives	Success Criteria
1	Computing systems and networks – Technology around us	1	-To identify technology	-I can explain how these technology examples help us - I can explain technology as something that helps us - I can locate examples of technology in the classroom
1	Computing systems and networks – Technology around us	2	-To identify a computer and its main parts	-I can name the main parts of a computer - I can switch on and log into a computer - I can use a mouse to click and drag
1	Computing systems and networks – Technology around us	3	-To use a mouse in different ways	-I can click and drag to make objects on a screen - I can use a mouse to create a picture - I can use a mouse to open a program
1	Computing systems and networks – Technology around us	4	-To use a keyboard to type on a computer	-I can save my work to a file - I can say what a keyboard is for - I can type my name on a computer
1	Computing systems and networks – Technology around us	5	-To use the keyboard to edit text	-I can delete letters - I can open my work from a file - I can use the arrow keys to move the cursor

1	Computing systems and networks – Technology around us	6	-To create rules for using technology responsibly	-I can discuss how we benefit from these rules - I can give examples of some of these rules - I can identify rules to keep us safe and healthy when we are using technology in and beyond the home
1	Creating media – Digital painting	1	-To describe what different freehand tools do	-I can draw lines on a screen and explain which tools I used - I can make marks on a screen and explain which tools I used - I can use the paint tools to draw a picture
1	Creating media – Digital painting	2	-To use the shape tool and the line tools	-I can make marks with the square and line tools - I can use the shape and line tools effectively - I can use the shape and line tools to recreate the work of an artist
1	Creating media – Digital painting	3	-To make careful choices when painting a digital picture	-I can choose appropriate shapes - I can create a picture in the style of an artist - I can make appropriate colour choices
1	Creating media – Digital painting	4	-To explain why I chose the tools I used	-I can choose appropriate paint tools and colours to recreate the work of an artist - I can say which tools were helpful and why - I know that different paint tools do different jobs
1	Creating media – Digital painting	5	-To use a computer on my own to paint a picture	-I can change the colour and brush sizes - I can make dots of colour on the page - I can use dots of colour to create a picture in the style of an artist on my own
1	Creating media – Digital painting	6	-To compare painting a picture on a computer and on paper	-I can explain that pictures can be made in lots of different ways - I can say whether I prefer painting using a computer or using paper - I can spot the differences between painting on a computer and on paper

1	Programming A – Moving a robot	1	-To explain what a given command will do	-I can match a command to an outcome - I can predict the outcome of a command on a device - I can run a command on a device
1	Programming A – Moving a robot	2	-To act out a given word	-I can follow an instruction- I can give directions- I can recall words that can be acted out
1	Programming A – Moving a robot	3	-To combine forwards and backwards commands to make a sequence	-I can compare forwards and backwards movements - I can predict the outcome of a sequence involving forwards and backwards commands - I can start a sequence from the same place
1	Programming A – Moving a robot	4	-To combine four direction commands to make sequences	-I can compare left and right turns - I can experiment with turn and move commands to move a robot - I can predict the outcome of a sequence involving up to four commands
1	Programming A – Moving a robot	5	-To plan a simple program	-I can choose the order of commands in a sequence - I can debug my program - I can explain what my program should do
1	Programming A – Moving a robot	6	-To find more than one solution to a problem	-I can identify several possible solutions - I can plan two programs - I can use two different programs to get to the same place
1	Data and information – Grouping data	1	-To label objects	-I can describe objects using labels - I can identify the label for a group of objects - I can match objects to groups
1	Data and information – Grouping data	2	-To identify that objects can be counted	-I can count a group of objects - I can count objects - I can group objects

1	Data and information – Grouping data	3	-To describe objects in different ways	-I can describe an object - I can describe a property of an object - I can find objects with similar properties
1	Data and information – Grouping data	4	-To count objects with the same properties	-I can count how many objects share a property - I can group objects in more than one way - I can group similar objects
1	Data and information – Grouping data	5	-To compare groups of objects	-I can choose how to group objects - I can describe groups of objects - I can record how many objects are in a group
1	Data and information – Grouping data	6	-To answer questions about groups of objects	-I can compare groups of objects - I can decide how to group objects to answer a question - I can record and share what I have found
1	Creating media – Digital writing	1	-To use a computer to write	-I can identify and find keys on a keyboard - I can open a word processor - I can recognise keys on a keyboard
1	Creating media – Digital writing	2	-To add and remove text on a computer	-I can enter text into a computer - I can use backspace to remove text - I can use letter, number, and space keys
1	Creating media – Digital writing	3	-To identify that the look of text can be changed on a computer	-I can explain what the keys that I have learnt about already do - I can identify the toolbar and use bold, italic, and underline - I can type capital letters
1	Creating media – Digital writing	4	-To make careful choices when changing text	-I can change the font - I can select all of the text by clicking and dragging - I can select a word by double-clicking
1	Creating media – Digital writing	5	-To explain why I used the tools that I chose	-I can decide if my changes have improved my writing - I can say what tool I used to change the text - I can use 'undo' to remove changes

1	Creating media – Digital writing	6	-To compare typing on a computer to writing on paper	-I can explain the differences between typing and writing- I can make changes to text on a computer- I can say why I prefer typing or writing
1	Programming B - Programming animations	1	-To choose a command for a given purpose	-I can compare different programming tools - I can find which commands to move a sprite - I can use commands to move a sprite
1	Programming B - Programming animations	2	-To show that a series of commands can be joined together	-I can run my program - I can use a Start block in a program - I can use more than one block by joining them together
1	Programming B - Programming animations	3	-To identify the effect of changing a value	-I can change the value - I can find blocks that have numbers - I can say what happens when I change a value
1	Programming B - Programming animations	4	-To explain that each sprite has its own instructions	-I can add blocks to each of my sprites - I can delete a sprite - I can show that a project can include more than one sprite
1	Programming B - Programming animations	5	-To design the parts of a project	-I can choose appropriate artwork for my project - I can create an algorithm for each sprite - I can decide how each sprite will move
1	Programming B - Programming animations	6	-To use my algorithm to create a program	-I can add programming blocks based on my algorithm - I can test the programs I have created - I can use sprites that match my design
2	Computing systems and networks – IT around us	1	-To recognise the uses and features of	-I can describe some uses of computers - I can identify examples of computers - I can identify that a computer is a part of IT

			information technology	
2	Computing systems and networks – IT around us	2	-To identify the uses of information technology in the school	-I can identify examples of IT - I can identify that some IT can be used in more than one way - I can sort school IT by what it's used for
2	Computing systems and networks – IT around us	3	-To identify information technology beyond school	-I can find examples of information technology - I can sort IT by where it is found - I can talk about uses of information technology
2	Computing systems and networks – IT around us	4	-To explain how information technology helps us	-I can demonstrate how IT devices work together - I can recognise common types of technology - I can say why we use IT
2	Computing systems and networks – IT around us	5	-To explain how to use information technology safely	-I can list different uses of information technology - I can say how rules can help keep me safe - I can talk about different rules for using IT
2	Computing systems and networks – IT around us	6	-To recognise that choices are made when using information technology	-I can explain the need to use IT in different ways - I can identify the choices that I make when using IT - I can use IT for different types of activities
2	Creating media – Digital photography	1	-To use a digital device to take a photograph	-I can explain what I did to capture a digital photo - I can recognise what devices can be used to take photographs - I can talk about how to take a photograph

2	Creating media – Digital photography	2	-To make choices when taking a photograph	-I can explain the process of taking a good photograph - I can explain why a photo looks better in portrait or landscape format - I can take photos in both landscape and portrait format
2	Creating media – Digital photography	3	-To describe what makes a good photograph	-I can discuss how to take a good photograph - I can identify what is wrong with a photograph - I can improve a photograph by retaking it
2	Creating media – Digital photography	4	-To decide how photographs can be improved	-I can experiment with different light sources- I can explain why a picture may be unclear- I can explore the effect that light has on a photo
2	Creating media – Digital photography	5	-To use tools to change an image	-I can explain my choices - I can recognise that images can be changed - I can use a tool to achieve a desired effect
2	Creating media – Digital photography	6	-To recognise that photos can be changed	-I can apply a range of photography skills to capture a photo - I can identify which photos are real and which have been changed - I can recognise which photos have been changed
2	Programming A – Robot algorithms	1	-To describe a series of instructions as a sequence	-I can choose a series of words that can be enacted as a sequence - I can follow instructions given by someone else - I can give clear instructions
2	Programming A – Robot algorithms	2	-To explain what happens when we change the order of instructions	-I can show the difference in outcomes between two sequences that consist of the same commands - I can use an algorithm to program a sequence on a floor robot - I can use the same instructions to create different algorithms

2	Programming A – Robot algorithms	3	-To use logical reasoning to predict the outcome of a program	-I can compare my prediction to the program outcome - I can follow a sequence - I can predict the outcome of a sequence
2	Programming A – Robot algorithms	4	-To explain that programming projects can have code and artwork	-I can explain the choices I made for my mat design - I can identify different routes around my mat - I can test my mat to make sure that it is usable
2	Programming A – Robot algorithms	5	-To design an algorithm	-I can create an algorithm to meet my goal - I can explain what my algorithm should achieve - I can use my algorithm to create a program
2	Programming A – Robot algorithms	6	-To create and debug a program that I have written	-I can plan algorithms for different parts of a task - I can put together the different parts of my program - I can test and debug each part of the program
2	Data and information – Pictograms	1	-To recognise that we can count and compare objects using tally charts	-I can compare totals in a tally chart - I can record data in a tally chart - I can represent a tally count as a total
2	Data and information – Pictograms	2	-To recognise that objects can be represented as pictures	-I can enter data onto a computer - I can use a computer to view data in a different format - I can use pictograms to answer simple questions about objects
2	Data and information – Pictograms	3	-To create a pictogram	-I can explain what the pictogram shows - I can organise data in a tally chart - I can use a tally chart to create a pictogram

2	Data and information – Pictograms	4	-To select objects by attribute and make comparisons	-I can answer 'more than'/'less than' and 'most/least' questions about an attribute - I can create a pictogram to arrange objects by an attribute - I can tally objects using a common attribute
2	Data and information – Pictograms	5	-To recognise that people can be described by attributes	-I can choose a suitable attribute to compare people - I can collect the data I need - I can create a pictogram and draw conclusions from it
2	Data and information – Pictograms	6	-To explain that we can present information using a computer	-I can give simple examples of why information should not be shared- I can share what I have found out using a computer- I can use a computer program to present information in different ways
2	Creating media - Digital music	1	-To say how music can make us feel	-I can describe music using adjectives - I can identify simple differences in pieces of music - I can say what I do and don't like about a piece of music
2	Creating media - Digital music	2	-To identify that there are patterns in music	-I can create a rhythm pattern - I can explain that music is created and played by humans - I can play an instrument following a rhythm pattern
2	Creating media - Digital music	3	-To experiment with sound using a computer	-I can connect images with sounds - I can relate an idea to a piece of music - I can use a computer to experiment with pitch
2	Creating media - Digital music	4	-To use a computer to create a musical pattern	-I can explain how my music can be played in different ways - I can identify that music is a sequence of notes - I can refine my musical pattern on a computer
2	Creating media - Digital music	5	-To create music for a purpose	-I can add a sequence of notes to my rhythm - I can create a rhythm which represents an animal I've chosen - I can create my animal's rhythm on a computer

2	Creating media - Digital music	6	-To review and refine our computer work	-I can explain how I changed my work - I can listen to music and describe how it makes me feel - I can review my work
2	Programming B - Programming quizzes	1	-To explain that a sequence of commands has a start	-I can identify that a program needs to be started - I can identify the start of a sequence - I can show how to run my program
2	Programming B - Programming quizzes	2	-To explain that a sequence of commands has an outcome	-I can change the outcome of a sequence of commands - I can match two sequences with the same outcome - I can predict the outcome of a sequence of commands
2	Programming B - Programming quizzes	3	-To create a program using a given design	-I can build the sequences of blocks I need - I can decide which blocks to use to meet the design - I can work out the actions of a sprite in an algorithm
2	Programming B - Programming quizzes	4	-To change a given design	-I can choose backgrounds for the design - I can choose characters for the design - I can create a program based on the new design
2	Programming B - Programming quizzes	5	-To create a program using my own design	-I can build sequences of blocks to match my design - I can choose the images for my own design - I can create an algorithm
2	Programming B - Programming quizzes	6	-To decide how my project can be improved	-I can compare my project to my design - I can debug my program - I can improve my project by adding features

Key stage 2

Year Group	Unit Name	Lesson	Learning Objectives	Success Criteria
3	Computing systems and networks – Connecting computers	1	-To explain how digital devices function	-I can explain that digital devices accept inputs - I can explain that digital devices produce outputs - I can follow a process
3	Computing systems and networks – Connecting computers	2	-To identify input and output devices	-I can classify input and output devices - I can describe a simple process - I can design a digital device
3	Computing systems and networks – Connecting computers	3	-To recognise how digital devices can change the way we work	-I can explain how I use digital devices for different activities - I can recognise similarities between using digital devices and non-digital tools - I can suggest differences between using digital devices and non-digital tools
3	Computing systems and networks – Connecting computers	4	-To explain how a computer network can be used to share information	-I can discuss why we need a network switch - I can explain how messages are passed through multiple connections - I can recognise different connections
3	Computing systems and networks – Connecting computers	5	-To explore how digital devices can be connected	-I can demonstrate how information can be passed between devices - I can explain the role of a switch, server, and wireless access point in a network - I can recognise that a computer network is made up of a number of devices
3	Computing systems and networks – Connecting computers	6	-To recognise the physical components of a network	-I can identify how devices in a network are connected together - I can identify networked devices around me - I can identify the benefits of computer networks

3	Creating media - Stop-frame animation	1	-To explain that animation is a sequence of drawings or photographs	-I can create an effective flip book—style animation - I can draw a sequence of pictures - I can explain how an animation/flip book works
3	Creating media - Stop-frame animation	2	-To relate animated movement with a sequence of images	-I can create an effective stop-frame animation - I can explain why little changes are needed for each frame - I can predict what an animation will look like
3	Creating media - Stop-frame animation	3	-To plan an animation	-I can break down a story into settings, characters and events - I can create a storyboard - I can describe an animation that is achievable on screen
3	Creating media - Stop-frame animation	4	-To identify the need to work consistently and carefully	-I can evaluate the quality of my animation - I can review a sequence of frames to check my work - I can use onion skinning to help me make small changes between frames
3	Creating media - Stop-frame animation	5	-To review and improve an animation	-I can evaluate another learner's animation - I can explain ways to make my animation better - I can improve my animation based on feedback
3	Creating media - Stop-frame animation	6	-To evaluate the impact of adding other media to an animation	-I can add other media to my animation - I can evaluate my final film - I can explain why I added other media to my animation

3	Programming A - Sequencing sounds	1	-To explore a new programming environment	-I can explain that objects in Scratch have attributes (linked to) - I can identify the objects in a Scratch project (sprites, backdrops) - I can recognise that commands in Scratch are represented as blocks
3	Programming A - Sequencing sounds	2	-To identify that commands have an outcome	-I can choose a word which describes an on-screen action for my plan - I can create a program following a design - I can identify that each sprite is controlled by the commands I choose
3	Programming A - Sequencing sounds	3	-To explain that a program has a start	-I can create a sequence of connected commands - I can explain that the objects in my project will respond exactly to the code - I can start a program in different ways
3	Programming A - Sequencing sounds	4	-To recognise that a sequence of commands can have an order	-I can combine sound commands - I can explain what a sequence is - I can order notes into a sequence
3	Programming A - Sequencing sounds	5	-To change the appearance of my project	-I can build a sequence of commands - I can decide the actions for each sprite in a program - I can make design choices for my artwork
3	Programming A - Sequencing sounds	6	-To create a project from a task description	-I can identify and name the objects I will need for a project - I can implement my algorithm as code - I can relate a task description to a design

3	Data and information – Branching databases	1	-To create questions with yes/no answers	-I can create two groups of objects separated by one attribute - I can investigate questions with yes/no answers - I can make up a yes/no question about a collection of objects
3	Data and information – Branching databases	2	-To identify the attributes needed to collect data about an object	-I can arrange objects into a tree structure - I can create a group of objects within an existing group - I can select an attribute to separate objects into groups
3	Data and information – Branching databases	3	-To create a branching database	-I can group objects using my own yes/no questions - I can select objects to arrange in a branching database - I can test my branching database to see if it works
3	Data and information – Branching databases	4	-To explain why it is helpful for a database to be well structured	-I can compare two branching database structures - I can create yes/no questions using given attributes - I can explain that questions need to be ordered carefully to split objects into similarly sized groups
3	Data and information – Branching databases	5	-To plan the structure of a branching database	-I can create a physical version of a branching database - I can create questions that will enable objects to be uniquely identified - I can independently create questions to use in a branching database
3	Data and information – Branching databases	6	-To independently create an identification tool	-I can create a branching database that reflects my plan - I can suggest real-world uses for branching databases - I can work with a partner to test my identification tool

3	Creating media – Desktop publishing	1	-To recognise how text and images convey information	-I can explain the difference between text and images - I can identify the advantages and disadvantages of using text and images - I can recognise that text and images can communicate messages clearly
3	Creating media – Desktop publishing	2	-To recognise that text and layout can be edited	-I can change font style, size, and colours for a given purpose - I can edit text - I can explain that text can be changed to communicate more clearly
3	Creating media – Desktop publishing	3	-To choose appropriate page settings	-I can create a template for a particular purpose - I can define the term 'page orientation' - I can recognise placeholders and say why they are important
3	Creating media – Desktop publishing	4	-To add content to a desktop publishing publication	-I can choose the best locations for my content - I can make changes to content after I've added it - I can paste text and images to create a magazine cover
3	Creating media – Desktop publishing	5	-To consider how different layouts can suit different purposes	-I can choose a suitable layout for a given purpose - I can identify different layouts - I can match a layout to a purpose
3	Creating media – Desktop publishing	6	-To consider the benefits of desktop publishing	-I can compare work made on desktop publishing to work created by hand - I can identify the uses of desktop publishing in the real world - I can say why desktop publishing might be helpful

3	Programming B - Events and actions in programs	1	-To explain how a sprite moves in an existing project	-I can choose which keys to use for actions and explain my choices - I can explain the relationship between an event and an action - I can identify a way to improve a program
3	Programming B - Events and actions in programs	2	-To create a program to move a sprite in four directions	-I can choose a character for my project - I can choose a suitable size for a character in a maze - I can program movement
3	Programming B - Events and actions in programs	3	-To adapt a program to a new context	-I can choose blocks to set up my program - I can consider the real world when making design choices - I can use a programming extension
3	Programming B - Events and actions in programs	4	-To develop my program by adding features	-I can build more sequences of commands to make my design work - I can choose suitable keys to turn on additional features - I can identify additional features (from a given set of blocks)
3	Programming B - Events and actions in programs	5	-To identify and fix bugs in a program	-I can match a piece of code to an outcome - I can modify a program using a design - I can test a program against a given design
3	Programming B - Events and actions in programs	6	-To design and create a maze- based challenge	-I can evaluate my project - I can implement my design - I can make design choices and justify them

4	Computing systems and networks – The Internet	1	-To describe how networks physically connect to other networks	-I can demonstrate how information is shared across the internet - I can describe the internet as a network of networks - I can discuss why a network needs protecting
4	Computing systems and networks – The Internet	2	-To recognise how networked devices make up the internet	-I can describe networked devices and how they connect - I can explain that the internet is used to provide many services - I can recognise that the World Wide Web contains websites and web pages
4	Computing systems and networks – The Internet	3	-To outline how websites can be shared via the World Wide Web (WWW)	-I can describe how to access websites on the WWW - I can describe where websites are stored when uploaded to the WWW - I can explain the types of media that can be shared on the WWW
4	Computing systems and networks – The Internet	4	-To describe how content can be added and accessed on the World Wide Web (WWW)	-I can explain that internet services can be used to create content online - I can explain what media can be found on websites - I can recognise that I can add content to the WWW
4	Computing systems and networks – The Internet	5	-To recognise how the content of the WWW is created by people	-I can explain that there are rules to protect content - I can explain that websites and their content are created by people - I can suggest who owns the content on websites
4	Computing systems and networks – The Internet	6	-To evaluate the consequences of unreliable content	-I can explain that not everything on the World Wide Web is true - I can explain why I need to think carefully before I share or reshare content - I can explain why some information I find online may not be honest, accurate, or legal

4	Creating media - Audio production	1	-To identify that sound can be recorded	-I can explain that the person who records the sound can say who is allowed to use it - I can identify the input and output devices used to record and play sound - I can use a computer to record audio
4	Creating media - Audio production	2	-To explain that audio recordings can be edited	-I can discuss what sounds can be added to a podcast - I can inspect the soundwave view to know where to trim my recording - I can re-record my voice to improve my recording
4	Creating media - Audio production	3	-To recognise the different parts of creating a podcast project	-I can explain how sounds can be combined to make a podcast more engaging - I can plan appropriate content for a podcast - I can save my project so the different parts remain editable
4	Creating media - Audio production	4	-To apply audio editing skills independently	-I can improve my voice recordings - I can record content following my plan - I can review the quality of my recordings
4	Creating media - Audio production	5	-To combine audio to enhance my podcast project	-I can arrange multiple sounds to create the effect I want - I can explain the difference between saving a project and exporting an audio file - I can open my project to continue working on it
4	Creating media - Audio production	6	-To evaluate the effective use of audio	-I can choose appropriate edits to improve my podcast - I can listen to an audio recording to identify its strengths - I can suggest improvements to an audio recording

4	Programming A – Repetition in shapes	1	-To identify that accuracy in programming is important	-I can create a code snippet for a given purpose - I can explain the effect of changing a value of a command - I can program a computer by typing commands
4	Programming A – Repetition in shapes	2	-To create a program in a text-based language	-I can test my algorithm in a text-based language - I can use a template to create a design for my program - I can write an algorithm to produce a given outcome
4	Programming A – Repetition in shapes	3	-To explain what 'repeat' means	-I can identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves - I can identify patterns in a sequence - I can use a count-controlled loop to produce a given outcome
4	Programming A – Repetition in shapes	4	-To modify a count-controlled loop to produce a given outcome	-I can choose which values to change in a loop - I can identify the effect of changing the number of times a task is repeated - I can predict the outcome of a program containing a count-controlled loop
4	Programming A – Repetition in shapes	5	-To decompose a task into small steps	-I can explain that a computer can repeatedly call a procedure - I can identify 'chunks' of actions in the real world - I can use a procedure in a program
4	Programming A – Repetition in shapes	6	-To create a program that uses count-controlled loops to produce a given outcome	-I can design a program that includes count-controlled loops - I can develop my program by debugging it - I can make use of my design to write a program

4	Data and information – Data logging	1	-To explain that data gathered over time can be used to answer questions	-I can choose a data set to answer a given question - I can identify data that can be gathered over time - I can suggest questions that can be answered using a given data set
4	Data and information – Data logging	2	-To use a digital device to collect data automatically	-I can explain what data can be collected using sensors - I can identify that data from sensors can be recorded - I can use data from a sensor to answer a given question
4	Data and information – Data logging	3	-To explain that a data logger collects 'data points' from sensors over time	-I can identify the intervals used to collect data - I can recognise that a data logger collects data at given points - I can talk about the data that I have captured
4	Data and information – Data logging	4	-To recognise how a computer can help us analyse data	-I can explain that there are different ways to view data - I can sort data to find information - I can view data at different levels of detail
4	Data and information – Data logging	5	-To identify the data needed to answer questions	-I can plan how to collect data using a data logger - I can propose a question that can be answered using logged data - I can use a data logger to collect data
4	Data and information – Data logging	6	-To use data from sensors to answer questions	-I can draw conclusions from the data that I have collected - I can explain the benefits of using a data logger - I can interpret data that has been collected using a data logger

4	Creating media – Photo editing	1	-To explain that the composition of digital images can be changed	-I can explain why I might crop an image - I can improve an image by rotating it - I can use photo editing software to crop an image
4	Creating media – Photo editing	2	-To explain that colours can be changed in digital images	-I can experiment with different colour effects - I can explain that different colour effects make you think and feel different things - I can explain why I chose certain colour effects
4	Creating media – Photo editing	3	-To explain how cloning can be used in photo editing	-I can add to the composition of an image by cloning - I can identify how a photo edit can be improved - I can remove parts of an image using cloning
4	Creating media – Photo editing	4	-To explain that images can be combined	-I can experiment with tools to select and copy part of an image - I can explain why photos might be edited - I can use a range of tools to copy between images
4	Creating media – Photo editing	5	-To combine images for a purpose	-I can choose suitable images for my project - I can create a project that is a combination of other images - I can describe the image I want to create
4	Creating media – Photo editing	6	-To evaluate how changes can improve an image	-I can combine text and my image to complete the project - I can review images against a given criteria - I can use feedback to guide making changes

4	Programming B – Repetition in games	1	-To develop the use of count-controlled loops in a different programming environment	-I can list an everyday task as a set of instructions including repetition - I can modify a snippet of code to create a given outcome - I can predict the outcome of a snippet of code
4	Programming B – Repetition in games	2	-To explain that in programming there are infinite loops and count controlled loops	-I can choose when to use a count-controlled and an infinite loop - I can modify loops to produce a given outcome - I can recognise that some programming languages enable more than one process to be run at once
4	Programming B – Repetition in games	3	-To develop a design that includes two or more loops which run at the same time	-I can choose which action will be repeated for each object - I can evaluate the effectiveness of the repeated sequences used in my program - I can explain what the outcome of the repeated action should be
4	Programming B – Repetition in games	4	-To modify an infinite loop in a given program	-I can explain the effect of my changes - I can identify which parts of a loop can be changed - I can re-use existing code snippets on new sprites
4	Programming B – Repetition in games	5	-To design a project that includes repetition	-I can develop my own design explaining what my project will do - I can evaluate the use of repetition in a project - I can select key parts of a given project to use in my own design
4	Programming B – Repetition in games	6	-To create a project that includes repetition	-I can build a program that follows my design - I can evaluate the steps I followed when building my project - I can refine the algorithm in my design

5	Computing systems and networks - Systems and searching	1	-To explain that computers can be connected together to form systems	-I can describe that a computer system features inputs, processes, and outputs - I can explain that computer systems communicate with other devices - I can explain that systems are built using a number of parts
5	Computing systems and networks - Systems and searching	2	-To recognise the role of computer systems in our lives	-I can explain the benefits of a given computer system - I can identify tasks that are managed by computer systems - I can identify the human elements of a computer system
5	Computing systems and networks - Systems and searching	3	-To experiment with search engines	-I can compare results from different search engines - I can make use of a web search to find specific information - I can refine my web search
5	Computing systems and networks - Systems and searching	4	-To describe how search engines select results	-I can explain why we need tools to find things online - I can recognise the role of web crawlers in creating an index - I can relate a search term to the search engine's index
5	Computing systems and networks - Systems and searching	5	-To explain how search results are ranked	-I can explain that a search engine follows rules to rank results - I can give examples of criteria used by search engines to rank results - I can order a list by rank
5	Computing systems and networks - Systems and searching	6	-To recognise why the order of results is important, and to whom	-I can describe some of the ways that search results can be influenced - I can explain how search engines make money - I can recognise some of the limitations of search engines

5	Creating media - Video production	1	-To explain what makes a video effective	-I can compare features in different videos - I can explain that video is a visual media format - I can identify features of videos
5	Creating media - Video production	2	-To identify digital devices that can record video	-I can experiment with different camera angles - I can identify and find features on a digital video recording device - I can make use of a microphone
5	Creating media - Video production	3	-To capture video using a range of techniques	-I can capture video using a range of filming techniques - I can review how effective my video is - I can suggest filming techniques for a given purpose
5	Creating media - Video production	4	-To create a storyboard	-I can create and save video content - I can decide which filming techniques I will use - I can outline the scenes of my video
5	Creating media - Video production	5	-To identify that video can be improved through reshooting and editing	-I can explain how to improve a video by reshooting and editing - I can select the correct tools to make edits to my video - I can store, retrieve, and export my recording to a computer
5	Creating media - Video production	6	-To consider the impact of the choices made when making and sharing a video	-I can evaluate my video and share my opinions - I can make edits to my video and improve the final outcome - I can recognise that my choices when making a video will impact on the quality of the final outcome

5	Programming A – Selection in physical computing	1	-To control a simple circuit connected to a computer	-I can create a simple circuit and connect it to a microcontroller - I can explain what an infinite loop does - I can program a microcontroller to make an LED switch on
5	Programming A – Selection in physical computing	2	-To write a program that includes count-controlled loops	-I can connect more than one output component to a microcontroller - I can design sequences that use count-controlled loops - I can use a count-controlled loop to control outputs
5	Programming A – Selection in physical computing	3	-To explain that a loop can stop when a condition is met	-I can design a conditional loop - I can explain that a condition is either true or false - I can program a microcontroller to respond to an input
5	Programming A – Selection in physical computing	4	-To explain that a loop can be used to repeatedly check whether a condition has been met	-I can explain that a condition being met can start an action - I can identify a condition and an action in my project - I can use selection (an 'if...then...' statement) to direct the flow of a program
5	Programming A – Selection in physical computing	5	-To design a physical project that includes selection	-I can create a detailed drawing of my project - I can describe what my project will do - I can identify a real-world example of a condition starting an action
5	Programming A – Selection in physical computing	6	-To create a program that controls a physical computing project	-I can test and debug my project - I can use selection to produce an intended outcome - I can write an algorithm that describes what my model will do

5	Data and information – Flat-file databases	1	-To use a form to record information	-I can create a database using cards - I can explain how information can be recorded - I can order, sort, and group my data cards
5	Data and information – Flat-file databases	2	-To compare paper and computer-based databases	-I can choose which field to sort data by to answer a given question - I can explain what a field and a record is in a database - I can navigate a flat-file database to compare different views of information
5	Data and information – Flat-file databases	3	-To outline how you can answer questions by grouping and then sorting data	-I can combine grouping and sorting to answer specific questions - I can explain that data can be grouped using chosen values - I can group information using a database
5	Data and information – Flat-file databases	4	-To explain that tools can be used to select specific data	-I can choose multiple criteria to answer a given question - I can choose which field and value are required to answer a given question - I can outline how 'AND' and 'OR' can be used to refine data selection
5	Data and information – Flat-file databases	5	-To explain that computer programs can be used to compare data visually	-I can explain the benefits of using a computer to create charts - I can refine a chart by selecting a particular filter - I can select an appropriate chart to visually compare data
5	Data and information – Flat-file databases	6	-To use a real-world database to answer questions	-I can ask questions that will need more than one field to answer - I can present my findings to a group - I can refine a search in a real-world context

5	Creating media – Introduction to vector graphics	1	-To identify that drawing tools can be used to produce different outcomes	-I can discuss how vector drawings are different from paper-based drawings - I can experiment with the shape and line tools - I can recognise that vector drawings are made using shapes
5	Creating media – Introduction to vector graphics	2	-To create a vector drawing by combining shapes	-I can explain that each element added to a vector drawing is an object - I can identify the shapes used to make a vector drawing - I can move, resize, and rotate objects I have duplicated
5	Creating media – Introduction to vector graphics	3	-To use tools to achieve a desired effect	-I can explain how alignment grids and resize handles can be used to improve consistency - I can modify objects to create a new image - I can use the zoom tool to help me add detail to my drawings
5	Creating media – Introduction to vector graphics	4	-To recognise that vector drawings consist of layers	-I can change the order of layers in a vector drawing - I can identify that each added object creates a new layer in the drawing - I can use layering to create an image
5	Creating media – Introduction to vector graphics	5	-To group objects to make them easier to work with	-I can copy part of a drawing by duplicating several objects - I can recognise when I need to group and ungroup objects - I can reuse a group of objects to further develop my vector drawing
5	Creating media – Introduction to vector graphics	6	-To apply what I have learned about vector drawings	-I can compare vector drawings to freehand paint drawings - I can create a vector drawing for a specific purpose - I can reflect on the skills I have used and why I have used them

5	Programming B – Selection in quizzes	1	-To explain how selection is used in computer programs	-I can identify conditions in a program - I can modify a condition in a program - I can recall how conditions are used in selection
5	Programming B – Selection in quizzes	2	-To relate that a conditional statement connects a condition to an outcome	-I can create a program with different outcomes using selection - I can identify the condition and outcomes in an 'if... then... else...' statement - I can use selection in an infinite loop to check a condition
5	Programming B – Selection in quizzes	3	-To explain how selection directs the flow of a program	-I can design the flow of a program which contains 'if... then... else...' - I can explain that program flow can branch according to a condition - I can show that a condition can direct program flow in one of two ways
5	Programming B – Selection in quizzes	4	-To design a program which uses selection	-I can identify the outcome of user input in an algorithm - I can outline a given task - I can use a design format to outline my project
5	Programming B – Selection in quizzes	5	-To create a program which uses selection	-I can implement my algorithm to create the first section of my program - I can share my program with others - I can test my program
5	Programming B – Selection in quizzes	6	-To evaluate my program	-I can extend my program further - I can identify the setup code I need in my program - I can identify ways the program could be improved

6	Computing systems and networks - Communication and collaboration	1	-To explain the importance of internet addresses	-I can describe how computers use addresses to access websites - I can explain that internet devices have addresses - I can recognise that data is transferred using agreed methods
6	Computing systems and networks - Communication and collaboration	2	-To recognise how data is transferred across the internet	-I can explain that all data transferred over the internet is in packets - I can explain that data is transferred over networks in packets - I can identify and explain the main parts of a data packet
6	Computing systems and networks - Communication and collaboration	3	-To explain how sharing information online can help people to work together	-I can explain that the internet allows different media to be shared - I can recognise how to access shared files stored online - I can send information over the internet in different ways
6	Computing systems and networks - Communication and collaboration	4	-To evaluate different ways of working together online	-I can explain how the internet enables effective collaboration - I can identify different ways of working together online - I can recognise that working together on the internet can be public or private
6	Computing systems and networks - Communication and collaboration	5	-To recognise how we communicate using technology	-I can choose methods of communication to suit particular purposes - I can explain the different ways in which people communicate - I can identify that there are a variety of ways to communicate over the internet
6	Computing systems and networks - Communication and collaboration	6	-To evaluate different methods of online communication	-I can compare different methods of communicating on the internet - I can decide when I should and should not share information online - I can explain that communication on the internet may not be private

6	Creating media – Web page creation	1	-To review an existing website and consider its structure	-I can discuss the different types of media used on websites - I can explore a website - I know that websites are written in HTML
6	Creating media – Web page creation	2	-To plan the features of a web page	-I can draw a web page layout that suits my purpose - I can recognise the common features of a web page - I can suggest media to include on my page
6	Creating media – Web page creation	3	-To consider the ownership and use of images (copyright)	-I can describe what is meant by the term 'fair use' - I can find copyright-free images - I can say why I should use copyright-free images
6	Creating media – Web page creation	4	-To recognise the need to preview pages	-I can add content to my own web page - I can evaluate what my web page looks like on different devices and suggest/make edits - I can preview what my web page looks like
6	Creating media – Web page creation	5	-To outline the need for a navigation path	-I can describe why navigation paths are useful - I can explain what a navigation path is - I can make multiple web pages and link them using hyperlinks
6	Creating media – Web page creation	6	-To recognise the implications of linking to content owned by other people	-I can create hyperlinks to link to other people's work - I can evaluate the user experience of a website - I can explain the implication of linking to content owned by others

6	Programming A – Variables in games	1	-To define a 'variable' as something that is changeable	-I can explain that the way a variable changes can be defined - I can identify examples of information that is variable - I can identify that variables can hold numbers or letters
6	Programming A – Variables in games	2	-To explain why a variable is used in a program	-I can explain that a variable has a name and a value - I can identify a program variable as a placeholder in memory for a single value - I can recognise that the value of a variable can be changed
6	Programming A – Variables in games	3	-To choose how to improve a game by using variables	-I can decide where in a program to change a variable - I can make use of an event in a program to set a variable - I can recognise that the value of a variable can be used by a program
6	Programming A – Variables in games	4	-To design a project that builds on a given example	-I can choose the artwork for my project - I can create algorithms for my project - I can explain my design choices
6	Programming A – Variables in games	5	-To use my design to create a project	-I can choose a name that identifies the role of a variable - I can create the artwork for my project - I can test the code that I have written
6	Programming A – Variables in games	6	-To evaluate my project	-I can identify ways that my game could be improved - I can share my game with others - I can use variables to extend my game

6	Data and information – Spreadsheets	1	-To create a data set in a spreadsheet	-I can collect data - I can enter data into a spreadsheet - I can suggest how to structure my data
6	Data and information – Spreadsheets	2	-To build a data set in a spreadsheet	-I can apply an appropriate format to a cell - I can choose an appropriate format for a cell - I can explain what an item of data is
6	Data and information – Spreadsheets	3	-To explain that formulas can be used to produce calculated data	-I can construct a formula in a spreadsheet - I can explain which data types can be used in calculations - I can identify that changing inputs changes outputs
6	Data and information – Spreadsheets	4	-To apply formulas to data	-I can apply a formula to multiple cells by duplicating it - I can calculate data using different operations - I can create a formula which includes a range of cells
6	Data and information – Spreadsheets	5	-To create a spreadsheet to plan an event	-I can apply a formula to calculate the data I need to answer questions - I can explain why data should be organised - I can use a spreadsheet to answer questions
6	Data and information – Spreadsheets	6	-To choose suitable ways to present data	-I can produce a chart - I can suggest when to use a table or chart - I can use a chart to show the answer to questions

6	Creating media – 3D Modelling	1	-To recognise that you can work in three dimensions on a computer	-I can add 3D shapes to a project - I can move 3D shapes relative to one another - I can view 3D shapes from different perspectives
6	Creating media – 3D Modelling	2	-To identify that digital 3D objects can be modified	-I can lift/lower 3D objects - I can recolour a 3D object - I can resize an object in three dimensions
6	Creating media – 3D Modelling	3	-To recognise that objects can be combined in a 3D model	-I can duplicate 3D objects - I can group 3D objects - I can rotate objects in three dimensions
6	Creating media – 3D Modelling	4	-To create a 3D model for a given purpose	-I can accurately size 3D objects - I can combine a number of 3D objects - I can show that placeholders can create holes in 3D objects
6	Creating media – 3D Modelling	5	-To plan my own 3D model	-I can analyse a 3D model - I can choose objects to use in a 3D model - I can combine objects in a design
6	Creating media – 3D Modelling	6	-To create my own digital 3D model	-I can construct a 3D model based on a design - I can explain how my 3D model could be improved - I can modify my 3D model to improve it

6	Programming B - Sensing movement	1	-To create a program to run on a controllable device	-I can apply my knowledge of programming to a new environment - I can test my program on an emulator - I can transfer my program to a controllable device
6	Programming B - Sensing movement	2	-To explain that selection can control the flow of a program	-I can determine the flow of a program using selection - I can identify examples of conditions in the real world - I can use a variable in an if, then, else statement to select the flow of a program
6	Programming B - Sensing movement	3	-To update a variable with a user input	-I can experiment with different physical inputs - I can explain that checking a variable doesn't change its value - I can use a condition to change a variable
6	Programming B - Sensing movement	4	-To use a conditional statement to compare a variable to a value	-I can explain the importance of the order of conditions in else, if statements - I can modify a program to achieve a different outcome - I can use an operand (e.g. <=>) in an if, then statement
6	Programming B - Sensing movement	5	-To design a project that uses inputs and outputs on a controllable device	-I can decide what variables to include in a project - I can design the algorithm for my project - I can design the program flow for my project
6	Programming B - Sensing movement	6	-To develop a program to use inputs and outputs on a controllable device	-I can create a program based on my design - I can test my program against my design - I can use a range of approaches to find and fix bugs