Computing Curriculum Progression (Units)

EYFS (Birth to Five Matters)		
Birth – 3 Years Old	**3 – 4 Years Old**	**Reception**
• Start to develop pretend play, pretending that one object represents • Support the development of fine motor skills to control a mouse, roller ball or finger tap on screen. • Listen to rhymes, stories or songs on an IWB or device. • Mark make using a paint package on an interactive whiteboard. • Pull objects to make them move e.g. using string or tape. • Begin to role-play jobs which use technology.	• Children explore how things work, e.g., wind-up toys, pulleys, cogs, etc. • Explore software further e.g. picking an app for art, creating pictures or writing their name. • Role play using technology e.g. speaking on the phone for a purpose. • Visit and observe technology in use e.g. scanning books in the library, printing from a computer. • Use devices and apps for a range of things such as Art, Early Maths, Phonics and sharing stories. • See learning experiences shared on a blog/website e.g. class page, Seesaw, family. • Increasingly follow rules, understanding why they are important.	• Support children to use the camera and then save or print photos taken. • Explore software further e.g. picking an app for art, creating pictures or writing their name. • Develop children's social and collaborative skills using technology e.g. shared video making. • Support children to use the camera and then save or print photos taken. • Follow adult directions e.g. going on a treasure hunt. • Make up instructions for a partner to follow. • Begin to use a simple robot. • Use a microphone to record children's voices and support them to play these back. • Begin to explore the keys on a keyboard and find the letters to type their name.

Wrens Year A & B		
Using Technology Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve	**Algorithms** Pupils should be taught to understand what algorithms are; how they are implemented as programmes on digital devices; and that programmes execute by following precise and unambiguous instructions	**E-Safety** Pupils should be taught to use technology 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
Digital Painting • Describe what different freehand tools do • Use shape and line tools • Make careful choices when painting a digital picture • Explain why the tools were chosen and used • Use a computer/IPAD on my own to paint a picture • Compare painting a picture on a computer and on paper **Digital Writing** • Use a computer/IPAD to write • Add and remove text on a computer/IPAD • Identify that the look of text can be changed on a computer • Make careful choices when changing text • Explain why tools were chosen and used • Compare writing on a computer and on paper **Grouping Data** • Label objects • Identify that objects can be counted • Describe objects in different ways • Count objects with the same properties • Compare groups of objects • Answer questions about groups of objects	**Moving a Robot** • Explain what a given command will do • Act out a given word • Combine forwards and backwards commands to make a sequence • Combine four direction commands to make sequences • Plan a simple program • Find more than one solution to a problem	**E-Safety Progression based on the Education for a Connected World Framework.** **Eight key aspects of online education:** • **Self-image and identity** • **Online relationships** • **Online reputation** • **Online bullying** • **Managing online information** • **Health, well-being and lifestyle** • **Privacy and security** • **Copyright and ownership** **See separate E-Safety progression document.**

Uses of IT Beyond School Pupils should be taught to recognise common uses of information technology beyond school	Create Programmes Pupils should be taught to create and debug simple programmes	Reasoning Pupils should be taught to use logical reasoning to predict the behaviour of simple programmes
Technology Around Us • Identify different types of technology • Identify a computer and its main parts • Use a mouse in different ways • Use a keyboard to type • Use a keyboard to edit text • Create rules for using technology responsibly	**Programming Animations** • Choose a command for a given purpose • Show that a series of commands can be joined together • Identify the effect of changing a value • Explain that each sprite has its own instructions • Design the parts of a project • Use an algorithm to create a program.	

Robins Years A and B		
Using Technology Pupils should be taught to use technology purposefully to create, organise, store, manipulate and retrieve	**Algorithms** Pupils should be taught to understand what algorithms are; how they are implemented as programmes on digital devices; and that programmes execute by following precise and unambiguous instructions	**E-Safety** Pupils should be taught to use technology 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
Digital Painting • Describe what different freehand tools do • Use shape and line tools • Make careful choices when painting a digital picture • Explain why the tools were chosen and used • Use a computer/IPAD on my own to paint a picture • Compare painting a picture on a computer and on paper **Digital Writing** • Use a computer/IPAD to write • Add and remove text on a computer/IPAD • Identify that the look of text can be changed on a computer • Make careful choices when changing text • Explain why tools were chosen and used • Compare writing on a computer and on paper **Grouping Data** • Label objects • Identify that objects can be counted • Describe objects in different ways • Count objects with the same properties • Compare groups of objects Answer questions about groups of objects	**Moving a Robot** • Explain what a given command will do • Act out a given word • Combine forwards and backwards commands to make a sequence • Combine four direction commands to make sequences • Plan a simple program Find more than one solution to a problem **Robot Algorithms** • Describe a series of instructions as a sequence • Explain what happens when we change the order of instructions • Use logical reasoning to predict the outcome of a program (series of commands) • Explain the programming projects can have code and artwork • Design an algorithm • Create and debug a program that I have written	**E-Safety Progression based on the Education for a Connected World Framework.** **Eight key aspects of online education:** • **Self-image and identity** • **Online relationships** • **Online reputation** • **Online bullying** • **Managing online information** • **Health, well-being and lifestyle** • **Privacy and security** • **Copyright and ownership** **See separate E-Safety progression document.**

Digital Photography • Know what devices can be used to take photographs • Use a digital device to take a photograph • Describe what makes a good photograph • Decide how photographs can be improved • Use tools to change an image • Recognise that images can be changed **Making Music** • Say how music can make people feel • Identify that there are patterns in music • Describe how music can be used in different ways • Show how music is made from a series of notes • Create music for a purpose • Review and refine computer work **Pictograms** • Count and compare objects using tally charts • Recognise that objects can be represented as pictures • Create a pictogram • Select objects by attribute and make comparisons • Recognise that people can be described by attributes • Explain that information can be presented by using a computer/IPAD		

Uses of IT Beyond School Pupils should be taught to recognise common uses of information technology beyond school	Create Programmes Pupils should be taught to create and debug simple programmes	Reasoning Pupils should be taught to use logical reasoning to predict the behaviour of simple programmes
Technology Around Us • Identify different types of technology • Identify a computer and its main parts • Use a mouse in different ways • Use a keyboard to type • Use a keyboard to edit text • Create rules for using technology responsibly **Information Technology Around Us** • Recognise the uses and features of information technology • Identify information technology in the home • Identify information technology beyond school • Explain how information technology benefits us • Show how to use information technology safely • Recognise that choices are made when using information technology	**Programming Animations** • Choose a command for a given purpose • Show that a series of commands can be joined together • Identify the effect of changing a value • Explain that each sprite has its own instructions • Design the parts of a project Use an algorithm to create a program. **Introduction to Quizzes** • Explain that a sequence of commands has a start • Explain that a sequence of commands has an outcome • Create a program using a given design • Change a given design • Decide how a project can be improved	**Robot Algorithms** • Predict the outcomes of a set of instructions • Predict what the outcome of a simple program will be

Woodpeckers Years A and B

Networks	Using Programmes	E-Safety
Pupils should be taught to 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	Pupils should be taught to select, use and combine a variety of software (including Internet services) on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Pupils should be taught to use technology 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
Connecting Computers • Explain how digital devices function • Identify input and output devices • Recognise how digital devices can change the way we work • Explain how a computer network can be used to share information • Explore how digital devices can be connected • Recognise the physical components of a network **The Internet** • Describe how networks physically connect to other networks • Recognise how networked devices make up the internet • Outline how websites can be shared via the World Wide Web • Describe how content can be added and accessed on the World Wide Web • Recognise how the content of the World Wide Web is created by people • Evaluate the consequences of unreliable content	**Branching Databases** • Create questions with yes/no answers • Identify the object attributes needed to collect relevant data • Create a branching database • Compare the information shown in a pictogram with a branching database **Data Logging** • Explain that data gathered over time can be used to answer questions • Use a digital device to collect data automatically • Explain that a data logger collects 'data points' from sensors over time • Use data collected over a long duration to find information • Identify the data needed to answer questions Use collected data to answer questions **Events and Actions** • Explain how a sprite moves in an existing project • Create a program to move a sprite in four directions • Adapt a program to a new context • Develop a program by adding features • Identify and fix bugs in a program • Design and create a maze-based challenge	**E-Safety Progression based on the Education for a Connected World Framework.** **Eight key aspects of online education:** • **Self-image and identity** • **Online relationships** • **Online reputation** • **Online bullying** • **Managing online information** • **Health, well-being and lifestyle** • **Privacy and security** • **Copyright and ownership** **See separate E-Safety progression document.**

	Photo Editing • Explain that digital images can be changed • Change the composition of an image • Describe how images can be changed for different uses • Make good choices when selecting different tools • Recognise that not all images are real • Evaluate how changes can improve an image	
Search Engines Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	**Create Programmes** Pupils should be taught to design, write and debug programmes that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing the into smaller parts	**Reasoning** Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
The Internet plus Cross Curricular – navigate the web to complete simple searches • Search for information on the web in different ways • Use a search engine to find a specific website • Find relevant information by browsing a menu • Use tabbed browsing to open two or more web pages at the same time • Open a link in a new window • Open a document/PDF and view it • Search for an image, then copy and paste it into a document • Use 'save picture as' to save an image • Copy and paste text into a document • Begin to use note making skills to decide what text to copy	**Desktop Publishing** • Recognise how text and images convey information • Recognise that text and layout can be edited • Choose appropriate page settings • Add content to a desktop publishing publication • Consider how different layouts can suit different purposes • Consider the benefits of desktop publishing **Repetition in Shapes** • Identify that accuracy in programming is important • Create a program in a text-based language • Explain what 'repeat' means • Modify a count-controlled loop to produce a given outcome • Decompose a program into parts • Create a program that uses count-controlled loops to produce a given outcome	• Recognise when it is best to use technology and where it adds little or no value • Justify the use of technology and how it can help with a task • Explain that in programming there are infinite loops and count controlled loops • Modify an infinite loop in a given program

	Develop Programmes Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output	
	Stop-Frame Animation • Explain that animation is a sequence of drawings/photographs • Relate animation movement with a selection of images • Plan an animation • Identify the need to work consistently and carefully • Review and improve an animation • Evaluate the impact of adding other media to an animation **Sequence in Sounds** • Explore a new programming environment • Identify that each sprite is controlled by the commands chosen • Explain that a program has a start • Recognise that a sequence of commands can have an order • Change the appearance of a project • Create a project from a task description **Repetition in Games** • Develop the use of count-controlled loops in a different programming environment • Develop a design which includes two loops that run at the same time • Design a project that includes repetition • Create a project that includes repetition	

Owls Years A and B

Networks	Using Programmes	E-Safety
Pupils should be taught to 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	Pupils should be taught to select, use and combine a variety of software (including Internet services) on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	Pupils should be taught to use technology and respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Sharing Information • Explain that computers can be connected together to form systems • Recognise the role of computer systems in our lives • Recognise how information is transferred over the internet • Explain how sharing information online lets people in different places work together • Contribute to a shared project online • Evaluate different ways of working together online **The Internet** • Describe how networks physically connect to other networks • Recognise how networked devices make up the internet • Outline how websites can be shared via the World Wide Web • Describe how content can be added and accessed on the World Wide Web • Recognise how the content of the World Wide Web is created by people • Evaluate the consequences of unreliable content	**Audio Editing** • Identify that sound can be digitally recorded • Use a digital device to record sound • Explain that a digital recording is stored as a file • Explain that audio can be changed through editing • Show that different types of audio can be combined and played together • Evaluate editing choices made **Photo Editing** • Explain that digital images can be changed • Change the composition of an image • Describe how images can be changed for different uses • Make good choices when selecting different tools • Recognise that not all images are real Evaluate how changes can improve an image **Video Editing** • Recognise video as moving pictures, which can include audio • Identify digital devices that can record video • Capture video using a digital device • Recognise the features of an effective video • Identify that video can be improved through reshooting and editing • Consider the impact of the choices made when making and sharing a video	**E-Safety Progression based on the Education for a Connected World Framework.** **Eight key aspects of online education:** • **Self-image and identity** • **Online relationships** • **Online reputation** • **Online bullying** • **Managing online information** • **Health, well-being and lifestyle** • **Privacy and security** • **Copyright and ownership** **See separate E-Safety progression document.**

	Vector Drawing • Identify that drawing tools can be used to produce different outcomes • Create a vector drawing by combining shapes • Use tools to achieve a desired effect • Recognise that vector drawings consist of layers • Group objects to make them easier to work with • Evaluate a vector drawing **Data Logging** • Explain that data gathered over time can be used to answer questions • Use a digital device to collect data automatically • Explain that a data logger collects 'data points' from sensors over time • Use data collected over a long duration to find information • Identify the data needed to answer questions • Use collected data to answer questions **Flat-file Databases** • Use a form to record information • Compare paper and computer-based databases • Outline how grouping and then sorting data allows us to answer questions • Explain that tools can be used to select specific data • Explain that computer programs can be used to compare data visually • Apply knowledge of a database to ask and answer real-world questions	

Search Engines

Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

The Internet plus Cross Curricular – navigate the web to complete simple searches

- Search for information on the web in different ways
- Use a search engine to find a specific website
- Find relevant information by browsing a menu
- Use tabbed browsing to open two or more web pages at the same time
- Open a link in a new window
- Open a document/PDF and view it
- Search for an image, then copy and paste it into a document
- Use 'save picture as' to save an image
- Copy and paste text into a document
- Begin to use note making skills to decide what text to copy

Sharing Information plus cross-curricular links

- Use a search engine using keyword searches
- Compare the results of different searches
- Download a document and save it to the computer
- Evaluate information

Create Programmes

Pupils should be taught to design, write and debug programmes that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing the into smaller parts

Repetition in Shapes

- Identify that accuracy in programming is important
- Create a program in a text-based language
- Explain what 'repeat' means
- Modify a count-controlled loop to produce a given outcome
- Decompose a program into parts

Create a program that uses count-controlled loops to produce a given outcome

Selection in Physical Computing

- Control a simple circuit connected to a computer
- Write a program that includes count-controlled loops
- Explain that a loop can stop when a condition is met e.g. number of times
- Conclude that a loop can be used to repeatedly check whether a condition has been met
- Design a physical project that includes selection
- Create a controllable system that includes selection

Develop Programmes

Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output

Selection in Quizzes

- Explain how selection is used in computer programmes
- Relate that a conditional statement connects a condition to an outcome
- Design a program which uses selection
- Create a program which uses selection

Reasoning

Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs

- Recognise when it is best to use technology and where it adds little or no value
- Justify the use of technology and how it can help with a task
- Explain that in programming there are infinite loops and count controlled loops

Modify an infinite loop in a given program

Selection in Games

- Explain how selection directs the flow of a program
- Evaluate a program
- Analyse and evaluate information reaching a conclusion that helps with future developments

	Repetition in Games • Develop the use of count-controlled loops in a different programming environment • Develop a design which includes two loops that run at the same time • Design a project that includes repetition Create a project that includes repetition	

Peregrines Years A and B		
Networks Pupils should be taught to 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	**Using Programmes** Pupils should be taught to select, use and combine a variety of software (including Internet services) on a range of digital devices to design and create a range of programmes, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information	**E-Safety** Pupils should be taught to use technology and respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
Sharing Information • Explain that computers can be connected together to form systems • Recognise the role of computer systems in our lives • Recognise how information is transferred over the internet • Explain how sharing information online lets people in different places work together • Contribute to a shared project online Evaluate different ways of working together online **Communication** • Recognise how we communicate using technology • Evaluate different methods of online communication	**Video Editing** • Recognise video as moving pictures, which can include audio • Identify digital devices that can record video • Capture video using a digital device • Recognise the features of an effective video • Identify that video can be improved through reshooting and editing • Consider the impact of the choices made when making and sharing a video **Vector Drawing** • Identify that drawing tools can be used to produce different outcomes • Create a vector drawing by combining shapes • Use tools to achieve a desired effect • Recognise that vector drawings consist of layers • Group objects to make them easier to work with • Evaluate a vector drawing **Flat-file Databases** • Use a form to record information • Compare paper and computer-based databases • Outline how grouping and then sorting data allows us to answer questions • Explain that tools can be used to select specific data • Explain that computer programs can be used to compare data visually • Apply knowledge of a database to ask and answer real-world questions	**E-Safety Progression based on the Education for a Connected World Framework.** **Eight key aspects of online education:** • **Self-image and identity** • **Online relationships** • **Online reputation** • **Online bullying** • **Managing online information** • **Health, well-being and lifestyle** • **Privacy and security** • **Copyright and ownership** **See separate E-Safety progression document.**

	Spreadsheets • Identify questions which can be answered using data • Explain that objects can be described using data • Explain that formula can be used to produce calculated data • Apply formulas to data, including duplicating • Create a spreadsheet to plan an event • Choose suitable ways to present data **Web Page Creation** • Review an existing website and consider its structure • Plan the features of a web page • Consider the ownership and use of images (copyright) • Recognise the need to preview pages • Outline the need for a navigation path • Recognise the implications of linking to content owned by other people **3D Modelling** • Use a computer to create and manipulate three-dimensional (3D) digital objects • Compare working digitally with 2D and 3D graphics • Construct a digital 3D model of a physical object • Identify that physical objects can be broken down into a collection of 3D shapes • Design a digital model by combining 3D objects • Develop and improve a digital 3D model	

Search Engines Pupils should be taught to use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content	Create Programmes Pupils should be taught to design, write and debug programmes that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing the into smaller parts	Reasoning Pupils should be taught to use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
Sharing Information plus cross-curricular links • Use a search engine using keyword searches • Compare the results of different searches • Download a document and save it to the computer Evaluate information **Communication plus cross-curricular links** • Identify how to use a search engine • Describe how search engines select results • Explain how search results are ranked • Recognise why the order of results is important, and to whom	**Variables in Games** • Define a 'variable' as something that is changeable • Explain why a variable is used in a program • Choose how to improve a game by using variables • Design a project that builds on a given example • Use a design to create a project • Evaluate a project **Develop Programmes** Pupils should be taught to use sequence, selection and repetition in programs; work with variables and various forms of input and output **Selection in Physical Computing** • Control a simple circuit connected to a computer • Write a program that includes count-controlled loops • Explain that a loop can stop when a condition is met e.g. number of times • Conclude that a loop can be used to repeatedly check whether a condition has been met • Design a physical project that includes selection Create a controllable system that includes selection. **Sensing** • Create a program to run on a controllable device • Explain that selection can control the flow of a program • Update a variable with a user input • Use a conditional statement to compare a variable to a value • Design a project that uses inputs and outputs on a controllable device • Develop a program to use inputs and outputs on a controllable device	**Sensing** • Detect errors in a program and correct them • Check and refine a series of instructions