

Progression of Knowledge by Class

Year B

	Kirkstead/Richmond (Rec)	Tintern (Rec/Y1)	Crowland/Regent (Y1/Y2)	Westminster/St James (Y2/Y3)	Fountains/Central (Y3)	Lindisfarne (Y4)	Sempringham/Phoenix (Y4/Y5)	Kelso (Y5/Y6)	Ramsey/Hyde (Y6)
Computing systems and networks	<p>Children should: Know what a computer is. Know the main components of a computer. Know how to use the keyboard to type their name.</p>	<p>Children should: Know that technology is something that helps us. Locate examples of technology in the classroom Know the main parts of a computer. Know how to switch on and log into a computer. Know how to use a mouse to click and drag. Know how to use a mouse to open a program. Know how to click and drag to make objects on a screen Use a mouse to create a picture. Know that writing on a computer is called typing. Know how to type their name on a computer Save and open work to a file. Know how to use the arrow keys to move the cursor. Delete letters. Know some rules for using technology responsibly</p>	<p>Children should: Know that technology is something that helps us. Locate examples of technology in the classroom Know the main parts of a computer. Know how to switch on and log into a computer. Know how to use a mouse to click and drag. Know how to use a mouse to open a program. Know how to click and drag to make objects on a screen. Use a mouse to create a picture. Know that writing on a computer is called typing. Know how to type their name on a computer. Save and open work to a file. Know how to use the arrow keys to move the cursor. Delete letters. Some rules for using technology responsibly.</p>	<p>Children should: Identify examples of computers. Know some uses of computers. Know that a computer is a part of information technology. Explain the purpose of information technology in the home. Know how to open a file. Know how to move and resize images. Find examples of information technology and talk about their uses. Know how information technology is used in a shop. Know that information technology can be connected and can explain how information technology helps people. List different uses of information technology. Know how to use information technology responsibly.</p>	<p>Children should: Know that digital devices accept inputs. Know that digital devices produce outputs. Follow a process. Classify input and output devices. Know how to model a simple process. Know how to design a digital device. Know how to use digital devices for different activities. Recognise similarities between using digital devices and non-digital tools. Suggest differences between using digital devices and non-digital tools. Recognise different connections. Know how messages are passed through multiple connections. Know why we need a network switch. Know that a computer network is made up of a number of devices. Know how information can be passed between devices. Know the role of a switch, server, and wireless access point in a network. Identify how devices in a network are connected with one another. Identify networked devices around me. Know what the benefits of computer networks are.</p>	<p>Children should: Know how information is shared across the internet Know why a network needs protecting. Know some different networked devices and how they connect. Know how the internet allows us to view the World Wide Web. Know that the World Wide Web is the part of the internet that contains websites and web pages. Know the types of media that can be shared on the World Wide Web (WWW). Know where websites are stored when uploaded to the WWW. Know how to access websites on the WWW. Know how to create media which can be found on websites. Know they can add content to the WWW. Know that websites and their content are created by people Determine who owns the content on websites. Know that there are rules to protect content. Know that not everything on the World Wide Web is true. Know why they need to think carefully before sharing or resharing content.</p>	<p style="color: red;">Same as Lindisfarne Y5 Taught in Year A</p>	<p>Children should: Know that systems are built using a number of parts. Know that a computer system features inputs, processes, and outputs. Know that computer systems communicate with other devices. Know some tasks that are managed by computer systems. Know the human elements of a computer system. Explain the benefits of a given computer system. Know that data is transferred using agreed methods. Know that networked digital devices have unique addresses. Know that data is transferred over networks in packets. Know that connected digital devices can allow us to access shared files stored online. Know how to send information over the internet in different ways. Know that the internet allows different media to be shared Know some strategies to ensure successful group work. Make thoughtful suggestions on my group's work. Compare working online with working offline. Identify different ways of working together online. Know that working together on the internet can be public or private. Explain how the internet enables effective collaboration.</p>	<p style="color: red;">Same as Kelso Y6 Taught in Year A</p>

<p>Creating Media</p>	<p>Children should: Know what technology is. Know how to use an app. Know how to drag. Use a simple PAINT program</p>	<p>Children should: Know how to make marks on a screen and explain which tools are used. Know how to draw lines on a screen and explain which tools are used. Use the paint tools to draw a picture. Know how to make marks with the square and line tools and can use the shape and line tools effectively. Know how to use the shape and line tools to recreate the work of an artist. Choose appropriate shapes and colour choices. Know how to create a picture in the style of an artist. Know that different paint tools do different jobs and can say which tools were helpful and why. Make dots of colour on the page. Know how to change the colour and brush sizes. Know how to use dots of colour to create a picture in the style of an artist. Know the differences between painting on a computer and on paper and can express a preference.</p>	<p>Children should: Know how to make marks on a screen and explain which tools are used. Know how to draw lines on a screen and explain which tools are used. Use the paint tools to draw a picture. Know how to make marks with the square and line tools and can use the shape and line tools effectively. Know how to use the shape and line tools to recreate the work of an artist. Choose appropriate shapes and colour choices. Know how to create a picture in the style of an artist. Know that different paint tools do different jobs and can say which tools were helpful and why. Make dots of colour on the page. Know how to change the colour and brush sizes. Know how to use dots of colour to create a picture in the style of an artist. Know the differences between painting on a computer and on paper and can express a preference.</p>	<p>Children should: Know what devices can be used to take photographs. Talk about how to take a photograph. Explain the process of taking a good photograph. Know how to take photos in both landscape and portrait format and explain which looks better. Identify what is wrong with a photograph and can improve a photograph by retaking it. Know the effect that light has on a photo and can experiment with different light sources. Know why a picture may be unclear. Know that images can be changed and can use a tool to achieve a desired effect. Recognise which photos have been changed.</p>	<p>Children should: Draw a sequence of pictures Create an effective flip book— style animation. Know how an animation/flip book works. Predict what an animation will look like. Know why little changes are needed for each frame. Create an effective stop-frame animation. Know how to break down a story into settings, characters and events. Describe an animation that is achievable on screen. Know how to create a storyboard. Know how to use onion skinning to make small changes between frames. Know how to review a sequence of frames to check work. Add other media to an animation.</p>	<p>Children should: Identify digital devices that can record sound and play it back. Know the inputs and outputs required to play audio or record sound. Recognise the range of sounds that can be recorded. Use a device to record audio and play back sound. Plan and write the content for a podcast. Know why it is useful to be able to save digital recordings. Know how to save a digital recording as a file. Know how to open a digital recording from a file. Know ways in which audio recordings can be altered. Know how to edit sections of an audio recording. Know how to use editing tools to arrange sections of audio. Know that digital recordings need to be exported to share them.</p>	<p>Same as Lindisfarn Y5 Taught in Year A</p>	<p>Children should: Know that vector drawings are made using shapes. Know the main drawing tools. Know how a vector drawing is different from paper-based drawings. Identify the shapes used to make a vector drawing. Know that each element added to a vector drawing is an object. Move, resize, and rotate objects. Know how to use the zoom tool to help add detail to drawings. Explain how alignment grids and resize handles can be used to improve consistency. Know how to modify objects to create different effects. Know that each added object creates a new layer in the drawing. Identify which objects are in the front layer or in the back layer of a drawing. Know how to change the order of layers in a vector drawing.</p>	<p>Same as Kelso Y6 Taught in Year A</p>
<p>Creating Media</p>	<p>Children should: Know that we can use technology for a range of purposes. Know that text comes in different sizes and colours. Know that computers can be used to create text. Use technology to assist their learning.</p>	<p>Children should: Know how to open a word processor. Recognise keys on a keyboard. Identify and find keys on a keyboard. Know how to enter text into a computer. Know how to use letter, number, and space keys. Know how to use backspace to remove text. Know how to type capital letters. Explain what the keys that they have learnt about already do. Know the toolbar and can use bold, italic, and underline. Select a word by double-clicking and all of the text by clicking and dragging. Know how to change the font. Know what tool they used to change the text. Know if changes have improved the writing and can use 'undo' to remove changes. Write a message on a computer and on paper and then compare using a computer with using a pencil and paper. Know which method they like best.</p>	<p>Children should: Know how to open a word processor. Recognise keys on a keyboard. Identify and find keys on a keyboard. Know how to enter text into a computer. Know how to use letter, number and space keys. Know how to use backspace to remove text. Know how to type capital letters. Explain what the keys that they have learnt about already do. Know the toolbar and can use bold, italic and underline. Select a word by double-clicking and all of the text by clicking and dragging. Know how to change the font. Know what tool they used to change the text. Know if changes have improved the writing and can use 'undo' to remove changes. Write a message on a computer and on paper and then compare using a computer with using a pencil and paper. Know which method they like best.</p>	<p>Children should: Identify simple differences in pieces of music. Listen with concentration to a range of music (links to the Music curriculum) Know how music makes me feel, e.g. happy or sad. Know how to create a rhythm pattern. Play an instrument following a rhythm pattern. Know that music is created and played by humans. Connect images with sounds. Use a computer to experiment with pitch and duration. Know how to relate an idea to a piece of music. Know that music is a sequence of notes. Know how to use a computer to create a musical pattern using three notes. Refine a musical pattern on a computer. Describe an animal using sounds and explain their choices. Know how to save their work. Know how to reopen their work. Explain how to make their work better. Listen to music and describe how it makes me feel.</p>	<p>Children should: Know the difference between text and images. Know that text and images can communicate messages clearly. Know the advantages and disadvantages of using text and images. Change font style, size, and colours for a given purpose. Know how to edit text and can explain that text can be changed to communicate more clearly. Define the term 'page orientation'. Know what placeholders are and say why they are important. Know how to create a template for a particular purpose. Know the best locations for content. Paste text and images to create a magazine cover. Make changes to content. Identify different layouts and match a layout to a purpose. Identify the uses of desktop publishing in the real world</p>	<p>Children should: Identify changes that we can make to an image. Explore how images can be changed in real life. Explain the effect that editing can have on an image. Explain what has changed in an edited image. Change the composition of an image by selecting parts of it. Consider why someone might want to change the composition of an image. Talk about changes made to images. Choose effects to make my image fit a scenario. Explain why my choices fit a scenario. Identify how an image has been retouched. Give examples of positive and negative effects that retouching can have on an image. Choose appropriate</p>	<p>Same as Lindisfarn Y5 Taught in Year A</p>	<p>Children should: Know that a video can include both visual and audio media. Know the benefits of adding audio to a video. Plan a video project using a storyboard. Identify and name digital devices that can record video and sound. Know the most suitable digital device for recording a project. Know the working features of a digital device that can record video. Select a suitable device and software to capture a video. Know suitable methods of using a digital device to capture a video. Demonstrate the safe use and handling of devices. Know some</p>	<p>Same as Kelso Y6 Taught in Year A</p>

					and say why desktop publishing might be helpful. Compare work made on desktop publishing to work created by hand.	tools to retouch an image. Sort images into 'fake' or 'real' and explain my choices. Combine parts of images to create new images. Talk about fake images around me. Consider the effect of adding other elements to my work. Compare the original image with my completed publication. Evaluate the impact of my publication on others through feedback.		of the features of an effective video. Record a video that demonstrates some of the features of an effective video. Know why lighting and angle are important in creating an effective video. Know how to store, retrieve, and export my recording to a computer. Know how to improve a video by reshooting and editing. Select the correct tools to make edits to a video. Make edits to a video and improve the final outcome. Know that choices when making a video will impact on the quality of the final outcome. Evaluate a video and share opinions.	
Data and information	<p>Children should: Know that some objects are the same and some are different. Know how to sort objects. Count objects in a set.</p>	<p>Children should: Describe objects using labels. Know how to match objects to groups. Identify the label for a group of objects. Know how to count and group objects. Count a group of objects. Know how to describe an object using its properties. Find objects with similar properties. Know how to group similar objects in more than one way. Count how many objects share a property. Know to group objects and record how many objects are in a group. Know how to group objects to answer a question. Compare groups of objects. Know how to record and share what they have found.</p>	<p>Children should: Describe objects using labels. Know how to match objects to groups. Identify the label for a group of objects. Know how to count and group objects. Count a group of objects. Know how to describe an object using its properties. Find objects with similar properties. Know how to group similar objects in more than one way. Count how many objects share a property. Know to group objects and record how many objects are in a group. Know how to group objects to answer a question. Compare groups of objects. Know how to record and share what they have found.</p>	<p>Children should: Know how to record data in a tally chart. Know how to represent a tally count as a total. Know how to compare totals in a tally chart. Know how to enter data onto a computer. Know how to use a computer to view data in a different format. Know how to use pictograms to answer simple questions about objects. Know how to organise data in a tally chart. Know how to use a tally chart to create a pictogram. Explain what the pictogram shows. Know how to tally objects using a common attribute. Create a pictogram to arrange objects by an attribute. Answer 'more than'/'less than' and 'most/least' questions about an attribute. Choose a suitable attribute to compare people. Know how to collect the data they need to create a pictogram and draw conclusions from it. Use a computer program to present information in different ways. Know why information should not be shared.</p>	<p>Children should: Investigate questions with yes/no answers. Know how to make up a yes/no question about a collection of objects. Create two groups of objects separated by one attribute. Know how to select an attribute to separate objects into groups. Know how to create a group of objects within an existing group. Arrange objects into a tree structure. Know how to select objects to arrange in a branching database. Group objects using my own yes/no questions. Know how to prove my branching database works. Know how to create yes/no questions using given attributes. Know that questions need to be ordered carefully to split objects into similarly sized groups. Know how to compare two branching database structures. Know how to select a theme and choose a variety of objects. Create questions and apply them to a tree structure. Use my branching database to answer questions. Explain what a pictogram tells me. Know what a branching database tells them. Compare two ways of presenting information.</p>	<p>Children should: Know how to choose a data set to answer a given question. Suggest questions that can be answered using a given data set. Know that data can be gathered over time. Know that sensors are input devices. Use data from a sensor to answer a given question. Know that data from sensors can be recorded. Identify a suitable place to collect data. Identify the intervals used to collect data. Talk about the data that they have captured. Know how to import a data set and can use a computer to view data in different ways. Know how to use a computer program to sort data. Propose a question that can be answered using logged data. Plan how to collect data using a data logger. Interpret data that has been collected using a data logger and draw conclusions from the data that has been collected. Know the benefits of using a data logger.</p>	<p>Same as Lindisfarne Y5 Taught in Year A</p>	<p>Children should: Create multiple questions about the same field. Know how information can be recorded. Know how to order, sort, and group my data cards. Know how to navigate a flat-file database to compare different views of information. Know what a 'field' and a 'record' is in a database. Know which field to sort data by to answer a given question. Know how information can be grouped. Group information to answer questions. Know how to combine grouping and sorting to answer more specific questions. Know which field and value are required to answer a given question. Know how 'AND' and 'OR' can be used to refine data selection. Choose multiple criteria to answer a given question. Select an appropriate</p>	<p>Same as Kelso Y6 Taught in Year A</p>

								<p>chart to visually compare data. Know how to refine a chart by selecting a particular filter. Know the benefits of using a computer to create graphs.</p> <p>Ask questions that will need more than one field to answer. Know how to refine a search in a real-world context.</p>	
<p>Programming A</p>	<p>Children should: know what a bee-bot is. Make a bee-bot move forward, backwards and turn. Follow a route with a bee-bot. Move from one place to another with a bee-bot.</p>	<p>Children should: Know the outcome of a command on a device. match a command to an outcome. Know how to run a command on a device. Follow an instruction. Recall words that can be acted out. Know how to give directions and compare forwards and backwards movements. Start a sequence from the same place. Know how to predict the outcome of a sequence involving forwards and backwards commands. Compare left and right turns and experiment with turn and move commands to move a robot. Know how to predict the outcome of a sequence involving up to four commands. Plan a simple program and explain what their program should do. Know how to choose the order of commands in a sequence. Know how to debug my program and identify several possible solutions. Plan two programs and use two different programs to get to the same place.</p>	<p>Children should: Know the outcome of a command on a device. Match a command to an outcome. Know how to run a command on a device. Follow an instruction. Recall words that can be acted out. Know how to give directions and compare forwards and backwards movements. Start a sequence from the same place. Know how to predict the outcome of a sequence involving forwards and backwards commands. Compare left and right turns and experiment with turn and move commands to move a robot. Know how to predict the outcome of a sequence involving up to four commands. Plan a simple program and explain what my program should do. Know how to choose the order of commands in a sequence. Know how to debug my program and identify several possible solutions. Plan two programs and use two different programs to get to the same place.</p>	<p>Children should: Follow instructions given by someone else. Know how to choose a series of words that can be enacted as a sequence. Give clear and unambiguous instructions. Know how to create different algorithms for a range of sequences (using the same commands). Use an algorithm to program a sequence on a floor robot. Know the difference in outcomes between two sequences that consist of the same commands. Know how to follow a sequence and predict the outcome. Compare a prediction to the program outcome. Explain the choices made for a mat design and identify different routes around a mat. Know how to test a mat to make sure that it is usable. Know what an algorithm should achieve and can create an algorithm to meet a goal. Know how to use an algorithm to create a program. Plan algorithms for different parts of a task. Know how to test and debug each part of the program and put together the different parts of a program.</p>	<p>Children should: Identify the objects in a Scratch project (sprites, backdrops). Know that objects in Scratch have attributes. Know that commands in Scratch are represented as blocks. Know that each sprite is controlled by the commands they choose. Choose a word which describes an on-screen action for their design. Create a program following a design. Know how to start a program in different ways. Create a sequence of connected commands. Know that the objects in a project will respond exactly to the code. Know what a sequence is. Know how to create sound commands. Order notes into a sequence. Know how to build a sequence of commands. Decide the actions for each sprite in a program. Know how to make design choices for their artwork. Identify and name the objects they will need for a project. Relate a task description to a design. Implement an algorithm as code.</p>	<p>Children should: Know how to program a computer by typing commands. Explain the effect of changing a value of a command. Create a code snippet for a given purpose. Use a template to draw what they want a program to do. Know how to write an algorithm to produce a given outcome. Test an algorithm in a text-based language. Identify repetition in everyday tasks. Know how to identify patterns in a sequence. Use a count-controlled loop to produce a given outcome. Know how to identify the effect of changing the number of times a task is repeated. Predict the outcome of a program containing a count-controlled loop. Know which values to change in a loop. Identify 'chunks' of actions in the real world. Know how to use a procedure in a program. Explain that a computer can repeatedly call a procedure. Know how to design a program that includes count-controlled loops. Make use of my design to write a program. Know how to develop my program by debugging it.</p>	<p>Same as Lindisfarne Y5 Taught in Year A</p>	<p>Children should: Know how to build a simple circuit to connect a microcontroller to a computer. Program a microcontroller to light an LED. Know when to use an infinite loop. Know how to connect more than one output device to a microcontroller. Design sequences for given output devices. Know which output devices to control with a count-controlled loop. Explain that a condition is something that can be either true or false (e.g. whether a value is more than 10, or whether a button has been pressed). Know what a 'do until' loop is. Program a microcontroller to respond to an input. Know that a condition being met can start an action. Identify a condition and an action in my project. Know how to use selection (an 'if... then...' statement) to direct the flow of a program. Know how to identify a condition to start an action (real world). Describe what my project will do (the task) and create a detailed drawing of my project. Write an algorithm to control lights and a motor. Know how to use selection to produce</p>	<p>Same as Kelso Y6 Taught in Year A</p>

								an intended outcome. Know how to test and debug a project	
Programming B	<p>Children should: Recall basic bee bot programmes. Plan a route for a bee bot. Plan two or three turns in their route. Reach a destination. Follow routes on other programmes. Control an object on an iPad programme using forwards backwards and turns.</p>	<p>Children should: Know how to find the commands to move a sprite. Compare different programming tools. Know how to use more than one block by joining them together. Use a Start block in a program and then run their program. Know how to find blocks that have numbers and change them. Know what happens when they do. Know how to include more than one sprite and can delete a sprite if needed. Know how to add blocks to each of my sprites. Know how to choose appropriate artwork for my project. Decide how each sprite will move. Know how to create an algorithm for each sprite and use an algorithm to create a program. Know how to use sprites that match a design. Know how to add programming blocks based on an algorithm. Know how to test the programs.</p>	<p>Children should: Know how to find the commands to move a sprite. Compare different programming tools. Know how to use more than one block by joining them together. Use a Start block in a program and then run my program. Know how to find blocks that have numbers and change them. Know what happens when they do. Know how to include more than one sprite and can delete a sprite if needed. Know how to add blocks to each of my sprites. Know how to choose appropriate artwork for my project. Decide how each sprite will move. Know how to create an algorithm for each sprite and use an algorithm to create a program. Know how to use sprites that match a design. Know how to add programming blocks based on an algorithm. Know how to test the programs.</p>	<p>Children should: Identify the start of a sequence. Know that a program needs to be started. Know how to run a program and predict the outcome of a sequence of commands. Know how to match two sequences with the same outcome. Change the outcome of a sequence of commands. Work out the actions of a sprite in an algorithm. Know which blocks to use to meet the design. Know how to build the sequences of blocks they need. Know how to choose backgrounds and characters for the design. Create a program based on the new design. Know how to choose the images for my own design. Know how to create an algorithm and can build sequences of blocks to match my design. Know how to compare a project to a design. Improve a project by adding features. Know how to debug.</p>	<p>Children should: Know the relationship between an event and an action. Choose which keys to use for actions and explain my choices. Identify a way to improve a program. Know how to choose a character for my project. Choose a suitable size for a character in a maze. Know how to program movement. Know how to use a programming extension. Consider the real world when making design choices. Know how to choose blocks to set up my program. Know how to identify additional features (from a given set of blocks). Choose suitable keys to turn on additional features. Know how to build more sequences of commands to make their design work. Know how to test a program against a given design. Match a piece of code to an outcome. Modify a program using a design. Make design choices and justify them. Know how to implement a design and evaluate a project.</p>	<p>Children should: List an everyday task as a set of instructions including repetition. Know how to predict the outcome of a snippet of code. Know how to modify a snippet of code to create a given outcome. Know how to modify loops to produce a given outcome. Choose when to use a count-controlled and an infinite loop. Know that some programming languages enable more than one process to be run at once. Know which action will be repeated for each object. Explain what the outcome of the repeated action should be. Know how to evaluate the effectiveness of the repeated sequences used in a program. Know which parts of a loop can be changed and what happens then. Re-use existing code snippets on new sprites. Know how to design a project that includes repetition. Evaluate the use of repetition in a project. Know how to select key parts of a given project to use in their own design. Develop their own design explaining what the project will do. Know how to refine the algorithm in a design and build a program that follows the design. Know how to evaluate the project.</p>	Same as Lindisfarne Y5 Taught in Year A	<p>Children should: Know how conditions are used in selection. Identify conditions in a program. Know how to modify a condition in a program. Know how to use selection in an infinite loop to check a condition. Identify the condition and outcomes in an 'if... then... else...' statement. Know how to create a program with different outcomes using selection. Know that program flow can branch according to a condition. Design the flow of a program which contains 'if... then... else...'. Know that a condition can direct program flow in one of two ways. Outline a given task and use a design format to outline my project. Know how to identify the outcome of user input in an algorithm. Know how to create the first section of a program. Test a program and identify ways the program could be improved. Know how to identify the setup code and extend a program further.</p>	Same as Kelso Y6 Taught in Year A