St Mary's Roman Catholic Primary School

Computing- Skills and Knowledge Progression Map

Content Domain	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Computing systems and networks Critical knowledge	To identify technology To recognise the uses and features of information technology To use tools effectively Safe use of IT	To identify Information Technology To recognise the uses and features of information technology To use tools effectively Safe use of IT	To understand how computing systems work To understand how computing networks work.	To describe how networks connect to other networks. To know that the world wide web is part of the internet To understand how information is shared via the world wide web. To know how to access the world wide web. To know that the internet lets us access the world wide web. To recognise the need for security on the internet.	To understand that computers can be connected together to form systems. To recognise input, process and output systems. To recognise how information is transferred in packets across the internet. To recognise how connections across computers helps us.	To recognise that there are a number of search engines and ways to search for information. To explain the purpose and processes of search engines. To know how to safely and effectively use search engines and filter results. To understand a range of different ways to communicate.

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Critical Skills	To identify IT in the home and school. To recognise choices are made when using technology. To explain how IT benefits us. To show how to use IT safely. To use a mouse in different ways. To use a keyboard to type	To identify IT in the home and beyond. To recognise choices are made when using technology. To explain how IT benefits us and others. To show how to use IT safely. To create rules for using technology responsibly. To use a mouse in different ways. To use a keyboard to type. To use a keyboard to edit text.	To explain how digital devises function. To identify input and output devices. To explain how a computer network can be used to share information. To explore how digital devices can be connected. To recognise the physical components of a network.	To explain the global interconnection of networks is called the internet. To describe the type of content that can be added, created and shared by people. To explain how the world wide web comprises of websites and web pages. To describe the current limitations of world wide web media. To evaluate the reliability of content and the consequences of unreliable content. To explain the benefits of the world wide web.	To explain how computers can be part of a system in an electronic device. To see that computers work with other devices. To show how packets of data are transferred using agreed protocols (methods) To explain how computers help us to work together and with people in different places. To explain that the internet allows different media to be shared. To evaluate different ways of working together. To recognise that internet collaborations can be privet or public.	To compare results from different search engines. To demonstrate that different search terms produce different results. To explain that search terms need to be chosen carefully. To explain: why search engines exist, the purpose of an index, the role of web crawlers and how search results are selected. To explain that ranking narrows down results returned from the index. To demonstrate how ranking is determined by rules and that different search engines use different rules. To identify some limitations of search engines To explain how search engines make money

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						from advertising and that these adverts can be targeted. To recognise that some information cannot be searched.

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Creating Media Critical Knowledge	To use a computer to paint a picture. To know that digital tools can be used to create and change a picture. To use a computer to write. To identify and locate keys on a keyboard. To change the appearance of a text.	To use a digital device to capture a photograph. To recognise that some digital devices can capture images using a camera. To recognise that a photograph is composed by the photographer To recognise that photographs can be improved through processing. To use a computer to create a piece of music.	To recognise that an animation is made up of a sequence of images that can be captured or drawn. To recognise the relationship between frames and motion. To understand the terms 'composition','stage' and 'capture area'. To know how to fix mistakes in a captured image. To use desktop publishing. To recognise that images and text can be used together. To understand that a document is structured	To recognise that sound can be digitally recorded via a microphone. To recognise that recorded audio is stored as a file and can be edited and altered. To recognise that sound can be layered To recognise that digital images can be manipulated and changed for different purposes. To recognise that not all images are real and the impact of this.	To create graphical objects on a computer screen. To recognise that tools can be changed to produce different outcomes To choose options to achieve a desired effect To recognise that an image is comprised of separate objects and that objects are layered. To recognise that objects can be modified in groups To recognise that vector images can be scaled without impacting quality. To use a computer to make a video	To create 3d graphical objects on a computer screen. To recognise the differences working with 3d vs 2d. To recognise the difference between virtual 3d and 3d in real life To create a webpage Review existing websites and recognise their features. To recognise the relationship between HTML and visual display. To recognise the need for a navigation path and the

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			with placeholders and that text can be edited. To review how different layouts can suit different purposes.		To recognise video as moving pictures combined with audio. To identify features of a good video and how a video can be improved through editing.	implications of linking content owned by others.
Critical Skill	To use tools to make digital marks and pictures, including: change brush colour, draw shapes and lines, to fill a space, change brush size. To use the undo button to correct a mistake. To use letter, number and space keys. To move the cursor around. To use punctuation and special characters.	To take digital photographs effectively. How to hold a digital camera device safely To make choices about your photograph including: orientation and zoom. To review photographs taken. To identify the features of a good photograph and delete a poor quality one. To recognise how music makes us feel.	To use a computer to create an animation. To use a device to: capture stop frame photos and capture a series of images. To play back a sequence of images to review, remove images, add text and sound effects. Play back, review and export a film. To combine text and graphics to share a message.	To record sound To press/ tap buttons to start and stop recording. To identify where the microphone is. To playback and edit sections of audio, including deleting sections and applying effects. To use a computer to manipulate an image. To change the composition (arrange, crop, cut). To apply global changes	To create graphical objects on a computer screen. To add or remove objects: select a type or shape to add to a drawing, select a line type or add text to a drawing. To drag an object on the page. To duplicate, select and delete an object. To reposition, rotate, resize, recolour and alter proportions of an object. To group objects.	To create 3d graphical objects on a computer screen. To select, duplicate and delete an object. To modify an object in three dimensions including: rotation, resizing, reposition and recolouring. To recognise that blank objects must be used as placeholder to create holes. To recognise the role of scale in design.

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	To be able to locate and use a variety of text functions such as: the shift key and caps lock to create capital letters as well as delete and backspace to undo errors. To be able to change text position, font and colour. To be able to use bold, underline and italic.	To describe how music can be created for a purpose. To identify that there are patterns in music. To consider how different musical sequences create different effects. To create music for a purpose using a computer.	To manage layouts to include choosing a layout and template, adding and removing placeholders. To add text including using shift for capital letters, using punctuation and paragraphs and backspace. To manipulate texts and images including fonts, colours, size and orientation. Use the text wrap feature.	(colours, filters adding effects). To apply local changes (retouch, reuse) To make additions (draw, add text, add an element such as a border.)	To modify multiple objects. To change the layers of an object. To plan a video production using a storyboard. To capture video using panning shots and zoom. To edit a video by applying effects to a section of video and deleting sections of video. To save and export a video file.	To create a web page and know how to: add text and images as well as other content. To preview a page. To add additional pages and hyperlinks to other pages and sites. To embed content. To preview a page. To add additional pages and hyperlinks to other pages and sites. To embed content.

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Data and information Critical Knowledge	To identify that objects can be counted To recognise that information can be presented in different ways. To know that collected data can be added to a table or simple graph and can be counted. To know that objects can be grouped in different ways.	To identify that objects can be counted To recognise that information can be presented in different ways. To know that collected data can be added to a table or simple graph and can be counted. To know that objects can be grouped in different ways. To use a tally chart to collect data To use a pictograph and tally chart to answer questions about data To know what data should and should not be collected safely.	To retrieve information from different levels of a branching database. To identify the object attributes needed to collect relevant data and select an attribute to separate objects into two groups. To explain that data can be used to answer questions and that specific data needs to be gathered to answer a specific question.	To recognise that a sensor can be used as an input device for data collection. To know that a data logger captures data points from sensors over time. To identify that sensors are input devices To identify the data we need to answer questions	To explain that a computer program can be used to organise data To explain how ordering data allows us to answer some questions To explain that a computer program can be used to compare data visually To explain how operands can be used to filter data As well as how 'AND' and 'OR' can be used to refine data	To outline what makes a good question to answer with data To explain that objects and artefacts can be described using data Explain what an item of data is and that computers deal with different data types in different ways. To recognise that data can be calculated using different operations and that changing inputs changes outputs.

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Critical Skills	To collect simple data To add data to a table or simple graph To identify some attributes of an object. To choose an attribute to group objects by. To group objects to answer questions. To describe a group of objects.	To use a computer to record data. To use a computer to view different data formats. To use a computer to answer comparison questions. To use a computer to present information in different ways. To construct their own comparisons questions based on data collected.	To investigate questions with a yes/no answer. To create questions with yes/no answers. To retrieve information from different levels of a branching database. To relate two levels of a branching database using AND. To compare information shown in a pictogram with a branching database.	To use a digital device to collect data automatically. To choose how often to automatically collect data samples. To use a larger data set to find information. To use a computer program to sort data. To export and present data in different forms.	To navigate a flat-file database and design a structure for one. To choose which attributes to sort by to answer a question. To choose multiple criteria to search data to answer a given question. To ask questions that need more than one attribute to answer. To choose suitable ways to present information to other people.	To propose simple, relevant questions that can be answered using data. To use a variety of software tools to work with data To use formulas to produce calculated data, including duplicating To explain why data should be organised To evaluate results in comparison to the question asked To choose suitable ways to represent data.

Programming Critical Knowledge	To know which commands can be used on a given device. To explain what a given command does.	To explain what a given command does. To know that a series of instructions can be issued before they are enacted.	To explain what a sequence and recognise that they can have an order To explain that the order of commands can affect the outcome.	To understand the meaning of repetition and repeat To explain that we can use a loop command in a program to repeat instructions Know that	To define that conditional statements are used in computer programs connect a condition to an outcome. To know that a condition can be either true or false.	To define a variable as something that changes and give examples. To explain that a variable is something we can use in programming and that it has a name and a value.

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	To recognise how to run a command. To know that a series of instructions can be issued before they are enacted. To understand that a program is a set of commands a computer can run.	To understand that a program is a set of commands a computer can run. To know that a series of instructions is a sequence. To explain what happens when you change the order of instructions. To know that debugging is to correct a mistake in the sequence.	To identify that different sequences can have the same outcome To know that a program includes sequences of commands	repetition in a program is also called looping. To identify a loop in a program. Explain that in programming there are indefinite (will run until the program is stopped) and count controlled (will run for a specific number of times) loops. To explain the importance of instruction order and when best to use a loop.	To know that a count controlled loop contains a condition and will stop when it is met. To explain that program flow can branch according to a condition. To explain and demonstrate the importance of IF… THEN….ELSE…. statements and their order.	To recognise that a variable can be changed, updated or set as a constant (fixed value) To know that variables can hold numbers (integers) or letters (strings). To explain and demonstrate the importance of setting up a variable at the start of a program (initialisation) To understand that there is only one value for a variable at any one time and that if you change the value you cannot access the previous value. To explain that the name of a variable must be unique and is meaningless to the computer.

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Critical Skills	To predict the outcome of a command on a device Match a command to an outcome. To build a sequence of commands in steps and combine commands in a program. To run a program on a device.	To choose a series of commands that can be run as a program. To use logical reasoning to predict the outcome of a program. To trace a sequence to make a prediction and test it by running the sequence. To create and debug a program that I have written.	To build a sequence of commands and combine them in a program. To order the commands in a program. To create a sequence of commands to produce a given outcome.	To identify patterns in a sequence and a loop within a program. To predict the outcome of a program containing an indefinite loop. To use, modify and create a program that contains an indefinite loop to produce a given outcome. To use, modify and create a program that contains a count controlled loop to produce a given outcome To create two or more sequences that run at the same time. To plan a program that includes appropriate loops to produce a given outcome.	To explain, modify and create a count or event controlled loop. To experiment with 'repeat until' loop Use 'if….then…' statements to produce a given outcome. To use a condition in an 'if….then…' statements to produce a given outcome.	Identify a variable in an existing program. Experiment with the value of an existing variable and observe the result. Explore where in a program to set a variable effectively. To update variables with user input. Use an event in a program to update a variable. Use a variable in a conditional statement to control the flow of a program. To use the same variable in more than one location in a program.