

# St. Margaret's C.E. Junior School Progression of Skills & Knowledge in Computing 2022-23

	Year 3 Concepts	Year 4 Concepts
Computer Systems & Networks	<p><b>Connecting computers</b></p> <ul style="list-style-type: none"> <li>Classify input and output devices and describe a simple process</li> <li>Explain how I use digital devices for different activities</li> <li>Recognise similarities and differences between using digital devices and non-digital tools</li> <li>Know how messages are passed through multiple connections</li> <li>Know the role of a switch, server, and wireless access point in a network</li> <li>Recognise that a computer network is made up of a number of devices</li> <li>Identify how devices in a network are connected together</li> <li>Identify networked devices around me</li> <li>Identify the benefits of computer networks</li> </ul>	<p><b>The internet</b></p> <ul style="list-style-type: none"> <li>Know how information is shared across the internet</li> <li>Know the internet as a network of networks</li> <li>Know networked devices and how they connect</li> <li>Know that the World Wide Web contains websites, web pages and media</li> <li>Know where websites are stored when uploaded to the WWW</li> <li>Explain that internet services can be used to create content online</li> <li>Explain that there are rules to protect content*</li> <li>Explain that websites and their content are created by people*</li> <li>Know that not everything on the World Wide Web is true*</li> <li>Know why I need to think carefully before I share or reshare content*</li> <li>Explain why some information I find online may not be honest, accurate, or legal*</li> </ul>
Programming	<p><b>Sequencing Sounds</b></p> <ul style="list-style-type: none"> <li>Know the objects in a Scratch project (sprites, backdrops) and they have attributes (linked to)</li> <li>Know that commands in Scratch are represented as blocks</li> <li>Create a program following a design</li> <li>Know that each sprite is controlled by the commands I choose</li> <li>Create a sequence of connected commands</li> <li>Combine sound commands</li> <li>Explain what a sequence is</li> <li>Order notes into a sequence</li> <li>Implement my algorithm as code</li> </ul> <p><b>Events and actions in programs (Programming B)</b></p> <ul style="list-style-type: none"> <li>Know the relationship between an event and an action</li> <li>Identify a way to improve a program</li> <li>Program movement</li> <li>Use a programming extension</li> <li>Choose sequences of commands to make my design work</li> <li>Use suitable keys to turn on additional features</li> <li>Identify and fix bugs</li> <li>Evaluate and improve maze game</li> </ul>	<p><b>Repetition in Shapes</b></p> <ul style="list-style-type: none"> <li>Create a code snippet for a given purpose</li> <li>Explain the effect of changing a value of a command</li> <li>Test an algorithm in a text-based language and write an algorithm to produce a given outcome</li> <li>Identify everyday tasks that include repetition as part of a sequence, eg brushing teeth, dance moves</li> <li>Identify patterns in a sequence</li> <li>Use a count-controlled loop to produce a given outcome</li> <li>Choose which values to change in a loop and identify the effect of changing times task repeated</li> <li>Predict the outcome of a program containing a count-controlled loop</li> <li>Know that a computer can repeatedly call a procedure</li> <li>Decompose tasks in to small steps</li> <li>Use a procedure in a program</li> <li>Design a program that includes count-controlled loops</li> <li>Develop a program by debugging it</li> </ul> <p><b>Repetition in Games (Programming B)</b></p> <ul style="list-style-type: none"> <li>Know an everyday task as a set of instructions including repetition</li> <li>Modify a snippet of code to create a given outcome</li> <li>Predict the outcome of a snippet of code</li> <li>Know when to use a count-controlled and an infinite loop</li> <li>Modify loops to produce a given outcome</li> <li>Design code that includes two or more loops which run at the same time</li> <li>Modify an infinite loop</li> <li>Evaluate and design a project that includes repetition</li> <li>Create project and evaluate/refine algorithm</li> </ul>
Creating Media	<p><b>Stop-Frame Animation</b></p> <ul style="list-style-type: none"> <li>Create an effective flip book—style animation</li> <li>Create an effective stop-frame animation</li> <li>Explain why little changes are needed for each frame</li> <li>Predict what an animation will look like</li> <li>Create a storyboard</li> </ul>	<p><b>Audio Production</b></p> <ul style="list-style-type: none"> <li>Explain that the person who records the sound can say who is allowed to use it</li> <li>Identify the input and output devices used to record and play sound</li> <li>Use a computer to record audio</li> <li>Know what sounds can be added to a podcast</li> <li>Inspect the soundwave view to know where to trim my recording</li> <li>Re-record my voice to improve my recording</li> </ul>

	<ul style="list-style-type: none"> <li>Review a sequence of frames to check work and evaluate the quality of animations</li> <li>Improve animation based on feedback</li> <li>Add other media to the animation</li> <li>Evaluate the final film</li> </ul> <p><b>Desktop Publishing</b></p> <ul style="list-style-type: none"> <li>Explain the difference between text and images</li> <li>Identify the advantages and disadvantages of using text and images</li> <li>Know that text and images can communicate messages clearly</li> <li>Change font style, size, and colours for a given purpose</li> <li>Know that text can be changed to communicate more clearly</li> <li>Create a template for a particular purpose</li> <li>Recognise placeholders and say why they are important</li> <li>Make effective changes to content</li> <li>Paste text and images to create a magazine cover</li> <li>Choose a suitable layout for a given purpose</li> <li>Identify different layouts and match a layout to a purpose</li> <li>Compare work made on desktop publishing to work created by hand</li> <li>Know the uses of desktop publishing in the real world</li> <li>Know why desktop publishing might be helpful</li> </ul>	<ul style="list-style-type: none"> <li>Explain how sounds can be combined to make a podcast more engaging</li> <li>Plan appropriate content for a podcast</li> <li>Save project so the different parts remain editable</li> <li>Record content and review its quality</li> <li>Arrange multiple sounds for a purpose</li> <li>Explain the difference between saving a project and exporting an audio file</li> <li>Listen to an audio recording to identify its strengths and suggest improvements</li> </ul> <p><b>Photo Editing</b></p> <ul style="list-style-type: none"> <li>Explain why I might crop an image and why photos might be edited</li> <li>Improve an image by rotating it</li> <li>Use photo editing software to crop an image</li> <li>Use and explain that different colour effects make you think and feel different things</li> <li>Add to the composition of an image by cloning</li> <li>Know how a photo edit can be improved</li> <li>Remove parts of an image using cloning</li> <li>Use tools to select and copy part of an image</li> <li>Use a range of tools to copy between images</li> <li>Choose suitable images for a purpose</li> <li>Create a project that is a combination of other images</li> <li>Combine text and my image to complete a project</li> <li>Review images use feedback to guide making changes</li> </ul>
Data & Information	<p><b>Branching Databases</b></p> <ul style="list-style-type: none"> <li>Create two groups of objects separated by one attribute</li> <li>Recognise and create closed questions</li> <li>Know the attributes needed to collect data about an object</li> <li>Create and test a branching database</li> <li>Compare and evaluate two branching database structures</li> <li>Explain that questions need to be ordered carefully to split objects into similarly sized groups</li> <li>Create a physical version of a branching database</li> <li>Create questions that will enable objects to be uniquely identified</li> <li>Independently create questions to use in a branching database</li> <li>Create a branching database that reflects my plan</li> <li>Know real-world uses for branching databases</li> </ul>	<p><b>Data Logging</b></p> <ul style="list-style-type: none"> <li>Choose a data set to answer a given question</li> <li>Know data that can be gathered over time</li> <li>Explain what data can be collected using sensors</li> <li>Know data from sensors can be recorded</li> <li>Use data from a sensor to answer a given question</li> <li>Identify the intervals used to collect data</li> <li>Recognise that a data logger collects data at given points</li> <li>Sort data to find information</li> <li>View data at different levels of detail</li> <li>Plan how to collect data using a data logger</li> <li>Propose a question that can be answered using logged data</li> <li>Use a data logger to collect data: draw conclusions from the data that I have collected</li> <li>Interpret data that has been collected using a data logger</li> </ul>
Online Safety	<p><b>SMART Rules</b></p> <ul style="list-style-type: none"> <li>Know and understand the SMART rules</li> </ul> <p><b>Web Research</b></p> <ul style="list-style-type: none"> <li>Know that not all internet 'content' is free to use</li> <li>Know what auto-complete is</li> <li>Know that auto-complete is not always truthful</li> </ul> <p>*See 'Online Safety' documents for additional PSRHE content</p>	<p><b>Security and Privacy Password Safety</b></p> <ul style="list-style-type: none"> <li>Create safe passwords and remember to keep them safe.</li> <li>Identify a range of potential online risks</li> <li>Can explain SMART rules and how they should be used</li> <li>Know how to seek support for reporting concerns</li> <li>Know SMART rules</li> <li>Know the importance of secure passwords</li> <li>Know how monitoring services are used to keep children and users safe online</li> </ul>

