

St. Peter's



Catholic  
Primary School

# Computing Curriculum

2023-2024

## NATIONAL CURRICULUM PROGRAMME OF STUDY

### KS1 National Curriculum Expectations

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely 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.

### KS2 National Curriculum Expectations

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- 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
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Year 1	Term 1	Term 2
<b>Autumn</b>	<b>Computing Systems and Networks- Technology Around Us</b> <ul style="list-style-type: none"> <li>• To identify technology</li> <li>• To identify a computer and its main parts</li> <li>• To use a mouse in different ways</li> <li>• To use a keyboard to type on a computer</li> <li>• To use the keyboard to edit text</li> <li>• To create rules for using technology responsibly</li> </ul>	<b>Creating Media- Digital Painting</b> <ul style="list-style-type: none"> <li>• To describe what different freehand tools do</li> <li>• To use the shape tool and the line tools</li> <li>• To make careful choices when painting a digital picture</li> <li>• To explain why I chose the tools I used</li> <li>• To use a computer on my own to paint a picture</li> <li>• To compare painting a picture on a computer and on paper</li> </ul>
<b>Spring</b>	<b>Programming A- Moving a Robot</b> <ul style="list-style-type: none"> <li>• To explain what a given command will do</li> <li>• To act out a given word</li> <li>• To combine forwards and backwards commands to make a sequence</li> <li>• To combine four direction commands to make sequences</li> <li>• To plan a simple program</li> <li>• To find more than one solution to a problem</li> </ul>	<b>Data Information- Grouping Data</b> <ul style="list-style-type: none"> <li>• To label objects</li> <li>• To identify that objects can be counted</li> <li>• To describe objects in different ways</li> <li>• To count objects with the same properties</li> <li>• To compare groups of objects</li> <li>• To answer questions about groups of objects</li> </ul>
<b>Summer</b>	<b>Creating Media- Digital Writing</b> <ul style="list-style-type: none"> <li>• To use a computer to write</li> <li>• To add and remove text on a computer</li> <li>• To identify that the look of text can be changed on a computer</li> <li>• To make careful choices when changing text</li> <li>• To explain why I used the tools that I chose</li> <li>• To compare typing on a computer to writing on paper</li> </ul>	<b>Programming B- Programming Animations</b> <ul style="list-style-type: none"> <li>• To choose a command for a given purpose</li> <li>• To show that a series of commands can be joined together</li> <li>• To identify the effect of changing a value</li> <li>• To explain that each sprite has its own instructions</li> <li>• To design the parts of a project</li> <li>• To use my algorithm to create a program</li> </ul>

Year 2	Term 1	Term 2
<b>Autumn</b>	<b>Computing Systems and Networks- IT Around Us</b> <ul style="list-style-type: none"> <li>• To recognise the uses and features of information technology</li> <li>• To identify the uses of information technology in the school</li> <li>• To identify information technology beyond school</li> <li>• To explain how information technology helps us</li> <li>• To explain how to use information technology safely</li> <li>• To recognise that choices are made when using information technology</li> </ul>	<b>Creating Media- Digital Photography</b> <ul style="list-style-type: none"> <li>• To use a digital device to take a photograph</li> <li>• To make choices when taking a photograph</li> <li>• To describe what makes a good photograph</li> <li>• To decide how photographs can be improved</li> <li>• To use tools to change an image</li> <li>• To recognise that photos can be changed</li> </ul>
<b>Spring</b>	<b>Programming A- Robot Algorithms</b> <ul style="list-style-type: none"> <li>• To describe a series of instructions as a sequence</li> <li>• To explain what happens when we change the order of instructions</li> <li>• To use logical reasoning to predict the outcome of a program</li> <li>• To explain that programming projects can have code and artwork</li> <li>• To design an algorithm</li> <li>• To create and debug a program that I have written</li> </ul>	<b>Data Information- Pictograms</b> <ul style="list-style-type: none"> <li>• To recognise that we can count and compare objects using tally charts</li> <li>• To recognise that objects can be represented as pictures</li> <li>• To create a pictogram</li> <li>• To select objects by attribute and make comparisons</li> <li>• To recognise that people can be described by attributes</li> <li>• To explain that we can present information using a computer</li> </ul>
<b>Summer</b>	<b>Creating Media- Digital Music</b> <ul style="list-style-type: none"> <li>• To say how music can make us feel</li> <li>• To identify that there are patterns in music</li> <li>• To experiment with sound using a computer</li> <li>• To use a computer to create a musical pattern</li> <li>• To create music for a purpose</li> <li>• To review and refine our computer work</li> </ul>	<b>Programming B- Programming Quizzes</b> <ul style="list-style-type: none"> <li>• To explain that a sequence of commands has a start</li> <li>• To explain that a sequence of commands has an outcome</li> <li>• To create a program using a given design</li> <li>• To change a given design</li> <li>• To create a program using my own design</li> <li>• To decide how my project can be improved</li> </ul>

Year 3	Term 1	Term 2
<b>Autumn</b>	<b>Computing Systems and Networks- Connecting Computers</b> <ul style="list-style-type: none"> <li>• To explain how digital devices function</li> <li>• To identify input and output devices</li> <li>• To recognise how digital devices can change the way we work</li> <li>• To explain how a computer network can be used to share information</li> <li>• To explore how digital devices can be connected</li> <li>• To recognise the physical components of a network</li> </ul>	<b>Creating Media- Stop-Frame Animation</b> <ul style="list-style-type: none"> <li>• To explain that animation is a sequence of drawings or photographs</li> <li>• To relate animated movement with a sequence of images</li> <li>• To plan an animation</li> <li>• To identify the need to work consistently and carefully</li> <li>• To review and improve an animation</li> <li>• To evaluate the impact of adding other media to an animation</li> </ul>
<b>Spring</b>	<b>Programming A- Sequencing Sounds</b> <ul style="list-style-type: none"> <li>• To explore a new programming environment</li> <li>• To identify that commands have an outcome</li> <li>• To explain that a program has a start</li> <li>• To recognise that a sequence of commands can have an order</li> <li>• To change the appearance of my project</li> <li>• To create a project from a task description</li> </ul>	<b>Data Information- Branching Databases</b> <ul style="list-style-type: none"> <li>• To create questions with yes/no answers</li> <li>• To identify the attributes needed to collect data about an object</li> <li>• To create a branching database</li> <li>• To explain why it is helpful for a database to be well structured</li> <li>• To plan the structure of a branching database</li> <li>• To independently create an identification tool</li> </ul>
<b>Summer</b>	<b>Creating Media- Desktop Publishing</b> <ul style="list-style-type: none"> <li>• To recognise how text and images convey information</li> <li>• To recognise that text and layout can be edited</li> <li>• To choose appropriate page settings</li> <li>• To add content to a desktop publishing publication</li> <li>• To consider how different layouts can suit different purposes</li> <li>• To consider the benefits of desktop publishing</li> </ul>	<b>Programming B- Events and Actions in Programs</b> <ul style="list-style-type: none"> <li>• To explain how a sprite moves in an existing project</li> <li>• To create a program to move a sprite in four directions</li> <li>• To adapt a program to a new context</li> <li>• To develop my program by adding features</li> <li>• To identify and fix bugs in a program</li> <li>• To design and create a maze-based challenge</li> </ul>

Year 4	Term 1	Term 2
<b>Autumn</b>	<b>Computing Systems and Networks- The Internet</b> <ul style="list-style-type: none"> <li>• To describe how networks physically connect to other networks</li> <li>• To recognise how networked devices make up the internet</li> <li>• To outline how websites can be shared via the World Wide Web (WWW)</li> <li>• To describe how content can be added and accessed on the World Wide Web (WWW)</li> <li>• To recognise how the content of the WWW is created by people</li> <li>• To evaluate the consequences of unreliable content</li> </ul>	<b>Creating Media- Audio Production</b> <ul style="list-style-type: none"> <li>• To identify that sound can be recorded</li> <li>• To explain that audio recordings can be edited</li> <li>• To recognise the different parts of creating a podcast project</li> <li>• To apply audio editing skills independently</li> <li>• To combine audio to enhance my podcast project</li> <li>• To evaluate the effective use of audio</li> </ul>
<b>Spring</b>	<b>Programming A- Repetition in Shapes</b> <ul style="list-style-type: none"> <li>• To identify that accuracy in programming is important</li> <li>• To create a program in a text-based language</li> <li>• To explain what 'repeat' means</li> <li>• To modify a count-controlled loop to produce a given outcome</li> <li>• To decompose a task into small steps</li> <li>• To create a program that uses count-controlled loops to produce a given outcome</li> </ul>	<b>Data Information- Data Logging</b> <ul style="list-style-type: none"> <li>• To explain that data gathered over time can be used to answer questions</li> <li>• To use a digital device to collect data automatically</li> <li>• To explain that a data logger collects 'data points' from sensors over time</li> <li>• To recognise how a computer can help us analyse data</li> <li>• To identify the data needed to answer questions</li> <li>• To use data from sensors to answer questions</li> </ul>
<b>Summer</b>	<b>Creating Media- Photo Editing</b> <ul style="list-style-type: none"> <li>• To explain that the composition of digital images can be changed</li> <li>• To explain that colours can be changed in digital images</li> <li>• To explain how cloning can be used in photo editing</li> <li>• To explain that images can be combined</li> <li>• To combine images for a purpose</li> <li>• To evaluate how changes can improve an image</li> </ul>	<b>Programming B- Repetition in Games</b> <ul style="list-style-type: none"> <li>• To develop the use of count-controlled loops in a different programming environment</li> <li>• To explain that in programming there are infinite loops and count controlled loops</li> <li>• To develop a design that includes two or more loops which run at the same time</li> <li>• To modify an infinite loop in a given program</li> <li>• To design a project that includes repetition</li> <li>• -To create a project that includes repetition</li> </ul>

Year 5	Term 1	Term 2
<b>Autumn</b>	<p><b>Computing Systems and Networks- Systems and Searching</b></p> <ul style="list-style-type: none"> <li>To explain that computers can be connected together to form systems</li> <li>To recognise the role of computer systems in our lives</li> <li>To experiment with search engines</li> <li>To describe how search engines select results</li> <li>To explain how search results are ranked</li> <li>To recognise why the order of results is important, and to whom</li> </ul>	<p><b>Creating Media- Video Production</b></p> <ul style="list-style-type: none"> <li>To explain what makes a video effective</li> <li>To identify digital devices that can record video</li> <li>To capture video using a range of techniques</li> <li>To create a storyboard</li> <li>To identify that video can be improved through reshooting and editing</li> <li>To consider the impact of the choices made when making and sharing a video</li> </ul>
<b>Spring</b>	<p><b>Programming A- Selection in Physical Computing</b></p> <ul style="list-style-type: none"> <li>To control a simple circuit connected to a computer</li> <li>To write a program that includes count-controlled loops</li> <li>To explain that a loop can stop when a condition is met</li> <li>To explain that a loop can be used to repeatedly check whether a condition has been met</li> <li>To design a physical project that includes selection</li> <li>To create a program that controls a physical computing project</li> </ul>	<p><b>Data Information- Fact-file Databases</b></p> <ul style="list-style-type: none"> <li>To use a form to record information</li> <li>To compare paper and computer-based databases</li> <li>To outline how you can answer questions by grouping and then sorting data</li> <li>To explain that tools can be used to select specific data</li> <li>To explain that computer programs can be used to compare data visually</li> <li>To use a real-world database to answer questions</li> </ul>
<b>Summer</b>	<p><b>Creating Media- Introduction to Vector Graphics</b></p> <ul style="list-style-type: none"> <li>To identify that drawing tools can be used to produce different outcomes</li> <li>To create a vector drawing by combining shapes</li> <li>To use tools to achieve a desired effect</li> <li>To recognise that vector drawings consist of layers</li> <li>To group objects to make them easier to work with</li> <li>To apply what I have learned about vector drawings</li> </ul>	<p><b>Programming B- Selection in Quizzes</b></p> <ul style="list-style-type: none"> <li>To explain how selection is used in computer programs</li> <li>To relate that a conditional statement connects a condition to an outcome</li> <li>To explain how selection directs the flow of a program</li> <li>To design a program which uses selection</li> <li>To create a program which uses selection</li> <li>To evaluate my program</li> </ul>

Year 6	Term 1	Term 2
<b>Autumn</b>	<p><b>Computing Systems and Networks- Communication and Collaboration</b></p> <ul style="list-style-type: none"> <li>• To explain the importance of internet addresses</li> <li>• To recognise how data is transferred across the internet</li> <li>• To explain how sharing information online can help people to work together</li> <li>• To evaluate different ways of working together online</li> <li>• To recognise how we communicate using technology</li> <li>• To evaluate different methods of online communication</li> </ul>	<p><b>Creating Media- Web Page Creation</b></p> <ul style="list-style-type: none"> <li>• To review an existing website and consider its structure</li> <li>• To plan the features of a web page</li> <li>• To consider the ownership and use of images (copyright)</li> <li>• To recognise the need to preview pages</li> <li>• To outline the need for a navigation path</li> <li>• To recognise the implications of linking to content owned by other people</li> </ul>
<b>Spring</b>	<p><b>Programming A- Variables in Games</b></p> <ul style="list-style-type: none"> <li>• To define a 'variable' as something that is changeable</li> <li>• To explain why a variable is used in a program</li> <li>• To choose how to improve a game by using variables</li> <li>• To design a project that builds on a given example</li> <li>• To use my design to create a project</li> <li>• To evaluate my project</li> </ul>	<p><b>Data Information- Introduction to Spreadsheets</b></p> <ul style="list-style-type: none"> <li>• To create a data set in a spreadsheet</li> <li>• To build a data set in a spreadsheet</li> <li>• To explain that formulas can be used to produce calculated data</li> <li>• To apply formulas to data</li> <li>• To create a spreadsheet to plan an event</li> <li>• To choose suitable ways to present data</li> </ul>
<b>Summer</b>	<p><b>Creating Media- 3D Modelling</b></p> <ul style="list-style-type: none"> <li>• To recognise that you can work in three dimensions on a computer</li> <li>• To identify that digital 3D objects can be modified</li> <li>• To recognise that objects can be combined in a 3D model</li> <li>• To create a 3D model for a given purpose</li> <li>• To plan my own 3D model</li> <li>• To create my own digital 3D model</li> </ul>	<p><b>Programming B- Sensing Movement</b></p> <ul style="list-style-type: none"> <li>• To create a program to run on a controllable device</li> <li>• To explain that selection can control the flow of a program</li> <li>• To update a variable with a user input</li> <li>• To use a conditional statement to compare a variable to a value</li> <li>• To design a project that uses inputs and outputs on a controllable device</li> <li>• To develop a program to use inputs and outputs on a controllable device</li> </ul>