St Michael's Catholic Primary School Computing Curriculum

The St Michael's computing curriculum equips children to use computational thinking and creativity to understand and change the world. Computing has deep links with Maths, Science, and Design and Technology. Computer science is the main component in which pupils are taught the principles of information, how digital systems work, and how to put this knowledge to use through programming. The curriculum also ensures that pupils become digitally literate – able to use and express themselves and develop their ideas through information and communication technology. Computing at St Michael's also equips children with a thorough knowledge of how to stay safe online.

Our aim at St Michael's is to equip children with the knowledge of the fundamental principles and concepts of computer science. We encourage children to analyse problems in computational terms and have repeated practical experience of writing computer programs in order to solve such problems. Children are stretched to evaluate and apply information technology (including new or unfamiliar technologies) analytically to solve problems. Lastly, we aim to develop the children to become responsible, competent, confident and creative users of information and communication technology.

Intention

We teach the Computing curriculum at St Michael's with the ambition that all pupils gain the key computational knowledge that they need to succeed in life. To do this, it is important that we expose each cohort to tools and principles that help to progress their computing competency and understanding. The children will also become familiar with using key applications/resources for their intended purposes for example Microsoft Office and Windows. We realized that lots of the children at St Michael's lacked basic IT skills that they would need in life. Exposing the children to the fundamental functions and features of these applications will allow them to access their more advanced functions as they are exposed to them in later school life. Online safety is also a key aspect of our computing curriculum, we are aware of the large amount of time that our children are spending online and we feel it is important to expose children to online safety information weekly. At St Michael's, we want children to enjoy expressing themselves digitally and become confident in solving programming problems both physically and digitally. The Computing curriculum uses real-life computational programs that the children are familiar with, to create a real learning experience for them. We succeed in helping children flourish creatively and digitally which we hope will aid them in their future. As a collective, we are widely aware of the growing

impact information technology is having on our daily lives. In response to this, we can recognise IT gaps that our children may have, and we plan to prepare our children for a growing digital future.

Implementation

Our Computing curriculum is broken down into four different strands which are taught from Year 1-6 using age-appropriate resources following the Teach Computing Primary computing toolkit. Information Technology, Digital Literacy and Computer Science are taught over the course of an academic year, each receiving its own focused units of work to allow the children to develop their knowledge of all three of these focuses. Online Safety is taught using the resources from Project Evolve from Year 1-6. The pupils of St Michael's are aware of the standard and expectations associated with the work that they produce and are sensitive to any topics that are discussed during online safety lessons. Our PSHE curriculum also follows the Ten-ten resources which provide insightful and sensitive lessons about the importance of staying safe online.

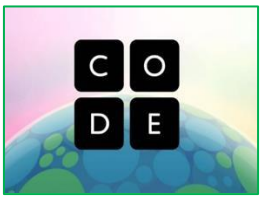
St Michael's Computing Curriculum Overview 2024-2025
Year 1 curriculum

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Technology around us	**Digital painting**	**Moving a robot**	**Grouping data**	**Digital writing**	**Programming animations**
Learning Journey					
L1: Recognising technology within our classroom and wider school. I can explain technology as something that helps us. I can locate examples of technology in the classroom. I can identify rules to keep us safe and healthy when we are using technology.	**L1: How can we paint using computers?** I can make marks on a screen and explain which tools I used I can draw lines on a screen and explain which tools I used I can use the paint tools to draw a picture	**L1: Buttons and Directions** I can predict the outcome of a command on a device I can match a command to an outcome I can run a command on a device	**L1: Label and match** I can describe objects using labels I can match objects to groups I can identify the label for a group of objects	**L1: Adding or removing text** I can enter text into a computer I can use letter, number, and space keys I can use backspace to remove text	**L1: Introduction to Scratch Jr** I can find which commands to move a sprite I can use commands to move a sprite I can compare different programming tools
L2: Developing mouse skills. I can switch on and log into a computer I can use a mouse to open a program. I can click and drag to make objects on a screen.	**L2: Using lines and shapes to make an image.** I can use the shape and line tools effectively I can use the shape and line tools to recreate the work of an artist I can choose appropriate shape and colour choices	**L2: Four directions** I can compare forward and backwards commands I can compare left and right turns I can experiment with turn and move commands to move a robot	**L2: Group and count.** I can count objects I can group objects I can count a group of objects	**L2: Making changes to text** I can select a word by double-clicking I can select all of the text by clicking and dragging I can change the font	**L2: Adding blocks to a program.** I can use more than one block by joining them together I can find blocks that have numbers and change the value I can run my program
L3: Developing Keyboard skills. I can open my work from a file. I can use the arrow keys to move the cursor. I can delete letters.	**L3: Painting all by myself** I can make dots of colour on the page I can change the colour and brush sizes I can say whether I prefer painting using a computer or using paper	**L3: Completing routes.** I can explain what my program should do I can choose the order of commands in a sequence I can debug my program	**L3: Creating and comparing groups** I can group similar objects I can group objects in more than one way I can choose how to group objects	**L3: Explaining my choices.** I can say what tool I used to change the text I can decide if my changes have improved my writing I can explain the differences between and say why I prefer typing or writing	**L3: Adding sprites** I can show that a project can include more than one sprite I can delete a sprite I can add blocks to each of my sprites
Additional Resources: Laptops with an attachable mouse.	**Additional resources:** Paint app on the laptops	**Additional Resources:** Class set of Beebots		**Additional Resources:** Laptops with access to a word document	**Additional Resources:** Scratchjr and potentially Beebots.

St Michael's Computing Curriculum Overview 2024-2025
Year 4 curriculum

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
The Internet	**Audio Production**	**Repetition in shapes**	**Data logging** Opportunity for a Science cross-curricular	**Photo editing**	**Repetition in games**
L1: What is the internet made of? I can describe networked devices and how they connect I can explain that the internet is used to provide many services I can recognise that the World Wide Web contains websites and web pages	**L1: Recording sound and editing audio** I can explain that the person who records the sound can say who is allowed to use it I can identify the input and output devices used to record and play sound I can inspect the soundwave view to know where to trim and improve my recording, including removing	**L1: Programming a screen turtle** I can program a computer by typing commands I can explain the effect of changing a value of a command I can create a code snippet for a given purpose	**L1: Data collection** I can explain what data can be collected using sensors I can use data from a sensor to answer a given question I can identify that data from sensors can be recorded	**L1: Creating digital images** I can improve an image by rotating it I can explain why I might crop an image I can use photo editing software to crop an image	**L1: Using loops to create shapes** I can list an everyday task as a set of instructions including repetition I can predict the outcome of a snippet of code I can modify a snippet of code to create a given outcome
L2: What is a website? I can explain what media can be found on websites. I can recognise that I can add content to the WWW I can explain that internet services can be used to create content online	**L2: Planning a podcast** I can explain how sounds can be combined to make a podcast more engaging I can save my project, so the different parts remain editable I can plan appropriate content for a podcast	**L2: Programming letters** I can use a template to create a design for my program I can write an algorithm to produce a given outcome I can test my algorithm in a text-based language	**L2: Logging and analysing data** I can recognise that a data logger collects data at given points I can identify the intervals used to collect data I can view data at different levels of detail and in different formats	**L2: Recolouring, cloning and combining** I can experiment with different colour effects I can add to the composition of an image by cloning I can experiment with tools to select and copy part of an image	**L2: Animate your name** I can choose which action will be repeated for each object I can explain what the outcome of the repeated action should be I can evaluate the effectiveness of the repeated sequences used in my program
L3: Can I believe what I read? I can explain that not everything on the World Wide Web is true I can explain why some information I find online may not be honest, accurate, or legal I can explain why I need to think carefully before I share or reshare content	**L3: Creating a podcast** I can open my project to continue working on it I can arrange multiple sounds to create the effect I want I can explain the difference between saving a project and exporting an audio file	**L3: Using loops to create shapes** I can identify the effect of changing the number of times a task is repeated I can predict the outcome of a program containing a count-controlled loop I can choose which values to change in a loop	**L3: Data for answers** I can propose a question that can be answered using logged data I can plan how to collect data using a data logger I can use a data logger to collect data	**L3: Creating and combining** I can describe the image I want to create I can choose suitable images for my project I can review images against a given criteria	**L3: Designing and creating a game** I can evaluate the use of repetition in a project I can select key parts of a given project to use in my own design I can develop my own design explaining what my project will do
Additional Resources:	**Additional Resources:** Audacity app on the iPads.	**Additional Resources:** Scratch	**Additional Resources:** Data loggers	**Additional Resources:** Image editing software for iPads.	**Additional Resources:**

Computer Science



At St Michael's, we teach Computer Science through two programming units over to course of two respective half terms. The focus of these units is outlined within the adopted Teach Computing toolkit and follows their suggested resources and planning. Our Computer Science units range from virtual tasks using programs such as code.org and Scratch, to programming using physical programming such as Bee bots in KS1 moving onto using Crumble circuits and sensors in Year 5&6.

To the right, are some examples of lessons from a Year 1 lesson and a Year 6 lesson. Code.org build upon the skills learned each year. The children can work through the sections within the lesson at their own pace and will state where they are up to at the end of each lesson. This helps inform the teaching staff if they have understood that element and whether a recap of the following lesson may be needed. New skills will be taught on a lesson-to-lesson basis gradually introducing a new technique to allow those who are ready to move on to explore new features and encourage exploration with their new learning.

Digital Literacy

Another strand within the St Michael's Computing curriculum is Digital Literacy. This is the knowledge and ability to use technology. For example, the ability to switch on your computer, know how to access the internet, or send an email. Being able to use the tools available in a way that is effective and fit for purpose is the first step, and an important foundation of technological competence. This involves the children's evaluation, creating and communication information using a computer. It is about equipping our children with the specific skills to be able to navigate the online world alone. This starts off in KS1 by recognizing technology in their surroundings and how its use improves our world in school and the wider world. This develops further as the children move into KS2 where children are taught to understand, evaluate and make use of how computers are connected and how these can be used to communicate and collaborate between systems safely.

Online Safety

The children are presented with questions and a task-based on one of eight focuses of Online Safety. Children will also learn the key vocabulary that matches each aspect of Online Safety as a starter session of a lesson. St Michael's Online Safety curriculum follows the Project Evolve progression.

Our PSHE curriculum also introduces the children to a range of topics and discussions about the importance of Online Safety.

Information Technology

Information Technology is the study or use of systems for storing, retrieving, and sending information. At St Michael's this is taught through our Data and Information unit within each of the academic year where the children develop their Digital Literacy and become familiar with an increasing range of computer systems and how they can be used to communicate, store and retrieve information. The children also develop their usage of Information Technology during the second half term during the Spring term where the whole school focuses on the theme of Data and information. During this unit, the children are taught about how we can use information technology to access, sort and store information in a way that makes it accessible for ourselves and others. As they progress, the children will then be introduced to new ways to display data as well as other resources that can be used for inputting data and information such as databases and spreadsheets.

Impact

The impact of our computing curriculum at St Michael's is felt as the children move up through the school and continuously revisit, recall and develop their knowledge of the key concepts of computing. Information Technology, Online Safety, Digital Literacy and Computer Science. Children at St Michael's leave our school having had a wide range of opportunities and support to develop their independence using digital devices and are developing an understanding of how digital systems and processes can be used within their wider life.

At St Michael's we recognise that digital technologies and systems are having an increasing impact on our daily lives as technology continues to advance. Therefore, it is a great priority for us to prepare our pupils with the tools and understanding to access the broader digital world safely. The impact of our Computing curriculum is also evident across other subject within our curriculum as the children at St Michael's use their digital literacy, which they have developed through their Computing lessons, to access digital devices and software to benefit their learning experiences in other lessons. This includes but is not limited to Science experiments, creating music and research-based tasks within Humanities.