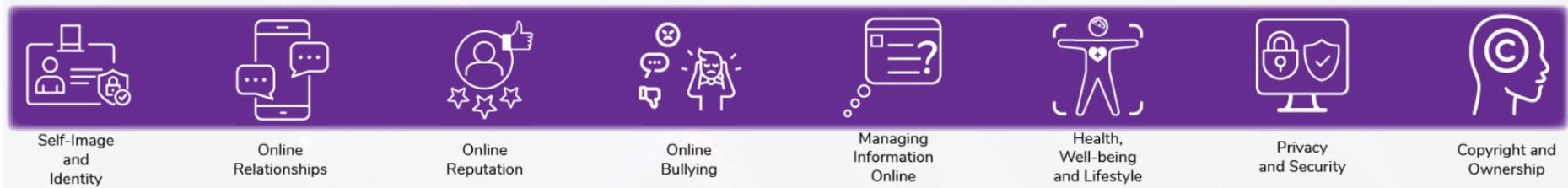# Curriculum Map: Computing

Intent Statement

Computing is changing the lives of everyone. Through teaching computing, we equip children to participate in a rapidly-changing world where work and leisure activities are increasingly transformed by technology. We enable them to find, explore, analyse and present information. Computing skills are a major factor in enabling children to be confident, creative and independent learners.

Whilst understanding our role as educators with computing, we are also aware that children are now very competent in their computing skills and that our role is also that of a facilitator in allowing the children to express their knowledge of computing.

At Sacred Heart Catholic Primary School, computing is an integral part of preparing children to live in a world where technology is continuously and rapidly evolving.

Implementation:

At Sacred Heart Catholic Primary School, we develop our learner's knowledge and skills through the Purple Mash Curriculum as shown below. We use Purple Mash 2Besafe alongside our curriculum to ensure coverage of online safety as this is an integral part of our curriculum, the scheme covers the aims seen below:

Year group	Autumn	Spring	Summer
FY	**Digital Literacy:** **Introduction to Online Safety** **Information Technology:** **Exploring Mini Mash**	**Information Technology:** **Exploring Simple City** **Exploring Maths City** **Information Technology:** **Exploring and using media and materials**	**Information Technology:** **Technology at Home** **Computer Science** **Using 2go**

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

In EYFS computing is not explicitly taught as a stand-alone subject and forms part of their overall education. Purple Mash includes suggested activities as part of their scheme of work to allow the children to use technology to produce creative work and solve problems.

- Children should be made aware that technology is part of the world we live in.
- Screen-based technology is more actively used for creativity, collaboration and communication.
- Children have access to using 2 go to begin their programming journey.
- Cameras allow children to create an image of a moment and express ideas.

Year group	Autumn	Spring	Summer
Year 1	**Information Technology** **Introduction to Purple Mash** **Creative Computing** **Information Technology** **Data Explorers**	**Computer Science** **Creating & following instructions** **Information Technology** **Animated Storybooks**	**Computer Science** **Coding** **Digital Literacy** **Technology around us** **Information Technology** **Making Beats**

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

- **Digital Literacy:**
    - **Children understand the importance of keeping information, such as their usernames and passwords, private and actively demonstrate this in lessons. Children take ownership of their work and save this in their own private space such as their My Work folder on Purple Mash.**
    - **Children understand what is meant by technology and can identify a variety of examples both in and out of school. They can make a distinction between objects that use modern technology and those that do not e.g. a microwave vs. a chair.**
- **Computer Science:**
    - **Children understand that an algorithm is a set of instructions used to solve a problem or achieve an objective. They know that a computer program turns an algorithm into code that the computer can understand.**
    - **Children can work out what is wrong with a simple algorithm when the steps are out of order, e.g. The Wrong**

Sandwich and can write their own simple algorithm, e.g. Colouring in a Bird activity. Children know that an unexpected outcome is due to the code they have created and can make logical attempts to fix the code, e.g. Bubbles activity in 2Code.

- When looking at a program, children can read code one line at a time and make good attempts to envision the bigger picture of the overall effect of the program. Children can, for example, interpret where the bee-bot might end up at the end of the program.

- **Information Technology:**

  - Children can sort, collate, edit and store simple digital content e.g. children can name, save and retrieve their work and follow simple instructions to access online resources, use Purple Mash 2Quiz example (sorting shapes), 2Code design mode (manipulating backgrounds) or using pictogram software such as 2Count.

Year group	Autumn	Spring	Summer
Year 2	**Computer Science** **Route Explorers** **Information Technology** **The Internet** **Information Technology** **Creating Pictures**	**Information Technology** **Spreadsheets** **Information Technology** **Questioning**	**Information Technology** **Presenting Ideas** **Information Technology** **Making Music** **Computer Science** **Coding Unit 2.1**

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

- **Digital Literacy:**

  - Children know the implications of inappropriate online searches. Children begin to understand how things are shared electronically such as posting work to the Purple Mash display board. They develop an understanding of using email safely by using 2Respond activities on Purple Mash and know ways of reporting inappropriate behaviours and content

  - Children can effectively retrieve relevant, purposeful digital content using a search engine. They can apply their learning of effective searching beyond the classroom. They can share this knowledge, e.g. 2Publish example template. Children make links between the technology they see around them, coding and multimedia work they do in school e.g. animations, interactive code and programs.

- **Computer Science:**
  - Children can explain that an algorithm is a set of instructions to complete a task. When designing simple programs, children show an awareness of the need to be precise with their algorithms so that they can be successfully converted into code.
  - Children can create a simple program that achieves a specific purpose. They can also identify and correct some errors, e.g. Debug Challenges: Chimp. Children's program designs display a growing awareness of the need for logical, programmable steps.
  - Children can identify the parts of a program that respond to specific events and initiate specific actions. For example, they can write a cause-and effect sentence of what will happen in a program.
- **Information Technology:**
  - Children demonstrate an ability to organise data using, for example, a database such as 2Investigate and can retrieve specific data for conducting simple searches. Children can edit more complex digital data such as music compositions within 2Sequence. Children are confident when creating, naming, saving and retrieving content. Children use a range of media in their digital content including photos, text and sound.

Year group	Autumn	Spring	Summer
Year 3	**Digital Literacy** Email **Coding** Route Planners	**Computer Science** Micro:bit **Information Technology** Spreadsheets	**Information Technology** Presentation **Computer Science** Coding Unit

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

- **Digital Literacy:**
  - Children demonstrate the importance of having a secure password and not sharing this with anyone else. Furthermore, children can explain the negative implications of failure to keep passwords safe and secure.
  - They understand the importance of staying safe and the importance of their conduct when using familiar communication tools such as 2Email in Purple Mash. They know more than one way to report unacceptable content and contact.
- **Computer Science:**
  - Children can turn a simple real-life situation into an algorithm for a program by deconstructing it into manageable parts. Their design shows that

they are thinking of the desired task and how this translates into code. Children can identify an error within their program that prevents it from following the desired algorithm and then fix it.

- Children demonstrate the ability to design and code a program that follows a simple sequence. They experiment with timers to achieve repetition effects in their programs. Children are beginning to understand the difference in the effect of using a timer command rather than a repeat command when creating repetition effects. Children understand how variables can be used to store information while a program is executing.

- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They make good attempts to 'step through' more complex code to identify errors in algorithms and can correct this. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.

- Children can list a range of ways that the internet can be used to provide different methods of communication. They can use some of these methods of communication, e.g. being able to open, respond to and attach files to emails using 2Email. They can describe appropriate email conventions when communicating in this way.

- **Information Technology:**
  - Children can collect, analyse, evaluate and present data and information using a selection of software, e.g. using a branching database (2Question), using software such as 2Graph. Children can consider what software is most appropriate for a given task. They can create purposeful content to attach to emails, e.g. 2Respond. collecting, analysing, evaluating and presenting data and information.

  - Children can carry out simple searches to retrieve digital content. They understand that to do this, they are connecting to the internet and using a search engine such as Purple Mash search or internet-wide search engines.

Year group	Autumn	Spring	Summer
Year 4	**Digital Literacy** **Unpack Hardware & software** **Information Technology** **Animation**	**Information Technology** **Sound Stories** **Digital Literacy** **Effective Searching**	**Information Technology** **Composing Beats** **Information Technology** **Introduction to AI** **Computer Science** **Coding Unit including Micro:bit**
	Key objectives (Pupils must know and remember these facts / Improve & apply these skills) - **Digital Literacy:** - Children can explore key concepts relating to online safety using concept mapping such as 2Connect. They can help others to understand the importance of online safety. Children know a range of ways of reporting inappropriate content and contact. - **Computer Science:**		

- When turning a real-life situation into an algorithm, the children's design shows that they are thinking of the required task and how to accomplish this in code using coding structures for selection and repetition. Children make more intuitive attempts to debug their programs.
- Children's use of timers to achieve repetition effects are becoming more logical and are integrated into their program designs. They understand 'if statements' for selection and attempt to combine these with other coding structures including variables to achieve the effects that they design in their programs. As well as understanding how variables can be used to store information while a program is executing, they can use and manipulate the value of variables. Children can make use of user inputs and outputs such as 'print to screen'. e.g. 2Code.
- Children's designs for their programs show that they are thinking of the structure of a program in logical, achievable steps and absorbing some new knowledge of coding structures. For example, 'if' statements, repetition and variables. They can trace code and use step-through methods to identify errors in code and make logical attempts to correct them. e.g. traffic light algorithm in 2Code. In programs such as Logo, they can 'read' programs with several steps and predict the outcome accurately.
- Children recognise the main component parts of hardware which allow computers to join and form a network. Their ability to understand the online safety implications associated with the ways the internet can be used to provide different methods of communication is improving.
- Information Technology:
  - Children understand the function, features and layout of a search engine. They can appraise selected webpages for credibility and information at a basic level.
  - Children can make improvements to digital solutions based on feedback. Children make informed software choices when presenting information and data. They create linked content using a range of software such as 2Connect and 2Publish+. Children share digital content within their community, i.e. using Virtual Display Boards.

Year group	Autumn	Spring	Summer
Year 5	**Information Technology** Quizzing **Information Technology** Databases **Computer Science** Game Creator	**Information Technology** Spreadsheets	**Computer Science** Coding Unit 5.1 including micro bits **Information Technology** Word Processing

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

- <u>Digital Literacy:</u>
  - Children have a secure knowledge of common online safety rules and can apply this by demonstrating the safe and respectful use of a few different technologies and online services. Children implicitly relate appropriate online behaviour to their right to personal privacy and the mental well-being of themselves and others.
- <u>Computer Science:</u>
  - Children may attempt to turn more complex real life situations into algorithms for a program by deconstructing them into manageable parts. Children can test and debug their programs as they go and can use logical methods to identify the approximate cause of any bug but may need some support identifying the specific line of code.
  - Children can translate algorithms that include sequence, selection and repetition into code with increasing ease and their designs show that they are thinking of how to accomplish the set task in code utilising such structures. They combine sequence, selection and repetition with other coding structures to achieve their algorithm design.
  - When children code, they are beginning to think about their code structure in terms of the ability to debug and interpret the code later, e.g. the use of tabs to organise code and the naming of variables.
  - Children understand the value of computer networks but are also aware of the main dangers. They recognise what personal information is and can explain how this can be kept safe. Children can select the most appropriate form of online communication contingent on the audience and digital content, e.g. 2Blog, 2Email and Display Boards.
- <u>Information Technology:</u>
  - Children search with greater complexity for digital content when using a search engine. They can explain in some detail how credible a webpage is and the information it contains.
  - Children can make appropriate improvements to digital solutions based on feedback and can comment on the success of the solution. e.g. coding to a design brief using 2Code. They objectively review solutions from others. Children can collaboratively create content and solutions using digital features within software such as collaborative mode. They can use several ways of sharing digital content, i.e. 2Blog, Display Boards and 2Email.

Year group	Autumn	Spring	Summer

Year 6	Computer Science Networks Information Technology Graphing Information Technology Blogging	Information Technology Data Detectives Computer Science Coding	Computer Science Micro bits Information Technology Spreadsheets Computer Science Introduction to Python

Key objectives (Pupils must know and remember these facts / Improve & apply these skills)

- **Digital Literacy:**
  - **Children demonstrate the safe and respectful use of a range of different technologies and online services. They identify more discreet inappropriate behaviours through developing critical thinking, e.g. 2Respond activities. They recognise the value in preserving their privacy when online for their own and other people's safety.**

- **Computer Science:**
  - **Children can turn a more complex programming task into an algorithm by identifying the important aspects of the task (abstraction) and then logically decomposing them using their knowledge of possible coding structures and applying skills from previous programs. Children test and debug their program as they go and use logical methods to identify the cause of bugs, demonstrating a systematic approach to try to identify a particular line of code causing a problem.**
  - **Children translate algorithms that include sequence, selection and repetition into code and their designs show that they are thinking of how to accomplish the set task in code utilising such structures, including nesting structures within each other. Coding displays an improving understanding of variables in coding, outputs such as sound and movement, and inputs from the user of the program such as button clicks and the value of functions**
  - **Children can interpret a program in parts and can make logical attempts to put the separate parts of a complex algorithm together to explain the program as a whole.**
  - **Children understand and can explain in some depth the difference between the Internet and the World Wide Web. Children know what a WAN and LAN are and can describe how they access the internet in school.**

- **Information Technology:**
  - **Children readily apply filters when searching for digital content. They can explain in detail how credible a webpage is and the information it contains. They compare a range of digital content sources and can rate them in terms of content quality and accuracy. Children use critical thinking skills in everyday use of online communication.**
  - **Children make clear connections to the audience when designing and creating digital content. The children design and create their own blogs to become a content creator on the internet, e.g. 2Blog. They can use criteria to evaluate the quality of digital solutions and can identify improvements, making some refinements.**