# Year 2: Computing

| Predominant Area of Computing* | | |
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| Computer Science | Information Technology | Digital Literacy |

*Most units will include aspects of all strands.

## Autumn Term –
## 2.1 - Coding,  2.2 - Online safety,  2.3 - Spreadsheets

| Overview of unit | Substantive Knowledge | Disciplinary Knowledge |
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| **2.1 - Coding:**<br>In this unit pupils will further their understaning of coding learnt in unit 1.7. The coding lessons in these units are structured around the PRIMM approach. The whole approach may take place during a lesson or series of lessons. Predict... what this code will do Run... the code to check your prediction Investigate... trace through the code to see if you were correct Modify... the code to add detail, change actions/outcome Make... a new program that uses the same ideas in a different way. | • Know and explain that an algorithm is a set of instructions.<br>• Understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions<br>• Predict the behaviour of instructions. | • Pupils can describe the algorithms they have created. They can explain that precise instructions are needed to make things happen correctly.<br>• They know how to create a program using collision detection.<br>• They know how to predict what will happen when a piece of code runs.<br>• They know how to modify properties of objects to change behaviour.<br>• They can explain their debugging and know what the term means. |
| **2.2 - Online safety:**<br><br>In this unit pupils begin to understand the relationship between the wider digital world, and the information on their screen. They will begin to frame searches appropriately, thinking about what to do if they find inappropriate content, and will share the information through digital means, for instance email. | • Understand what 'inappropriate' searches are.<br>• Know what to do if material is inappropriate.<br>• To know how to frame simple searches.<br>• Know how to be able to share information.<br>• Understand the idea of sharing information electronically, for instance through email.<br>• Understand that information put online leaves a digital footprint.<br>• 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. | • Create work to be shared on a share board, utilising prior year group skills.<br>• Know how to frame searches within Purple Mash.<br>• Know and use the simple Email tools in the Purple Mash software. Send basic emails.<br>• Know the term digital footprint.<br>• Give examples of what we would not want in our digital footprint.<br>• Know how to report inappropriate content to an adult. |
| **2.3 - Spreadsheets:**<br>This unit of work builds on the skills from year 1 to introduce children to tools that will allow them to create simple tables and to create block graphs from the tables. They will learn how to add images to a spreadsheet and how to cut, copy and paste cells. | • Revise and klnow spreadsheet vocabulary and knowledge from year 1.<br>• Understand rows, columns and cells in a spreads sheet.<br>• Understand how spreadsheets help manage data.<br>• Understand how spreadsheets can process data and produce helpful charts and graphs.<br>• Know how to use spreadsheets to help with math tasks like adding up. | • Know how to use cut, copy and paste skills.<br>• Know how to add images in a spreadsheet and how to add a value to them.<br>• Know how to use tools to automatically total rows and columns.<br>• Know how to automate the adding process.<br>• Know how to create a table of data.<br>• Know how to use tools to turn data in a table into a block graph. |

## Spring term -
## 2.4 - Questioning, 2.5 Effective searching, 2.6 - creating pictures

| Overview of unit | Substantive Knowledge | Disciplinary Knowledge |
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| **2.4 - Questioning:** This unit is designed to help children learn about the importance of phrasing questions and that certain data-handling resources are limited in the answers they can provide, thus beginning to be discerning in their software choices. | • Know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content. <br>• Understand what a binary tree is, and how we can use questioning to sort or separate data <br>• Know that we can process data to help us to find answers. <br>• Know that software has limitations, and cannot always help us answer all questions. | • Know the limitations of pictograms. <br>• Create and use yes/no questions to separate different items. <br>• Know how to design a binary tree that will sort pictures of children. <br>• Find the limitations of the software 2Simple. |
| **2.5 - Effective searching:** In this unit of work pupils re introduced to internet browsers and the use of the internet and the world-wide-web to search effectively. They are taught to frame questions carefully when using search engines. | • Know where to go for help and support when they have concerns about content or contact on the internet or other online technologies. <br>• Understand the power of the internet for finding information. <br>• Recognise that not all information on the internet is useful or valid. <br>• Understand how to use tools to search safely. | • Know the terminology associated with the internet and searching. <br>• Understand what the internet is with rudimentary understanding of networking. <br>• Know how to use a search engine to explore information. <br>• Create a guide to effective internet searches. |
| **2.6 - Creating pictures:** Pupils will use the computer as an art tool to be visually creative and to work on impressionist paintings. They will explore digital ways of producing pointillist and Mondrian inspired works of art. They will also explore how repeating patterns can be used to emulate the style of William Morris. Throughout they will develop their understanding of how digital art can be equally valid to other media as well as improving their range of I.T. skills. | • Pupils recognise a range of artistic styles and can emulate them. <br>• They know that a computer can be a valid media for producing art of different styles. <br>• They understand that not all art has to be in paint, mark making or paper formats. <br>• They understand that art can be enhanced with digital tools. | • To understand the range of tools available within the software package. <br>• To look at a range of artists styles, and apply digital equivalents to emulate their style. <br>• Understand what Pointilism is. <br>• Know the main features of Mondrian art. <br>• To create art by repeating patterns in a variety of ways. <br>• Understand and describe surrealist art. <br>• Know how to apply a range of tools to effectively demonstrate artistic styles. |

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| **Summer Term – 2.7- Making Music, 2.8 - Presenting ideas.** | | |
| **Overview of unit** | **Substantive Knowledge** | **Disciplinary Knowledge** |
| **2.7 - Making Music:** Continuing their understanding of how computers can be used creatively and artistically pupils will create simple and more complex animations using 2Sequence. The children can use 2Sequence to explore harmony and build up musical scores. | • Pupils will recognise that computer processing can be used creatively as a music art-form. <br>• The concept of editing and being able to re-test and change ideas musically is introduced. <br>• Understand that computers can help people to be creative through sequencing without the need for musical knowledge or being able to play an instrument. | • Know how to sue sequencing tools. <br>• Know how to record sounds and play them back. <br>• Understand repetition and layering of sounds. <br>• Understand how to manipulate volume. <br>• Know how to create tunes to represent different feelings. <br>• Save and upload files. <br>• Know how to be reflective, review and be discerning about our work. |
| **2.8 - Presenting ideas:** In this unit pupils will explore different ways of presenting information, looking at how computing skills can help make that information clear and understandable and interesting for their target audience. | • Pupils can reflect on their work, looking at ways to make it more interesting and accessible to others. <br>• Pupils know about fact-files and how to be discerning with data. <br>• They know that different tools can help accomplish different tasks and present data in different ways. <br>• They know how to use technology purposefully to create, organise, store, manipulate and retrieve digital content. | • Know how to present data in a variety of formats. <br>• Create a quiz to explore information. <br>• Add clipart to documents. <br>• Structure data in tables. <br>• Manipulate content in a variety of software. <br>• Create digital content to achieve a specified goal. |