|  |  |  |  |
| --- | --- | --- | --- |
| C:\Users\mbrough\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\RCR22ZIB\Logo.png | **Nursery** | | |
| Key strand | **Key End Points** | **Early learning goal** |
| **Autumn**  **Topic A – All about me**  **Topic B – Journeys** |  |  |  |
| **Spring**  **Topic A – Dinosaurs**  **Topic B – Growing and Changing** | E-Safety | Take part in Safer internet day | Engage in extended conversations about stories, learning new vocabulary.  Take part in simple pretend play, using an object to represent something else even though they are not similar.  Develop their sense of responsibility and membership of a community.  Begin to understand how others might be feeling. |
| **Summer**  **Topic A – Animals and their babies**  **Topic B – Heroes and Adventurers** |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| C:\Users\mbrough\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\RCR22ZIB\Logo.png | **Reception** | | |
|  |  | **Key End Points**  **(Blue end points – ELG)** |
| **Autumn**  **Topic A – All about me**  **Topic B – Transport: Past and Present** |  |  | **Listening, attention and understanding**  Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions  Make comments about what they have heard and ask questions to clarify their understanding  Hold conversation when engaged in back-and-forth exchanges with their teacher and peers.  **Speaking**  Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary;  Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate;  Express their ideas and feelings about their experiences using full sentences, including use of past, present and future tenses and making use of conjunctions, with modelling and support from their teacher.  **Comprehension**  Demonstrate understanding of what has been read to them by retelling stories and narratives using their own words and recently introduced vocabulary;  Anticipate – where appropriate – key events in stories;  Use and understand recently introduced vocabulary during discussions about stories, non-fiction, rhymes and poems and during role-play.  **Self-Regulation**  Show an understanding of their own feelings and those of others, and begin to regulate their behaviour accordingly;  Give focused attention to what the teacher says, responding appropriately even when engaged in activity, and show an ability to follow instructions involving several ideas or actions.  **Managing Self**  Be confident to try new activities and show independence, resilience and perseverance in the face of challenge;  Explain the reasons for rules, know right from wrong and try to behave accordingly; |
| **Spring**  **Topic A – Space**  **Topic B – Growing and Changing** | E-safety | To take part in safer internet day |
| **Summer**  **Topic A – Kings and Queens**  **Topic B – Stories from the past** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| C:\Users\mbrough\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\RCR22ZIB\Logo.png | **Year 1** | | |
| **Key knowledge** | Key Skills | **Key End Points**  Children who are secure will be able to |
| **Autumn 1**  **Computing systems and networks**  **Improving mouse skills** | - To know that “log in” and “log out” means to begin and end a connection with a computer  - To know that a computer and mouse can be used to click, drag, fill and select and also add backgrounds, text, layers, shapes and clip art.  - To know that passwords are important for security. | - Learning how to explore and tinker with hardware to find out how it works.  - Learning where keys are located on the keyboard.  Using a basic range of tools within graphic editing software.  - Developing control of the mouse through dragging, clicking and resizing of images to create different effects.  - Developing understanding of different software tools.  - Recognising devices that are connected to the internet.  - Logging in and out and saving work on their own account. | - Use computers more purposefully  - Log in and navigate around a computer  - Drag, drop, click and control a cursor using a mouse  - Use software tools to create art on the computer |
| **Autumn 2**  **Programming**  **Computer Science** | - To understand that an algorithm is when instructions are put in an exact order.  - To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.  - To understand that decomposition means breaking a problem into manageable chunks and that it is important in computing.  - To know that we call errors in an algorithm ‘bugs’ and fixing these ‘debugging’. | - Recognising that some devices are input devices and others are output devices.  - Learning that decomposition means breaking a problem down into smaller parts.  - Using decomposition to solve unplugged challenges.  - Developing the skills associated with sequencing in unplugged activities.  - Following a basic set of instructions.  - Assembling instructions into a simple algorithm.  - Learning to debug instructions when things go wrong.  - Learning to debug an algorithm in an unplugged scenario | - Explain what an algorithm is.  - Write clear algorithms.  - Follow an algorithm.  - Explain what inputs and outputs are.  - Create an achievable program.  - Decompose a design into steps.  - Identify bugs in an algorithm and how to fix them. |
| **Spring 1** | - To know that when we create something on a computer it can be more easily saved and shared than a paper version.  - To know some of the simple graphic design features of a piece of online software.  - To know that a spreadsheet is an electronic ‘table’ for sorting data. | - Learning where keys are located on the keyboard.  - Learning how to operate a camera to take photos and videos. - - Using logical reasoning to predict the behaviour of simple programs.  - Developing the skills associated with sequencing in unplugged activities.  - Following a basic set of instructions.  - Assembling instructions into a simple algorithm.  - Learning to debug instructions when things go wrong.  - Learning to debug an algorithm in an unplugged scenario.  - Using a basic range of tools within graphic editing software.  - Taking and editing photographs.  - Developing control of the mouse through dragging, clicking and resizing of images to create different effects.  - Developing understanding of different software tools.  - Recognising devices that are connected to the internet.  - Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.  - Logging in and out and saving work on their own account. | - Use a computer to make a list  - Explain the benefits of making a list on the computer  - Use a basic range of tools on graphics editing software to design a rocket  - Sequence instructions  - Follow instructions to build their model rocket  - Input data about their rockets into a table or spreadsheet |
| **Spring 2**  **Programming**  **Computer Science** | - To understand the basic functions of a Bee-Bot.  - To know that you can use a camera/tablet to make simple videos.  - To know that algorithms move a Bee-Bot accurately to a chosen destination. | - Learning how to explore and tinker with hardware to find out how it works.  - Learning how to operate a camera to take photos and videos.  - Using decomposition to solve unplugged challenges.  - Using logical reasoning to predict the behaviour of simple programs.  - Developing the skills associated with sequencing in unplugged activities.  - Following a basic set of instructions.  - Assembling instructions into a simple algorithm.  - Programming a floor robot to follow a planned route.  - Learning to debug instructions when things go wrong.  - Using programming language to explain how a floor robot works.  - Learning to debug an algorithm in an unplugged scenario.  - Taking and editing photographs | - Recognise cause and effect when pressing buttons on a Bee-Bot.  - Discuss and demonstrate how the Bee-Bot works.  - Record video ensuring everyone is in the shot.  - Give a number of clear instructions in sequence.  - Program a Bee-Bot to reach a destination.  - Identify and correct mistakes in their programming. |
| **Summer 1**  **Creating Media**  **Digital imagery** | - To understand that holding the camera or device still and considering angles and light are important to take good pictures.  - To know that you can edit, crop and filter photographs.  - To know how to search safely for images online. | - Learning how to explore and tinker with hardware to find out how it works. Learning where keys are located on the keyboard. - Learning how to operate a camera to take photos and videos.  - Developing the skills associated with sequencing in unplugged activities.  - Using a basic range of tools within graphic editing software.  - Taking and editing photographs.  - Developing control of the mouse through dragging, clicking and resizing of images to create different effects.  - Developing understanding of different software tools. Searching and downloading images from the internet safely.  - When using the internet to search for images, learning what to do if they come across something online that worries them or makes them feel uncomfortable. | - Plan a pictorial story using photographic images in sequence.  - Explain how to take clear photos.  - Take photos using a device.  - Edit photos by cropping, filtering and resizing.  - Search for and import images from the internet.  - Explain what to do if something makes them uncomfortable online.  - Organise images on the page, orientating where necessary. |
| **Summer 2**  **Data handling: Introduction to data** | - To know how that charts and pictograms can be created using a computer.  - To understand that a branching database is a way of classifying a group of objects.  - To know that computers understand different types of ‘input’. | - Learning how to explore and tinker with hardware to find out how it works.  - Recognising that some devices are input devices and others are output devices. Learning where keys are located on the keyboard.  - Developing control of the mouse through dragging, clicking and resizing of images to create different effects.  - Developing understanding of different software tools. Recognising devices that are connected to the internet.  - Understanding that technology can be used to represent data in different ways: pictograms, tables, pie charts, bar charts, block graphs etc.  - Using data representations to answer questions about data.  - Using software to explore and create pictograms and branching databases. | - Represent animal-themed data in different ways, using objects and technology.  - Log in and use mouse and keyboard skills to navigate the computer.  - Represent the same data as a pictogram and a table or chart.  - Collect data about minibeasts using a tally chart and represent their data digitally.  - Click and drag objects to sort data using a branching database.  - Consider the types of input that would be used to gather different forms of data when designing an invention. |

|  |  |  |  |
| --- | --- | --- | --- |
| C:\Users\mbrough\AppData\Local\Microsoft\Windows\INetCache\Content.Outlook\RCR22ZIB\Logo.png | **Year 2** | | |
| **Key knowledge** | Key Skills | **Key End Points**  Children who are secure will be able to |
| **Autumn 1**  **Computing systems and networks**  **What is a computer?** | To know the difference between a desktop and laptop computer.  To know that people control technology.  To know some input devices that give a computer an instruction about what to do (output).  To know that computers often work together. | - Understanding what a computer is and that it’s made up of different components.  - Recognising that buttons cause effects and that technology follows instructions.  - Learning how we know that technology is doing what we want it to do via its output.  - Using greater control when taking photos with cameras, tablets or computers.  - Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.  - Using word processing software to type and reformat text.  - Creating and labelling images.  - Learning how computers are used in the wider world | - Name some computer peripherals and their function.  - Recognise that buttons cause effects.  - Explain that technology follows instructions.  - Recognise different forms of technology.  - Design an invention which includes inputs and outputs.  - Explain the role of computers in the world around them. |
| **Autumn 2**  **Programming**  **Algorithms and debugging** | To understand what machine learning is and how it enables computers to make predictions.  To know that loops in programming are where you set a certain instruction (or instructions) to be repeated multiple times.  To know that abstraction is the removing of unnecessary detail to help solve a problem. | Developing confidence with the keyboard and the basics of touch typing. Articulating what decomposition is.  - Decomposing a game to predict the algorithms used to create it.  - Learning that there are different levels of abstraction.  - Explaining what an algorithm is.  - Following an algorithm.  - Creating a clear and precise algorithm.  - Learning that programs execute by following precise instructions.  - Incorporating loops within algorithms.  - Using logical thinking to explore software, predicting, testing and explaining what it does.  - Using an algorithm to write a basic computer program.  - Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts | - Decompose a game to predict the algorithms.  - Give a definition for ‘decomposition’.  - Write clear and precise algorithms.  - Create algorithms to solve problems.  - Use loops in their algorithms to make their code more efficient.  - Explain what abstraction is. |
| **Spring 1**  **Computing systems and networks**  **Word processing** | To know that touch typing is the fastest way to type.  To know that I can make text a different style, size and colour.  To know that “copy and paste” is a quick way of duplicating text. | - Developing confidence with the keyboard and the basics of touch typing.  - Developing word processing skills, including altering text, copying and pasting and using keyboard shortcuts.  - Using word processing software to type and reformat text.  - Searching for appropriate images to use in a document.  - Understanding what online information is.  - Identifying whether information is safe or unsafe to be shared online. | - Explain which the home row keys are and how to find them for typing.  - Use the spacebar and backspace correctly.  - Type and make simple alterations to text using buttons on a word processor.  - Search for, import and alter appropriate images for a text document.  - Modify text in a document.  - Use copy and paste to copy text from one document to another.  - Explain what information is safe to be shared online. |
| **Spring 2**  **Programming**  **ScratchJr** | To know that coding is writing in a special language so that the computer understands what to do.  To understand that the character in ScratchJr is controlled by the programming blocks.  To know that you can write a program to create a musical instrument or tell a joke. | - Recognising that buttons cause effects and that technology follows instruction  - Explaining what an algorithm is.  - Following an algorithm.  - Creating a clear and precise algorithm.  - Learning that programs execute by following precise instructions.  - Incorporating loops within algorithms.  - Using logical thinking to explore software, predicting, testing and explaining what it does.  - Using an algorithm to write a basic computer program. Using loop blocks when programming to repeat an instruction more than once.  - Using software (and unplugged means) to create story animations. | - Explore a new application independently.  - Explain what the blocks on ScratchJr do and use them for a purpose.  - Recognise a loop in coding and why it is useful.  - Use a code to create an animation of an animal moving.  - Use code to follow and create an algorithm.  - Program code to run ‘on tap’.  - Explain the role of the blocks in a program they have created |
| **Summer 1**  **Creating media**  **Stop motion** | To understand that an animation is made up of a sequence of photographs.  To know that small changes in my frames will create a smoother looking animation.  To understand what software creates simple animations and some of its features e.g. onion skinning. | - Using greater control when taking photos with cameras, tablets or computers.  - Using logical thinking to explore software, predicting, testing and explaining what it does. | - Create a flip book animation.  - Decompose a story into smaller parts to plan a stop motion animation.  - Create stop motion animations with small changes between images. |
| **Summer 2**  **Data handling**  **International Space Station** | To understand that you can enter simple data into a spreadsheet.  To understand what steps you need to take to create an algorithm.  To know what data to use to answer certain questions.  To know that computers can be used to monitor supplies. | - Developing confidence with the keyboard and the basics of touch typing.  - Creating and labelling images.  - Collecting and inputting data into a spreadsheet.  - Interpreting data from a spreadsheet.  - Learning how computers are used in the wider world. | - Describe and explain how astronauts’ survival needs are met aboard the ISS.  Identify and digitally draw items which fulfil basic human needs when aboard the ISS.  - Read the correct temperature on a thermometer.  - Design a display showing everything that needs to be monitored by sensors on the ISS.  - Create an algorithm that addresses all plants’ needs.  - Explain how space exploration can benefit life on Earth.  - Read data to identify whether a planet might be habitable. |

**How does the Computing curriculum at Spring Meadow support learning in KS2?**