Our Computing Pathway- e-safety, coding, technologies

Computing is the use of computers to manage, process and communicate information.

As Computer Scientists we learn to:

- **Code**– by developing an understanding of instructions, logic and sequences.
- **Connect**-by developing an understanding of how to safely connect with others ,
- **Communicate**– by using apps to communicate our ideas
- **Collect**-by developing an understanding of databases and their uses

Foundation Stage → **Key Concepts** To code, to connect, to communicate, to collect → Year 6

Progression: ELG, Milestone 1, Milestone 2, Milestone 3

In Year 6, children will continue to learn about computing systems and networks, learning how data is transferred over the internet. They will understand the makeup and structure of data packets and will appreciate how the internet facilitates online communication and collaboration. The children will identify what makes a good web page. They will use this information to design and evaluate their own website. The children's programming unit will explore the concept of variables in programming. They will experiment with using variables, following the Use-Modify-Create model, finally designing and improving their game in Scratch.

Achieve YEAR 6 – Communication and collaboration, webpage creation, variables in games

Ready for your secondary journey!

During Year 5, children will begin learning how to create vector drawings. They will use drawing tools on the computer to create vector drawings using shapes and lines. They will layer their objects and begin grouping and duplicating to increate image complexity. When learning about databases, the children will use tools within a database to order data and answer questions about it. They will create graphs and charts to solve problems. In their programming unit, the children will build on their prior knowledge, learning how to use the If... Then... Else... structure to select outcomes. They will finish this topic by designing a quiz applying to apply this knowledge.

Achieve YEAR 5 – Vector graphics, flat-file databases, selection in quizzes

Repetition in shapes, photo editing, repetition in games

At the beginning of Year 4, children will create programs by planning, modifying and testing commands to create shapes and patterns. They will use a text-based programming language: Logo. In their photo editing unit, the children will develop their understanding of how digital images can be changed and edited. They will consider the impact that editing images can have and evaluate the effectiveness of their editing choices. In their final computing unit of the year, the children will build on their learning from their first unit in Year 4. They will explore the concept of repetition in programming, this time using the Scratch environment. Here, they will discover similarities between two programming environments. They will learn the different between count-controlled and infinite looks and use their knowledge here to modify existing animations and games. This unit culminates in the children designing and creating a game which using repetition.

Achieve YEAR 4 – Connecting computers, stop-frame animation and branching databases

Beginning Key Stage 2, children will develop their understanding of digital devices, with an initial focus on inputs, processes and outputs. They will be introduced to computer networks and will discover the benefits of connecting devices in a network. They will learn a range of techniques to create a stop-frame animation. They will apply these skills to create their own stop-frame animation before adding other types of media to their animation, such as music or text. In their branching databases unit, the children will understand that one f these is and how to create one. They will use yes/no questions to understand what attributes are and how to sort groups of objects based on these.

Achieve YEAR 3 – Digital photography, programming quizzes, pictograms

In Year 2, the children will continue their computing journey by learning about the term 'data'. They will collect data and present it in a tally chart, then progress to presenting data in a pictogram and finally block diagrams. In their digital photography unit, children will learn that different devices can be used to capture photographs. They will capture, edit and improve photos. In their programming unit, the children will recap on learning from their Year 1 programming unit. They will begin to understand that sequences of commands have an outcome. They will use and modify designs to create their own quiz questions in Scratch Junior.

Believe YEAR 2 – Technology around us, digital painting and programming animations

During Year 1, the children will begin their learning about computer systems by learning about the technology around them. They will develop their keyboard and mouse skills. Children will also develop their media creation skills through their digital painting unit. Here, they will use a range of tools for digital paintings, while gaining inspiration from a range of artists' work. In their programming unit, the children will programme animations using Scratch Junior. They will use programming blocks to use, modify and create programs.

Believe YEAR 1 – Introduction and Explore

Dream EYFS

Introducing the children to computing during their first years covers a wide range of unplugged and connected activities. Children are introduced to what a computer is and how the keyboard and mouse can be used to control elements on the screen. Using hand-held devices, children explore capturing images, sound and text and they use toys to move along number lines and trails, taking turns. Children are encouraged to create digital art and explore the creation of sound and music using a selection of apps and online resources.

DREAM BELIEVE ACHIEVE – Together *as Scientists!*