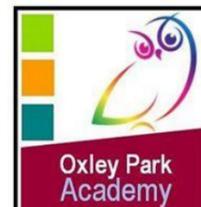


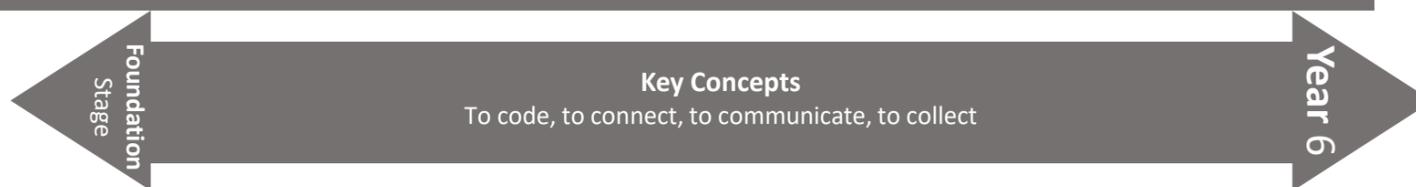
Our Computing Pathway- e-safety, coding, technologies



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



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

During Year 6, children will consolidate all their prior learning in relation to e-safety using resources from Google's Internet Awesome curriculum. They use simple formula in spreadsheets to manipulate data and produce charts to help represent data. Their understanding of computer networks looking at the roles or different components in LAN/WAN connects to control packets on information. They build complex games using loops and conditional branching combined with variables and animation. They expand their programming skills to look at the use of JavaScript and Python programming languages to design and build apps for mobile devices.

Achieve YEAR 6

Cryptography, webpages, Kodu and E-safety

Spreadsheets, networks, complex coding and apps

Ready for your secondary journey!

During Year 5, children will get a basic introduction to cryptography looking at the different types of encryption and working collaboratively to decipher messages. They begin to examine the structure of webpages and the language, HTML, that is used to build them and 'hack' webpages by using their own HTML tags. The children's understanding of algorithms is reinforced through finding the most efficient 'routine' to solve a given problem and they reinforce the programming skills using variables within their code to share data. Children are also introduced to icon-based development language using Kodu to build basic games using keyboard controls, sound and time elements. Children continue to review how to stay safe online discuss the impact of cyber bullying and developing SMART rules when using the internet.

Achieve YEAR 5

Email, digital artistry, coding, e-safety and viruses

Building on the work in Year 2, children continue to explore the use of email and how they can verify the email address of senders. They use group messages to examine the benefits of working collaboratively to achieve a goal on a shared project. Children's digital artistry is developed using frame-based animation software and developing algorithms to control an online turtle to create a unique art piece. Their programming skills are put to the test during the year to develop their computation thinking to solve problems with puzzle-based coding challenges. In addition, to revisit all of the previous e-safety aspects of being online, children learn how and why we communicate and what information should be shared. They look at the concept of spam and junk mail and how these can involve computer viruses.

Achieve YEAR 4

Internet, databases, simulators, Scratch and E-safety

Beginning Key Stage 2, children will learn the difference between the internet and the World Wide Web, using a series of online tutorials looking at each element in details. Children develop their understanding of databases how they can search, sort, view and add records to a dataset. Children revisit the concept of simulators, identifying the benefits of powerful models that allow them to explore scenarios they may struggle to experience in the real world. The concept of an algorithm is reinforced through unplugged activities based on sorting objects while their programming skills within Scratch begin to use keyboard triggers to control Sprites on the screen. The e-safety aspects with the year group explores the topics of privacy settings when online and the difference between appropriate and inappropriate content.

Achieve YEAR 3

Blogs, searches and Scratch

Building on their keyboards skills from the previous year, children use online blogs, developing an understanding of threads, and publishing software to create e-Books combining multimedia elements. During the year they are introduced to email systems and how to keep safe when sharing personal information. Children use internet searches to find answers to topic-based questions and are introduced to the programming platform Scratch using Sprites to make simple animations.

Believe YEAR 2

Data, Keyboard, commands and algorithms

During Year 1, the children are introduced to data handling, looking how to collect and represent data using pictograms. They start to develop their keyboard skills through the introduction of word processing and use online simulators to investigate how their choices have an impact. Using unplugged activities, children look at instructions and commands to develop a basic understanding of algorithms and use these to control toys such as Beebots. Online safety covers discussions about sharing photos and playing online games.

Believe YEAR 1

Introduction and Explore

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