

# COMPUTING CURRICULUM DESIGN

"EVERYONE IN THIS COUNTRY SHOULD LEARN HOW TO PROGRAM BECAUSE IT TEACHES YOU HOW TO THINK"

- STEVE JOBS



## KNOWING



## BECOMING



## FEELING



In the digital age in which we live, computing is clearly vital. Well developed computing knowledge can unlock huge potential for pupils in terms of access to other learning - through research, communication and presentation - as well as by opening up opportunities for careers and roles that haven't even been invented yet. We recognise that often, children's prior computing knowledge is exceptionally imbalanced; there will be areas (such as gaming, use of certain devices, communication etc.) that are extremely well developed through access to technology at home, whilst other crucial elements have never been encountered.

We have chosen to deliver our curriculum through an adapted version of the Teach Computing scheme of learning developed by the National Centre for Computing Education. This offers comprehensive coverage of all key components, sequenced progressively in a spiral pattern to build upon prior learning. This scheme was also selected over others due to its transferability, and because it directly tackles our children's imbalance of knowledge of different computing platforms (both in terms of hardware and software) as identified above - empowering children to work across a range of end-user devices and digital ecosystems.

The knowledge of computing within our curriculum is built around 10 strands. Seven of these are delivered within four overarching modules: computing systems and networks; programming, algorithms, design & development; data & information; and creating media. The final three intersect with all modules: effective use of tools; impact of technology; and safety and security. Units are supported by learning graphs which introduce individual concepts and skills progressively to build towards an end-point. A key aspect of pupil knowledge that we deliver additionally to the Teach Computing scheme is E-safety. We are aware of the particular risks our children face online relating to our military context - a very high proportion have access to personal devices provided by parents to keep in touch with friends from previous schools, or family across the country. However, this access exposes pupils to a range of risks, thus we add additional e-safety knowledge to our curriculum - both discretely, and embedded within different units (e.g. searching and selecting information).

We want our pupils to become digitally literate across a range of platforms and devices. Children will become confident users of desktops, laptops, tablets and physical coding devices. We aim for pupils to develop automaticity with these devices, both in terms of taught processes, but also by acquiring the intuitive, transferrable skills to navigate these - e.g. through the recognition of icons, menus, folder structures etc. Pupils thus become coders, designers, media creators, data analysts through their computing, but they also become able to use technology purposefully throughout their life, including beyond school. Again, e-safety is key within this. This aspect of the curriculum is both proactively planned, but also responsive to intelligence being gathered more widely across school - e.g. through parental communication, safeguarding information, pupil voice etc. Becoming safe, responsible users of devices is just as important as becoming capable users of them.

Computing is a subject which frequently animates and excites. Children often love to see the impact of input, process, and output - watching as blocks of code transfer into animations, motion, sound; learning how to turn a dry, plain page of text into a vibrant presentation; transforming a table of numbers into a visual chart - these moments are celebrated and enjoyed. Of course, there are also frustrations with technology - computers that suddenly fail, documents that crash before being saved, buffering connections etc. - and therefore we help pupils navigate their feelings around these, and develop safeguards where possible to avoid such issues! Lastly, in the online world of social media and e-safety, we recognise the profound impact on feelings and mental health that is almost inevitable for our pupils as they grow older. Thus, through both computing, PSHCE, and pastoral care, we seek to help children to manage such emotions relating to the online world and their activity within it.