

Computing

at St Alban's Catholic Primary School

Our computing curriculum recognises that pupils are living in a rapidly changing world, in which computing is playing an ever increasing role. We aim, therefore, to equip children with the skills to adapt to new technology and to give them confidence to use Computing to further their learning and assist them in everyday life whilst staying safe.



Big Ideas

Online safety: We equip pupils with the knowledge to help them keep safe online.

Computer Science: We learn the principles of information and computation, how digital systems work and how to put this knowledge to use, through programming.

Digital Literacy: Pupils are able to use and express themselves and develop their ideas through information and communication technology – at a level, suitable for the future workplace and as active participants in a digital world.

Content and Sequencing

The units for key stages 1 and 2 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme.

EYFS – The EYFS computing curriculum is designed to introduce children to the basics of technology and digital skills in a fun and interactive way. It is divided into three main areas: understanding technology, creating and debugging simple programs, and e-safety. The curriculum aims to give children a basic understanding of technology and digital skills that will prepare them for more advanced learning in the future.

Year 1 - Builds on their EYFS learning with a unit that explores technology around us. The children get creative exploring digital art. Pupils experience their first unit that applies the concept of action algorithms and instructions to control robots. The final unit introduces children to on-screen programming through ScratchJr. They will use programming blocks to use, modify, and create programs. Children will also be introduced to the early stages of program design.

Year 2 - With an initial focus on IT in the home, children explore how IT benefits society in places such as shops, libraries, and hospitals. Whilst discussing the responsible use of technology, and how to make smart choices when using it. Children will learn to recognise that different devices can be used to capture photographs and will begin to understand what data means and how this can be collected and presented. They will also create different rhythms and tunes, using the movement of animals for inspiration.

Year 3 - Year 3 begin by comparing digital and non-digital devices, before being introduced to computer networks that include network infrastructure devices like routers and switches. They use a range of techniques to create a stop-frame animation using tablets. Children will develop their understanding of what a branching database is and how to create one. Children will become familiar with the terms 'text' and 'images' and understand that they can be used to communicate messages. They will use desktop publishing software. Children will explore the links between events and actions, whilst consolidating prior learning relating to sequencing.

Year 4 - Children will apply their knowledge and understanding of networks, to appreciate the internet as a network of networks which need to be kept secure. Children will identify the input device (microphone) and output devices (speaker or headphones) required to work with sound digitally. Children will discuss the ownership of digital audio and the copyright implications of duplicating the work of others. In order to record audio themselves, learners will use Audacity to produce a podcast, which will include editing their work, adding multiple tracks, and opening and saving the audio files. Finally, learners will evaluate their work and give feedback to their peers. Children will create programs by planning, modifying, and testing commands to create shapes and patterns. Children will consider how and why data is collected over time. Children will develop their understanding of how digital images can be changed and edited. They explore the concept of repetition in programming using the Scratch environment.

Year 5 – Children will learn how to create short videos in groups. Children will use physical computing to explore the concept of selection in programming through the use of the Crumble programming environment. They will look at how a flat-file database can be used to organise data in records. Children start to create vector drawings. They learn how to use different drawing tools to help them create images. Children will use their knowledge of writing programs and using selection to control outcomes to design a quiz in response to a given task and implement it as a program.

Year 6 – Children will explore how data is transferred over the internet. Children are introduced to the creation of websites for a chosen purpose. They will explore the concept of variables in programming through games in Scratch and be introduced to spreadsheets to apply formulas and to present data. Children will develop their knowledge and understanding of using a computer to produce 3D models. The final KS2 programming unit brings together elements of all the four programming constructs: sequence from Year 3, repetition from Year 4, selection from Year 5, and variables (introduced in Year 6). Children will complete a project using all of these constructs.

E-Safety

All year groups study e-safety throughout the year alongside the Computing curriculum. This takes them through all aspects of staying safe online, understanding privacy, safe communication and how to find reliable information and navigate the web responsibly. Assemblies are held throughout the year with a focus on e-safety. We also take part in the Safer Internet Day each year.

Advice is also offered to staff, parents and pupils through workshops, staff CPD, networks and using on-line guidance and posters. Acceptable use policies are in place for staff, visitors and pupils.

Progress

Units of work are carefully sequenced so prior knowledge and concepts are built upon.

Regular formative assessment and assessment for learning ensures gaps are filled.

Effective questioning and higher order thinking features in every level.

Every lesson includes formative assessment opportunities for teachers to use.

Every unit includes an optional summative assessment framework in the form of either a multiple-choice quiz (MCQ) or a rubric.

All units are designed to cover both skills and concepts from across the computing national curriculum.