

Computing in the Early Years at St Columba's

“Every child in every school has the right to a world-class computing education.” (CAS Mission Statement)

Despite computing not being explicitly mentioned within the Early Years Foundation Stage (EYFS) statutory framework, which focuses on the learning and development of children from birth to age five, there are many opportunities for young children to use technology to solve problems and produce creative outcomes. In particular, many areas of the framework provide opportunities for pupils to develop their ability to use computational thinking effectively, such as through undertaking projects involving the concepts and approaches suggested by Computing at School's (CAS) Barefoot Computing resources which we have adopted as a school.

As young children take part in a variety of tasks with digital devices, such as moving a Bee Bot around a classroom, they will already be familiar with the device before being asked to undertake tasks related to the key stage one (KS1 - ages 5 - 7 years) computing curriculum, such as writing and testing a simple program. Not only will children be keen to again use a device they had previously enjoyed using, their cognitive load will also be reduced, meaning they are more likely to succeed when undertaking activities linked to the next stage in their learning.

The main area within the EYFS statutory framework related to computing is the Understanding the world - Technology strand, although each area of the framework enables practitioners to effectively prepare children for studying the computing curriculum.

EYFS Coverage

The Development Matters (pg. 2) document states that best practice in early years is creative, active, exploratory, playful and encourages critical thinking, thus the activities below have been included to meet these criteria where feasible. Tasks are outlined for each area of the EYFS framework, although many other opportunities exist to use technology with younger children; particularly when linked to a topic studied within class.

Understanding the world - Classrooms could contain a role play area with a range of technology, both functioning and model / broken devices, or a variety of electronic toys, such as remote controlled cars, walkie-talkies and interactive pets, as part of continuous provision. Further technology could be

included in conjunction with other activities, such as digital cameras or iPads for pupils to photograph their own learning, although it is worth bearing in mind that the EYFS Framework (pg. 12) states children need to “select and use technology for a particular purpose”, rather than simply being given a device. The pedagogical approaches used this age group should also be carefully considered, which includes the need to tinker, or play, with a device, in order to discover how it functions.

Literacy - Bee Bots continue to be extremely popular in both EYFS and Key Stage 1, and provide a number of opportunities to develop pupils’ computing knowledge within literacy sessions. Children could create a story about the Bee Bot’s journey, such as around a local area or a country being studied, or they could sequence events within a story being studied. For example, children could guide the Bee Bot between different locations, characters and locations within Little Red Riding Hood. Should devices not be available, the Barefoot website has Fake Bots available, which children can use instead of a digital device. In addition to this, programming devices suitable for young children are being developed by a range of manufacturers, such as the Code-a-pillar by Fisher-Price.



Fisher-Price Code-a-pillar

Physical development - many children entering Early Years settings are already familiar with tablet devices, although their ability to use a keyboard and mouse is often limited. This has recently become a more significant issue, due to the prevalence of tablet devices in the home. It is therefore important that children are given opportunities to become familiar with a range of input devices, including the keyboard and mouse, in order to develop the required fine motor skills. Usage could be linked to phonics sessions, such as through the use of drill and practice games, including Dance Mat Typing or the Animal Typing app, or more creative outcomes, as described when examining the areas below.

Communication and language - Unplugged activities, or those away from the machine, give children an opportunity to develop their understanding of technology without the need for expensive devices. Children could be asked to give precise instructions verbally, such as through giving instructions to a sandwich making robot, with links made to the importance of using the correct vocabulary, along with speaking clearly and precisely. Give me instructions could also form part of sessions linked to physical development activities, such as determining rules for certain playground games.

Personal, social and emotional development - Voice recorders, or the microphone built into a tablet device, could be used to record how pupils are feeling, or to discuss their relationships with others. This could be extended through pupils creating their own videos, which could also link to children giving online safety guidance to their peers on using technology safely and what to do if they feel worried or concerned when you using a device. A range of age-appropriate books are now available for young children to examine online safety, such as Chicken Clicking, Goldilocks (A hashtag cautionary tale) and the free Smartie the Penguin. Using voice and video recorders also allows children to self evaluate their own speaking.

Expressive arts and design - The use of painting and graphics applications can further develop pupils' keyboard and mouse skills, whilst a range of tablet based apps are also available, such as the free Doodle Buddy. Creative outcomes can be produced, which allows pupils to take ownership of their work and could even be part of an extended project. Outputs produced could be linked to other uses of technology, such as producing mats for Bee Beets to travel around, other physical computing devices, such as Spheros, can even be put into paint and controlled using a tablet device to produce images. Outfits for the device to wear, such as Bee Bot head dresses or Sphero paper cup people, could also be developed.

Mathematics - Controlling devices provides an excellent opportunity to develop pupils' understanding of left and right, along with directional language. Pupils could be asked to guide a device around a shape, or even use activities from programming related websites, such as code.org, to develop their understanding further. However, whilst such activities can effectively engage pupils in programming tasks, their usage should be carefully considered to ensure they have a purpose.

This all sounds great! So what do we need?

Resources / Wish List List for St Columba's:

iPads – as many as possible!

Voice recorders (or the microphones on devices)

Digital cameras

Beebots (lots)

Remote controlled cars / walkie talkies / interactive pets

Code-a-pillar by Fisher Price (see picture above)

Sphere (a programmable robot ball)

Computer with keyboard and mouse

Books – ‘Chicken Clicking’ by Jeanne Willis,

Goldilocks (a hashtag cautionary tale) by Jeanne Willis

Smartie the Penguin - an online safety story (free childnet international)