Computing Curriculum Implementation

Statement of intent

At Barkisland we equip the children with the relevant curriculum understanding, teachings and skills in order to succeed throughout their journey with us and beyond. Teachers support the children to promote a balanced computing curriculum in dedicated lessons and cross-curricular. The teachers at our school nurture the children's learning, helping them to achieve their very best. Having computing skills allows children to feel empowered to contribute to their personal studies and interests in an ever-changing digital world. We provide opportunities for children to approach challenges with a resilient manner and encourage them to believe in themselves and their peers. By exposing children to a nurturing environment, the children feel confident to practice their learning both in school and at home as they access technology.

Schemes of work

- Early Learning Goals (*the statutory framework for the Early Years Foundation Stage)*
- Bespoke Long-Term Planning covering the National Curriculum 2014 and all strands of Computing

Curriculum content

The Computing Curriculum can be divided into three inter-related strands:

- Computer Science
- Information Technology
- Digital Literacy

Computer Science:
Pupils need to understand what algorithms are – this is the basis of what they need to know in order to write computer programs. Each programming language has its own vocabulary and grammar but they all follow the same type of logic. It is possible and beneficial to learn computer science away from computers or other digital devices. Role play and kinaesthetic activities help pupils develop logical reasoning.

Pupils need to be able to write algorithms and programs. They also need to be able to find mistakes (bugs) and fix them. When children write programs they will learn that there are often different ways of getting the right outcome, and they need to be able to evaluate the programs to decide which is the most efficient.

While children will make mistakes in their own programs it is often easier to find mistakes in code that has been produced by other people. Providing pupils with example programs give them the opportunity to predict what they will do and identify any bugs. Working collaboratively is also an effective method. As pupils get older the programs they write will become more complicated. They will need to use sequence, selection, repetition and variables in their programs.

The computer science strand also requires knowledge of networks and how searches are performed.

Information Technology:
Most of this strand can be covered by using technology to support other subject areas though it may be necessary to teach some discrete skills. Students should understand that technology is

everywhere, be able to identify the technology they encounter and have a basic understanding of how it works. This will link to work on programming and algorithms.

Appropriate activities include word processing, creating images, taking and using photographs and video, creating music and animations, using and creating databases, producing websites and contributing to blogs. As well as creation of digital materials pupils should have experience of manipulating and editing their own work and resources from elsewhere. They need to know how to use the tools available, in addition to being aware of audience and good design principles. Pupils should experience a range of different applications and software, initially the teacher will select the programs they use but over time pupils should be encouraged to make decisions themselves.

Pupils also need to know how to store and organise their files so that it can easily be found again. They need an understanding of the devices they can use including: hard drive, USB sticks, school network server, onedrive and the cloud storage on the internet.

Digital Literacy:
Children need to be able to use technology safely. They need to keep their personal information private and treat other people with respect. If something goes wrong or they see something they don't like they should know what to do and where to go for help. As children get older they need to know about how to use technology responsibly. As well as thinking about how their online behaviour affects others, they need to be aware of legal and ethical responsibilities, including respecting copyright and intellectual property rights, keeping passwords and personal data secure and observing terms and conditions for online services. They need to understand the main risks relating to:

Content – being exposed to illegal, inappropriate or harmful material
Contact – being subjected to harmful online interaction with other users
Conduct – online behaviour that increases the likelihood of, or causes, harm

Children will be taught to understand an age-appropriate version of the school's Acceptable Use Policy. E-Safeguarding links with our school's child protection policy and should not be seen as a separate issue.

Here at Barkisland, we have written our own Computing Scheme, reflecting the needs of our children and ensuring the content of our two Curriculums are met: the Early Learning Goals and The National Curriculum. Below are the requirements.

Computing in EYFS

We believe that Computing and technology are still vitally important subjects to deliver to Reception and Nursery children. Not only will teaching a well-planned Computing curriculum ensure that children enter Year 1 with a strong foundation of knowledge, but Computing lessons in the EYFS also ensure that children develop listening skills, problem-solving abilities and thoughtful questioning — as well as improving subject skills across the seven areas of learning.

We live in a technological world and there is no escape from the reality that technology is integrated into the lives of young children. Just as we ensure the children in our care are ready for the adult world by teaching them maths and literacy, we should also make sure that they are fluent in computer literacy and all-important e-safety.

Our Computing scheme for the EYFS is centred around play-based, often unplugged (no computer) activities that focus on building children's listening skills, curiosity and creativity and problem solving.

Technology in the Early Years can mean:

- Taking a photograph with a camera or tablet
- Searching for pictures on the internet
- Playing games on the interactive whiteboard
- Operating mechanical toys
- Using a Beebot
- Watching a video clip
- Listening to music
- Using a remote control
- Making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images

Allowing children the opportunity to explore technology in this carefree and often child-led way, means that not only will they develop a familiarity with equipment and vocabulary, but they will have a strong start in Key Stage 1 Computing and all that it demands.

Computing in EYFS

Pupils should be taught to:

- Be confident to try new activities and show independence, resilience and perseverance in the face of challenge.
- Explain the reasons for rules, know right from wrong and try to behave accordingly.
- Safety use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Computing in KS1

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- create and debug simple programs
- use logical reasoning to predict the behaviour of simple programs
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school
- use technology safely and respectfully, keeping personal information private; identify where to go for help and support when they have concerns about content or contact on the internet or other online technologies.

Computing in KS2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output

- use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
- understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration
- use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content
- select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information
- use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

Record of pupils work

Pupils have their own individual folders on the school server as well as an online onedrive folder to store any work they have done. This tends to be mainly work that has been word-processed/published. In addition, the online learning platform 'SeeSaw' is a excellent way to record children's work in Computing.
Cross-curricular work may be printed off to put in children's books e.g. topic books, English books etc depending on the links.
Our Twitter feed also demonstrates our wide use of Technology from EYFS to Year 6.
Learning Books are used in EYFS.
During the Autumn term the use of 'Big Books' has been implemented to be used as an additional space to store evidence of children accessing the computing curriculum. Big books have allowed teachers to take photos of children working to stick into the book rather than showing evidence based on a finished product.

Assessment

Class teachers will use formative assessment information throughout the unit to adapt their teaching foci to meet the ever-changing needs of their class. As a school, we assess children at the end of each unit of learning. Assessment is based upon the objectives taught and children are assessed at emerging, expected or exceeding using the relevant objectives from the National Curriculum.

EYFS use formative ongoing assessments through observations surrounding the elements of The Early Learning Goals.

Cross curricular

Computing is rarely taught in isolation, although each class has a lesson designated to the teaching of the contents of the computing curriculum and covers the 3 strands.

At the start of every year, the children are expected to sign an acceptable user agreement from EYFS to Year 6. This ensures that right from the time children enter school, they are beginning to have an understanding of how to keep themselves safe online, build resilience if things go wrong, develop interpersonal skills by treating others with respect online and how to respect property. All classrooms have an E-safety poster displayed in their classroom to make reference to throughout the year.

Each year we run a safety week which incorporates educating the children surrounding E-safety. This aims to build upon the children's learning surrounding keeping safe online, the effects of prolonged screen time, promoting problem solving and building resilience around issues that may crop up online, developing interpersonal skills such as emotional intelligence particularly in relation to communicating with others.

E-safety is threaded through lessons throughout the year and is also addressed on a needs basis. For example, stressing the need to use technology appropriately, how to conduct safe and reliable searches and how to report inappropriate content.

Digital Literacy and Information Technology are taught frequently throughout other subjects. Children have frequent opportunities to use iPads and laptops to research information linked to topics and use programmes such as Word, Publisher and Powerpoint to publish and present work.

Other such ways children have covered the digital literacy and information technology strands of the Computing Curriculum:

Media is used to inspire and educate our children right across the school. For example, in Year 6, children have learnt about other Faiths through videos and had virtual tours around Synagogues and Mosques. This enables the children to experience how diverse our world is, building that respect for others who are different to us and creating an inclusive attitude.

Videos are often used in Literacy to inspire children to write creatively. Children in Key Stage One use videos to help with the sequencing of traditional tales.

Children in Year 6 used Imovie to record a story in groups before publishing it. Activities such as this contribute towards their interpersonal skills where the children need to negotiate, make decisions and communicate verbally and non-verbally.

Children across the year groups use Apps and online programmes to support and challenge their learning, enabling them to make progress and become successful in other subjects. Key Stage Two use Timestable Rockstars to compete with others to better their recall of timestables; Phonic Apps are used to enhance our phonics provision and support children who need extra help; Mathsframe, an online Maths programme, is used to consolidate and extend children's learning surrounding the different areas of the Maths curriculum; MathsBot, an online programme to support Y6 with arithmetic questions as they prepare for their SATs. Year 6 use the LBQ (Learning by Questions) programme to enhance their learning. The children have access to a range of questions suited to their topics in order to consolidate or extend learning, depending on their needs. The programme gives on the spot feedback to allow children to work independently.

Across the year groups, children learn how to produce graphs in Maths and Science, collecting data and subsequently presenting it.

Year 3 have used branching trees to sort and organise information.

The Computer Science strand of the Computing Curriculum gives the children the chance to problem solve, make decisions, persevere when things go wrong, think creatively, achieve a set goal and challenge themselves. Such as; sequencing and following instructions are taught through other areas of the curriculum such as story sequencing and writing instructions in English, lifecycles in Science and timelines in History.

Enrichment

Each year we run a safety week which incorporates E-safety day.
Children have the opportunity to use the iPads in all our enrichment opportunities across the course of the year e.g. research during Science Week.

Home school links

SeeSaw is a platform we use (implemented during school lockdowns during the Covid pandemic). It is a fantastic platform whereby children can access work set by their class teachers online. They can complete this work using built-in multimodal tools to capture what they know in their digital portfolio. Teachers can access each child's portfolio to see all stages of the students thinking and progress. In addition, families gain a window into their child's learning and engage in home-to-school connections.

Timestable Rockstars is an online Maths programme, focusing on the recall of timestables. Key Stage Two Children have their own login which enables them to play at home.

We have an E-safety page on our website, sharing a wealth of information with parents/carers on how to keep their children safe online at home. We often post E-Safety updates on our Twitter feed too.

As a school, we are extremely proactive in relation to E-Safety and work well with our parents. Our parents know that they can come to us with any E-Safety issue and we will endeavour to support them where possible e.g. information surrounding use of Apps at home, children accessing inappropriate content at home and issues surrounding online bullying etc.
We have policies in place to protect children surrounding E-Safety and this extends to home. E-Safeguarding is part of our Safeguarding at Barkisland. Parents have copies of these policies at the beginning of every year and there is also a copy online.

Our website sets out our Computing Curriculum, and termly class newsletters give parents more detail about what their child will be covering.