The Dingle Primary School - Computing Subject Summary

Although formal teaching of Computing doesn't begin until year 1, when children start in Reception they are introduced to many computing concepts and equipment. The classrooms are resourced with programmable toys such as bee bots and a range of computer equipment such as laptops, netbooks and iPads. Through continuous provision they are able to independently access and explore the resources available.

In key stage 1 (years 1&2) children are introduced to a computing curriculum that is practical, creative and knowledge-rich. Computing has deep links with mathematics, science, and design and technology, and provides insights into both natural and artificial systems. The core of computing is computer science, in which pupils are taught the principles of information and computation, how digital systems work, and how to put this knowledge to use through programming.

Children in key stage 1 will learn to:

- ✓ **understand what algorithms are** – children will learn that algorithms are a set of rules or instructions that need to be followed in order
- ✓ **create and debug simple programs** – children will learn that a bug in a computer program is a defect; something that prevents the program from working correctly. At The Dingle we use coding programs such as Scratch.
- ✓ **use technology purposefully to create, organise, store, manipulate and retrieve digital content** – children will be introduced to word processing programmes such as Microsoft Word.
- ✓ **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.** Both key stage 1 and key stage 2 children will be taught explicitly about being responsible online citizens, digital friends and that they are responsible for their online actions.

In key stage 2 (year 3,4,5&6) children build on this knowledge and understanding. Pupils are equipped to use information technology to create programs, systems and a range of content. Computing also ensures that pupils become digitally literate so they are able to use, and express themselves and develop their ideas at a level suitable for the future workplace and as active participants in a digital world.

Children in key stage 2 will learn to:

- ✓ **design, write and debug programs**
- ✓ **use sequence, selection, and repetition in programs; work with variables and various forms of input and output** – children will build upon prior learning and will use bee bots to demonstrate their level of understanding. An input is a device allowing the user to enter data into a computer to complete a task e.g. mouse, keyboard, scanner. An output, or an output device, is a device connected to the computer used to transfer data back to the user e.g. speakers, headphones, computer.

- ✓ **use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs – as children will have already learned** algorithms are an important part of creating computer programmes but they also figure in many other areas. A cooking recipe is a good example. The recipe sets out the ingredients needed, their quantities, the steps to assemble the ingredients and the way they need to be cooked.
- ✓ **understand computer networks including the internet –** children will be introduced to the basic network systems and how they work in practice e.g. the internet. They will also be introduced to more complex systems such as IP address and how all networks are linked.
- ✓ **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 on a range of digital devices to design and create a range of programs, including collecting, analysing, evaluating and presenting data and information** – children will have the opportunity to work on a range of devices such as laptops, netbooks, iPads, cameras for example. They will also be introduced to a range of software programs like Microsoft Word, Excel and PowerPoint.
- ✓ **use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact**

In this 21st century there is almost no job that exists that does not use some type of computer technology, and therefore it is advisable to ensure our pupils have computer skills. Another benefit of introducing computer skills to children early is that it helps in building their confidence and creativity. This helps children to think outside the box and be in a position to come up with new solutions.

We expect the knowledge that we teach and the children learn will prepare them for their future learning at High School and be useful in their future lives when making sense of the world and becoming responsible digital citizens.

Key vocabulary

Algorithm is a set of instructions that we complete in order to achieve a task.

Binary is the language computers use. It is a series of 1s and 0s and is also used in mathematics

Coding is putting information and commands into a program, making it possible for u to create software, apps and websites

Computational logic is a term that describes the decision-making progress used in programming and writing algorithms

Computer Program is a collection of instructions or algorithms designed to simplify processes

Debugging is checking the code in a computer program to ensure it works, and changing it if it doesn't

Hardware is the physical part of a computer

Networks are when computers are linked within a building or area

Software is created using a programming language and is the non-physical part of a computer.