



# St. Bernadette's Catholic Primary School

## *Growing Together in Faith, Love and Learning.*

Engagement, excitement and enrichment lie at the heart of our curriculum. In recognising the unique gift that is each child in our school family, we aim to provide a rich curriculum that is firmly rooted in the gospel values. The spiritual aspect of awe and wonder drives our creative curriculum, providing exciting, engaging opportunities and experiences to further enhance the statutory curriculum and fuel a passion for learning and a love of the world in which we live.

High quality teaching is that which is differentiated and personalised to meet the needs of the majority of children and young people. Some children and young people need something additional to or different from what is provided for the majority of children; this is special educational provision. We, the family of St Bernadette's, endeavour to ensure that effective provision is made for all those who need it. More details are available on the school website under the SEN school offer.

## POLICY FOR COMPUTING

'Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21<sup>st</sup> century, basic computer programming is an essential skill to learn'  
Stephen Hawking

### The importance of Computing

***A high-quality computing education equips pupils to use computational thinking and creativity to understand and change the world.*** 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. Building 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 – 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.

(DfE National Curriculum 2013)

*Computing draws together the strands of computer science, information technology and digital literacy... Through the programme of study for computing, primary school-aged children learn the fundamental principles and processes of computation; they gain repeated, practical experience of writing code to solve problems and to model systems; they also become skilled at creating high quality products and content using digital technology; and they become safe, responsible and critical users of technology.*

(QuickStart Computing 2015)

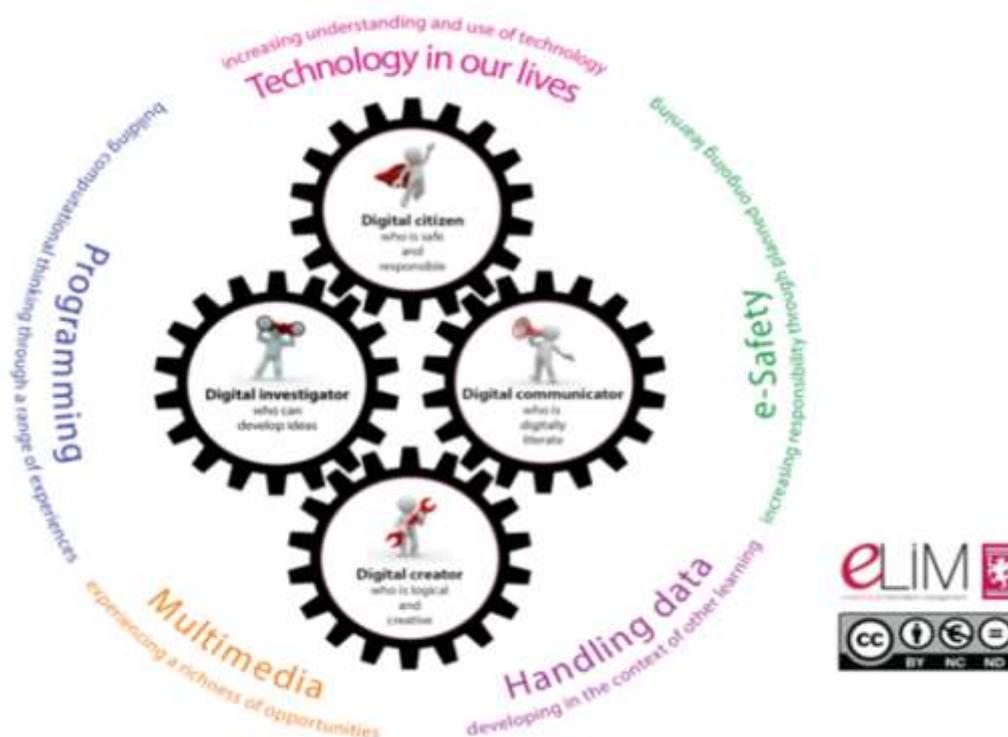
## Aims and purposes

We believe that an engaging and motivating Computing curriculum will enable our pupils to:

- Use computational thinking and creativity to understand and change the world.
- Make deep links with mathematics, science and design and technology.
- Understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- Analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems.
- Evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- Be responsible, competent, confident and creative users of information and communication technology; becoming digitally literate.

**We aim for our children to become Digital Citizens, Investigators, Communicators & Creators.**

Five areas of learning have been identified from the KS1 and KS2 Computing Programme of Study.



We expect our pupils to:

- Develop computing skills, knowledge and understanding
- Develop an understanding of the wider applications of computer systems and communication technology in society
- Develop independent and logical thinking through reasoning, decision making and problem solving
- Develop imagination and creativity
- Work independently and collaboratively

## We put Computational Thinking right at the heart of our ambition.

*Computational thinking describes the processes and approaches we draw on when thinking about problems or systems in such a way that a computer can help with these...*

*Computational thinking is about looking at a problem in a way that a computer can help us to solve it.*  
(QuickStart Computing 2015)

**When our children do computational thinking, we teach them to develop & use the following processes to tackle a problem:**



We will provide opportunities for:

- Communication and collaboration to develop understanding of the purposes for using technology and these are used to bring together home and school learning experiences.
- Technology to be used imaginatively to engage all learners and widen their learning opportunities,
- Pupils to have access to a variety of devices and resources and are encouraged to reflect on the choices they make to use them.

**The content of the school curriculum aims:-**

**To ensure all pupils in the EYFS:**

*Recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.*

(The Early Learning Goal from the 'Technology' strand in the 'Understanding the World' area of learning) Early Years Outcomes 2013

ICT is 'information and communications technology'. The term simply means all the technology around us, things like mobile phones, computers, video recorders, CD and DVD players, and digital cameras. ICT describes children learning about different technologies within their setting and school.

Early Education, Learning Together 2018

### **Laying the Foundations for Computing in the Early Years**

The EYFS provides a foundation for computational thinking. Although, *'computing may not be part of the EYFS Statutory Framework, but there is much that goes on in the EYFS that provides a foundation for computational thinking – the golden thread that runs through Computing in the National Curriculum'*.

This is about helping children to understand their place & make sense of the technological world they live in. We need to plant the seeds *'for their understanding of the implications of technology in their lives and society. This is the start of 'digital literacy' and it extends into Key Stage 1, where children are taught to 'recognise common uses of information technology beyond school'*.

*'Early Years practitioners provide a rich environment (indoors & outdoors) in which children can build up an understanding of the world through play. They help children to be curious about technology in real world contexts. Through roleplay and natural discussions like these the children make sense of their world...we can set children off on the right foot to develop computational thinking and creativity.'*

**The technology early learning goal states that children should 'select and use technology for particular purposes'.** We aim to ensure that our children experience a wide range of digital technologies that they can use playfully and collaboratively, and also providing them with new ways to communicate and share their ideas. ***Note the reference here to 'select' – it's not enough for children to use the tech they're given: they've got to have some say in what they use.***

**The Statutory Framework expects practitioners to consider how children learn and develop in relation to three 'characteristics of effective learning':**

1. **Playing and Exploring** – investigate, experience things, and 'have a go';
2. **Active Learning** – concentrate, keep on trying if encountering difficulties, and enjoy achievements; and
3. **Creating and Thinking Critically** – have their own ideas, make links between them, and develop strategies for doing things.

*'There are very close connections here with the 'approaches' to computational thinking that Barefoot Computing uses. Playing and exploring links closely with tinkering and collaborating, as well as abstraction. Active learning is tied to debugging and persevering. Creating and thinking critically connects with Barefoot's creating, as well as back to the concepts of logical reasoning and algorithms'.*

### **Thus we:**

- Provide open ended activities that encourage children to use all their senses to observe, discover and engage with the world.
- Encourage them to tinker, play and explore.
- Opportunities to take things apart, to build and make models help children to be creative.
- Get children to do a jigsaw, recreate a pattern or draw a picture can all encourage them to debug.
- Provide activities that require longer periods of engagement, concentration and perseverance.
- Develop collaboration skills through sharing books and toys, playing with puppets or taking part in a nativity play etc.

**The non-statutory guidance in Development Matters gives examples of how these characteristics of effective learning develop, and how these link directly with the notion of computational thinking.**

The early stages of **logical reasoning** will draw on 'making predictions' – getting a child to say what will happen if they do or change something, as well as 'developing ideas of cause and effect' – can they link their actions to the effects they produce, on screen or off?

**Abstraction:** representative play captures the essence of a thing, putting to one side much of the detail: children 'pretend objects are things from experience' and 'represent experiences as play'.

**Debugging,** is common in Early Years with children 'learning by trial and error' and 'persisting with activities when challenges occur'.

Berry & Corbel, Laying the foundations for computing in the early years – An open mind, 2016

### **To ensure all pupils in Key Stage 1:**

- 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.

### **To ensure all pupils in Key Stage 2:**

- 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.

### **Curriculum coverage and progression:**

- Planning for Computing is implemented using two core documents: the National Curriculum Programme of Study for Computing and the Statutory Framework for Early Years Foundation Stage
- Our Long term planning demonstrates coverage and progression of the attainment expectations at the end of Key Stage 1 and Key Stage 2 as identified in the Computing POS.
- Medium term planning takes account of differentiation and progression.
- Exemplification planning (by Barefoot, Computing at School) are used to support short term planning.
- Opportunities for technology as a tool to support learning and teaching in all areas are identified in curriculum planning.

### **Online safety:**

- Our e-safety Long Term Planner ensures progression and coverage, ensuring that all pupils are able to develop skills to keep them safe online.
- Opportunities for learning about online safety are part of PSHE and reinforced whenever technology is used.

- Clear rules for online safety are agreed by each class at the beginning of every year. Parents and pupils sign a Parental consent form & Acceptable user policy at the start of each new academic year. The class rules are then signed annually by pupils and shared with parents.
- The school supports the international Safer Internet Day each February and provides opportunities for pupils to consider cyberbullying as part of Anti-Bullying week in the autumn term.
- Opportunities are taken whenever possible to reinforce messages of a healthy life style.
- The school has an online safety policy in place that details how the principles of online safety will be promoted and monitored.

### **Assessment**

- Progress is assessed on an on-going basis using our Long Term Planner statements for each thread of Computing. This ensures teachers are aware of individual pupil's progress in computer science, information technology and digital literacy.
- Formative assessment is used by the class teacher and teaching assistant during whole class or group teaching. Children's confidence and difficulties are observed and use to inform future planning.
- Each class teacher maintains a record, indicating pupils that are working beyond or below age-expected attainment. This is passed on to the next class teacher.
- Open questions are used to challenge children's thinking and learning.
- Children are encouraged to evaluate their own and others' work in a positive and supportive environment, including peer assessment.
- Teacher's judgments are supported through an electronic portfolio of evidence which provides examples of age-expected attainment.
- Information is shared with the school community through the school website, display, celebration events, newsletters, and end of year reports.

### **Organisation**

St. Bernadette's Computing curriculum focuses on Computer Science, Information Technology & Digital Literacy. E-Safety is integrated into all lessons. Computing is organised through the school-wide creative curriculum. The content is allocated to specific year groups to ensure a broad, balanced and chronological delivery across the school. Opportunities for technology as a tool to support learning and teaching in all areas are identified in curriculum planning.

### **Homework**

Computing' skills are integrated into homework given in KS2 and is led by the children's interests and creativity. It takes the form of 'Learning Logs' which offer a choice of activities based around the curriculum driver. The children may wish to use their Computing skills to present their work. This work is showcased at half termly celebration events involving both children and their parents where learning is truly valued.

### **Health and safety**

This is paramount when planning & teaching Computing and the school's health and safety policy, Parental Consent, E-Safety & ICT Acceptable Usage Agreement, Social Media Policy and guidance for educational visits are referred to as good practice.

#### **We ensure that:**

- E-Safety is embedded within every lesson taught.
- Age appropriate class and safety rules are displayed in the learning environment.
- Equipment is maintained to meet agreed safety standards.
- From Foundation Stage, pupils are taught to respect and care for technology equipment.

**This policy was reviewed in September 2018 by I. Li.**

**It will be reviewed again in 3 years, in 2021.**

**Signatory:**

**Date:**