



Computing

Curriculum Rationale

With technology playing such a significant role in society today, we believe computing is an essential skill children must be taught if they are to be able to participate effectively and safely in our digital world. Children are already immersed in a programmed world and will have experienced a vast range of technology before they even attend school.

At Our Lady of Lourdes Catholic Primary School, we understand the immense value that technology plays, not only in supporting the Computing and whole school curriculum, but overall in the day-to-day life of our school and beyond.

Technology can be utilised widely in a child's education. '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.' (DfE)

Having an understanding of computing '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.'

Our children should leave primary education with an ability to understand and adapt their knowledge to new technology and to be able to use it sensibly and efficiently to enable them to progress in all areas, knowing that "I can do great things with God's love". At Our Lady of Lourdes, children experience 6 half-terms of computing each year, this allows them sufficient time to become fluent in their knowledge and skills and embed revisited knowledge throughout the year.

Our aims are to fulfil the requirements of the National Curriculum for Computing whilst also providing enhanced collaborative learning opportunities, engagement in rich content and supporting pupil's conceptual understanding of new concepts which support the needs of all our pupils.

The computing curriculum has been created with the support of Bolton School's ICT Service, and Purple Mash to be broad and ambitious. This enables children to become effective users of technology who understand and apply the essential principles and concepts of Computer Science, communicate ideas well by utilising technology and devices throughout all areas of the curriculum.

Intent

Technology is changing the lives of everyone. Through teaching computing, we equip our children to participate in a rapidly changing world where work and leisure activities are increasingly transformed by technology. It is our intention to enable children to find, explore, analyse, exchange and present information. We also focus on developing the skills necessary for children to be able to use information in an effective and safe way. Computing skills are a major factor in enabling children to be confident, creative and independent learners and it is our intention that children have every opportunity available to allow them to achieve this through the three strands of information technology, computing science and digital literacy.

The three strands of our curriculum ensure that a clear focus is also placed on the importance of being a respectful Digital Citizen and understand their rights and responsibilities in this area. Emphasis is directed towards making

children's experiences in this area both real world and practical. We use the "Education for a Connected World" document with 'Project Evolve' and 'Purple Mash' programmes to ensure that we have well-balanced and far reaching discussions and activities that reflect and respond to the quickly changing issues that children are regularly facing through technology. In this way, we are confident that children are given the cultural capital needed to be exceptionally well prepared to lead happy and rewarding lives.

The Digital Literacy and Information Technology strands of our Computing Curriculum ensure that children develop a strong core set of key skills as well as to inspire in pupils a fascination about technology and the world in which they live. This can give rise to the drive of aspiration in our children and their families. Armed with this growing understanding of what technology is and how it works, pupils progress through their school life deepening their understanding of the interaction between physical and computational processes, and of the development and use of technology.

Our Computing curriculum aims to develop the heart and mind of every child and to teach each and every child how to be Computational thinkers. As a result, our children learn how to remove barriers for themselves and develop into problem solvers who are both resilient and confident in their knowledge and understanding. To allow for this we follow a clear and precise Computer Science path of progression which includes crucial key vocabulary that children build on every year to develop their own understanding and creative thinking skills. They do this with their class Computing book, which they can add to and refer back to throughout their learning.

Computing teaching at Our Lady of Lourdes has links with mathematics, science and design and technology and our aim is to provide a broad and balanced curriculum whilst ensuring that pupils become digitally literate and digitally resilient. Technology is ever evolving and we aim to develop pupils who can use and express themselves, develop their ideas through, information and communication technology at a suitable level for the future workplace and as active participants in a digital world.

The aims of our Computing curriculum are to develop pupils who:

- Are responsible, competent, confident and creative users of information and communication technology.
- Know how to keep themselves safe whilst using technology and on the internet and be able to minimise risk to themselves and others.
- Become responsible, respectful and competent users of data, information and communication technology.
- Can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems.
- Can analyse problems in computational terms, and have repeated practical experience writing computer programs in order to solve such problems.
- Can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation.
- Become digitally literate and are active participants in a digital world.
- Are equipped with the capability to use technology throughout their lives.
- Understand the importance of governance and legislation regarding how information is used, stored, created, retrieved, shared and manipulated.
- Have a 'can do' attitude when engaging with technology and its associated resources.
- Utilise computational thinking beyond the Computing curriculum.
- Understand and follow the SMART E-Safety rules.
- Understand the E-Safety messages can keep them safe online.
- Know who to contact if they have concerns.
- Apply their learning in a range of contexts, e.g. at school and at home.

Implementation:

To ensure high standards of teaching and learning in computing, we implement a curriculum that is progressive throughout the whole school. Our implementation of the computing curriculum is in line with 2014 Primary National Curriculum requirements for KS1 and KS2 and the Foundation Stage Curriculum in England. This provides a broad framework and outlines the knowledge and skills taught in each key stage.

We aim to enable all children to achieve to their full potential. This includes children of all abilities, social and cultural backgrounds, those with SEND and EAL speakers. We place particular emphasis on the flexibility technology brings to allowing pupils to access learning opportunities.

Computing teaching will deliver these requirements through our half-termly units. Our Computing progression model is broken down into three strands that make up the computing curriculum. These are Computer Science, Information Technology and Digital Literacy. Computer Science underlines the knowledge and skills relating to programming, coding, algorithms, and computational thinking. Information Technology underlines the knowledge and skills relating to communication, multimedia and data representation and handling. Digital Literacy underlines the knowledge and skills relating to online safety and technology uses all of which are covered whether combined or discreetly.

We aim to provide children to an enriching, diverse and creative curriculum that balances all the aspects of computing. As such, we follow Purple Mash schemes of work, which covers all the requirements of the Computing national curriculum in a way that's intended to develop pupils' understanding of the concepts, practices and perspectives that underpin programming and other aspects of computer science. Furthermore, Purple Mash provides ample opportunity for creative and collaborative project work in which pupils can acquire the information technology skills they'll need. Purple Mash also helps pupils to understand the implications of technology for individuals and society as they become digitally literate.

We use and follow the Purple Mash scheme of work from EYFS-6, ensuring consistency and progression throughout the school, with EYFS utilising the 'Mini Mash' area of Purple Mash, specifically designed for children in the 'Early Years'.

We recognise that computing is a specialist subject and not all teachers are computing specialists. Computing lessons are taught by our teaching staff. The Purple Mash scheme of work enables clear coverage of the computing curriculum whilst also providing support and CPD for less confident teachers to deliver lessons.

Lessons are broken down into weekly units, usually with two units taught per half-term. Units are practical and engaging and allow computing lessons to be hands on. Units cover a broad range of computing components such as coding, spreadsheets, Internet and Email, Databases, Communication networks, touch typing, animation and online safety.

When teaching computing teachers can follow the children's interests to ensure their learning is engaging, broad and balanced. Teachers should ensure that ICT and computing capability is also achieved through core and foundation subjects and where appropriate and necessary ICT and computing should be incorporated into work for all subjects using our wide range of interactive ICT resources.

Through our Purple Mash subscription our teachers can deliver thematic, cross curricular lessons that also follow children's interests and provide flexibility. Purple Mash has an online portal of age-appropriate software, games and activities as well as topic materials and materials to support children's learning in other subject areas for all key stages.

Computing lessons will also use the Purple Mash software to 'make music' using the 2Sequence program, design and make using the 2Animate software and make links with maths through spreadsheets using 2Calculate.

Computing teaching is practical and engaging and a variety of teaching approaches and activities are provided based on teacher judgement and pupil ability. We have a wide range of resources to support our computing teaching. Pupils may use laptops or iPads independently, in pairs, or in a group with the teacher. Teachers and pupils are also aware of the importance of health and safety and pupils are always supervised when using technology and accessing the internet.

Our pupils are fully encouraged to engage with technology outside of school. Each teacher and pupil at has their own unique Purple Mash login and password. Computing work can be stored and saved using pupil log in details and homework or '2do's' can also be set for pupils to access and complete tasks at home that link with their current class learning.

We provide a variety of opportunities for computing learning inside and outside the classroom. Computing and safeguarding go hand in hand and we provide a huge focus on internet safety inside and outside of the classroom. Additional to all pupils studying an online safety unit through their computing lessons, every year we also take part in National Safer Internet Day in February and have Project Evolve programme to supplement wherever required, which is linked to each strand in the "Education for a Connected World" framework. The Computing co-ordinator alongside class teachers can plan additional internet safety lessons and activities to take part in. Internet Safety assemblies are also held as well as parent internet safety workshops and parent home activities.

Subject Content

EYFS

Nursery:

- PSED – Remember rules without needing an adult to remind them
- PD – Match their developing physical skills to tasks and activities in the setting
- UW – Explore how things work

Reception:

- PSED – Show resilience and perseverance in the face of a challenge, know and talk about the different factors that support their overall health and wellbeing, sensible amounts of 'screen time'
- PD – Develop their small motor skills so that they can use a range of tools competently, safely and confidently,
- EAD – Explore, use and refine a variety of artistic effects to express their ideas and feelings

Key stage 1

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.

Key stage 2

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.

Impact:

Our Computing Curriculum is high quality, well thought out and is planned to demonstrate progression and build on and embed current skills. We focus on progression of knowledge and skills in the different computational components and alike other subjects discreet vocabulary progression also form part of the units of work. If children are keeping up with the curriculum, they are deemed to be making good or better progress.

We measure the impact of our curriculum through the following methods:

- Pupil discussions and interviewing the pupils about their learning (pupil voice).
- Opportunities for dialogue between teachers.
- Photo evidence and images of the pupils practical learning.
- Big Book
- A reflection on standards achieved against the planned outcomes.
- Learning walks and reflective staff feedback (teacher voice).
- Dedicated Computing leader time.
- Computing CPD and regular updates.
- Monitoring of children's work.

Computing Curriculum Overview 2023-2024

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	PSED – Remember rules without needing an adult to remind them PD – Match their developing physical skills to tasks and activities in the setting UW – Explore how things work					
Reception	PSED – Show resilience and perseverance in the face of a challenge, know and talk about the different factors that support their overall health and wellbeing, sensible amounts of ‘screen time’ PD – Develop their small motor skills so that they can use a range of tools competently, safely and confidently, EAD – Explore, use and refine a variety of artistic effects to express their ideas and feelings					
Year 1	Online Safety	Pictograms Grouping and Sorting	Lego Builders Maze Explorers	Animated Storybooks	Coding	Spreadsheets Tech outside school
Year 2	Coding	Spreadsheets	Questioning	Making Music	Creating pictures	Presenting ideas
Year 3	Revise how to log on etc with TTRS, Activelearn, Purple Mash. Coding (Purple Mash)	Online Safety (Purple Mash, Project Evolve Ten:Ten) Spreadsheets (Purple Mash)	Typing (Purple Mash) Email (Purple Mash)	Branching Databases (Purple Mash)	Simulations (Purple Mash)	Graphing (Purple Mash) Presenting (Purple Mash and Powerpoint)
Year 4	Coding (Purple Mash)	*Online Safety Spreadsheets (Purple Mash)	Writing for different audiences (Purple Mash)	Logo (Purple Mash)	2Animate (Purple Mash)	Effective searching Hardware investigators (Purple Mash)
Year 5	Online Safety (Purple Mash, Project Evolve) Game Creators (Purple Mash)	Online Safety (Purple Mash, Project Evolve) 3D Modelling (Purple Mash, Publisher)	Spreadsheets (Purple Mash)	Coding (Purple Mash, Micro:Bit)	Databases (Purple Mash)	Concept Maps (Purple Mash) Word Processing (Purple Mash, Word)
Year 6	Online Safety <i>Purple Mash</i> Spreadsheets <i>Purple Mash</i>	Spreadsheets <i>Purple Mash</i>	Blogging <i>Purple Mash</i>	Quizzing Purple Mash	Text Adventures Purple Mash	Networks Purple Mash