Our Lady and St Hubert's Catholic Primary School
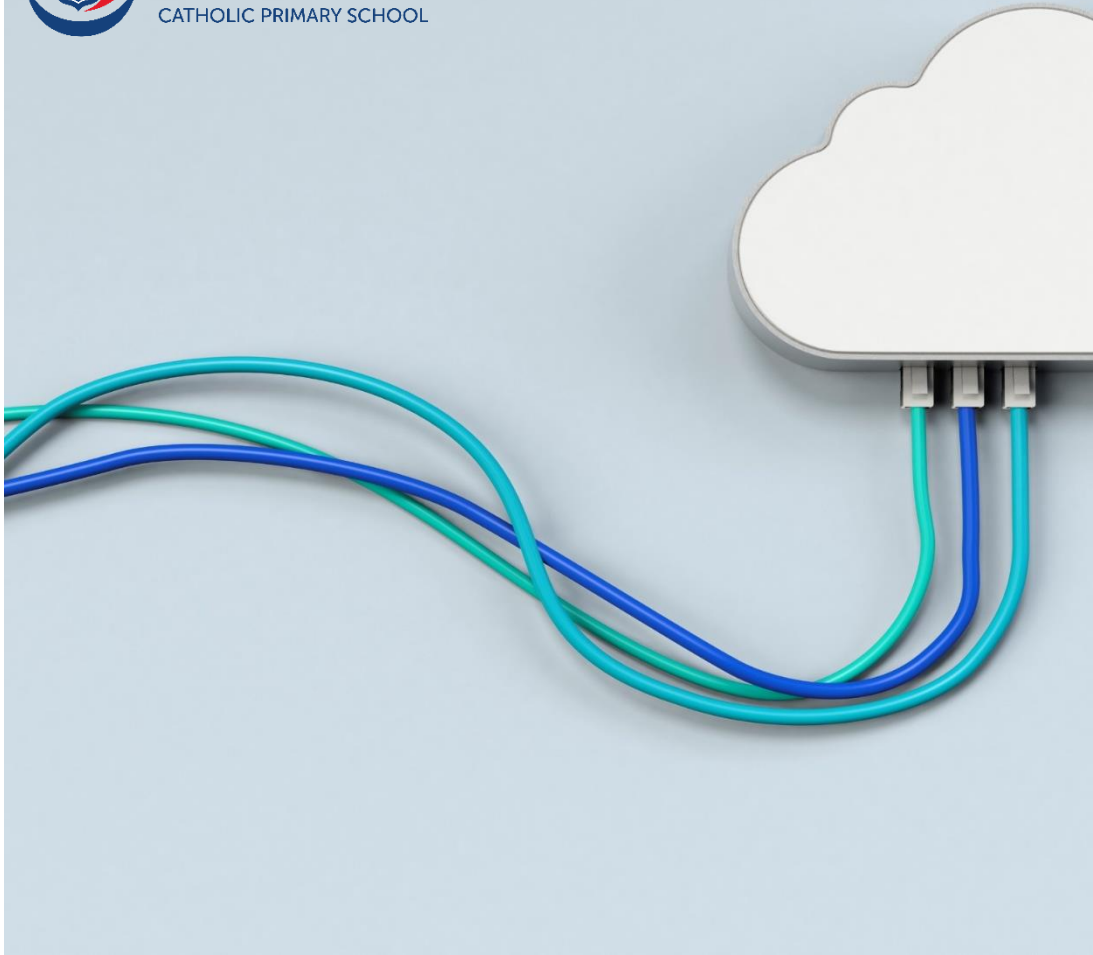
Computing

Guidance and Procedures

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Intent

At Our Lady and St Hubert's we want pupils to be masters of technology and not slaves to it. Technology is everywhere and will play a pivotal part in students' lives. Therefore, we want to model and educate our pupils on how to use technology positively, responsibly and safely. We want our pupils to be creators not consumers and our broad curriculum encompassing computer science, information technology and digital literacy reflects this. We want our pupils to understand that there is always a choice with using technology and as a school we utilise technology to model positive use. We recognise that the best prevention for a lot of issues we currently see with technology/social media is through education. Building our knowledge in this subject will allow pupils to effectively demonstrate their learning through creative use of technology We recognise that technology can allow pupils to share their learning in creative ways. We also understand the accessibility opportunities technology can provide for our pupils. Our knowledge rich curriculum has to be balanced with the opportunity for pupils to apply their knowledge creatively which will in turn help our pupils become skilful computer scientists. We encourage staff to try and embed computing across the whole curriculum to make learning creative and accessible. We want our pupils to be fluent with a range of tools to best express their understanding and by Upper Key Stage 2, children have the independence and confidence to choose the best tool to fulfil the task and challenge set by teachers.

Implementation

Our knowledge progression for computing is ambitious. We recognise that to achieve our intent for computing, this intent must be implemented using current academic research – often in cognitive science. The three strands of the *Computing National Curriculum* (Information Technology, Computer Science and Digital Literacy) have been broken down further into smaller 'golden strands' in which key knowledge has been identified and therefore taught in each year group. To develop a rich and varied schema in our children's brains, our progression has been developed so that learning is sequential, allowing knowledge and skills to be built upon. Key learning objectives are delivered to pupils in small steps, avoiding *cognitive overload* – allowing knowledge to enter long-term memory more readily – therefore allowing all children to know more and remember more. We also recognise that over time, this knowledge can be lost – best shown by *'The Ebbinghaus Curve'* and therefore it is important to continually review and retrieve this knowledge. Our curriculum is structured to allow for *spaced learning* and continual retrieval of taught information. Teachers actively plan for this within both their medium- and short-term planning. This process also develops fluency in computing. When children move from a process of decoding to being fluent, a greater depth of understanding can be developed of the concepts taught.

For the reasons identified above, we teach computing on a regular basis. We know that children engage more- and retain more- when they can make connections and links between their learning, so teachers will ensure that, where appropriate, the context of computing lessons will be linked to the half termly theme – *interleaving* that also develops schema. However, as previously mentioned, we also recognise that knowledge diminishes over time *(Ebbinghaus Curve)* and that some subjects or knowledge within subjects, does not fit into our themes. When this is the case in computing, computing will be taught in different ways. There may be stand-alone units of work - we recognise that not all of the National Curriculum will fit into our overall thematic progression and some knowledge has to be taught on its own – a 'unit' of computing work may be taught, resulting in a final outcome, such as a 'scratch' game. Computing objectives may also be explored alongside other areas of the curriculum - for example,

children may create presentations (including aspects such as voice overs and animations) to demonstrate their understanding in geography or science.

We may also revisit previously taught knowledge and skills, checking for understanding and knowledge retention through individual lessons or practising previously taught skills – once again *interleaving* knowledge. *Interleaving* is a **method of teaching where students learn concepts in different ways at different times**. Each half term, children will use what they have learnt across the curriculum (not just in computing) and apply it to **their** real world, helping to deepen their understanding. This will often be directed by the children and focus on a key issue/area that they have studied and want to further their learning. Through this process, children will harness the skills that they have learnt to help them solve problems and communicate these solutions to others.

Underpinning our lessons will be our 6Cs - *'21st Century skills for effective learning'*, which will help to shape the lessons planned by our teachers, building on skills such as; communication, resilience, collaboration, critical thinking, creative problem solving and living as an active global citizen – all skills that can be demonstrated through our computing progression.

It is fundamentally important that children are educated to understand that the digital world in which they live, can open so many avenues in terms of their futures – it is so powerful. However, there are many risks to safety and security online. It is often not the internet and the things that we access that are dangerous – it is how we use it. At Our Lady and St Huberts, *digital literacy* has to be more than just one day in February (safer internet day), it has to become part of our children's understanding beyond this day - it has to be part of their everyday lives. Our *digital literacy* progression is broken down into the following areas: Self-image and identity; online relationships; online reputation; online bullying; managing online information; health, wellbeing and lifestyle; privacy and security; and copyright and ownership – in line with *'Education for a Connected World'*. Content will be delivered on a regular basis in not only computing lessons, but across the curriculum in order for our children to access content that empowers them for their future but in a way that lessens any potential negative impact.

Teachers will use a range of strategies depending on the learning objective they are teaching; lessons underpinned by the principles outlined by Rosenshine – where questioning, modelling and sequencing are fundamentally important. Teacher will plan activities that are completed as individuals; as pairs or as collaborative group work. Teachers will also use a range of devices that suit the objective they are covering – from handheld devices, to laptops and on desktop computers.

Impact

Students will become confident users of technology, understanding how digital tools can empower them to work more effectively. They will be able to select and combine applications to help them realise their creative visions.

Students will be able to solve real-world problems by thinking about problems logically and designing, realising and testing solutions to these.

They will be able to navigate confidently online, knowing how to find and scrutinise information, share and collaborate, and protect themselves and others. Finding the right balance with technology is key to an effective education and a healthy life-style. We feel the way we implement computing helps

children realise the need for the right balance and one they can continue to build on in their next stage of education and beyond. We encourage regular discussions between staff and pupils to best embed and understand this.

Expectations in Computing

Please see *'Year Group Progressions'* for a detailed outline for the expectations in each academic year.

Role of the Subject Leader

The Computing Leader will provide vision and guidance for the school on the teaching of Computing. They will be responsible for curriculum design and overseeing delivery. They will provide guidance regarding planning, teaching and assessing the subject and organise CPD where necessary. They will monitor curriculum coverage and teaching of the subject, assessment and analyse attainment data in order to continually review and improve the curriculum and its delivery. They will develop wider opportunities and promote the subject within the school community. They will liaise with all stakeholders in order to ensure Computing at Our Lady and Saint Hubert's fulfils the intent set out in this guidance document.

Curriculum planning

Long-term curriculum overview should be used to determine when to teach units. The curriculum overview provides all objectives that need to be covered by each year group, broken down into the strands of Information Technology, Digital Literacy and Computer Science. Coverage of these objectives guarantees coverage of The National Curriculum. The *'Computing Knowledge Progression'* document provides guidance on how knowledge is broken down into *'golden threads'*. This knowledge is progressive and is built upon during children's time in school. Year group progression documents outline the knowledge taught in each year group and when and how this is achieved in the year. For some areas, units of work will be planned by teachers leading to the formation of short-term planning documents. However, 'tinkering sessions' where children explore computing objectives alongside other areas of the curriculum, may not require formal computing plan.

The 6Cs and Computing

To succeed in the 21st century we understand that the children need to be taught, and have time to develop, a different set of skills that is often not catered for in the National Curriculum. We have adapted our curriculum to centre around the 6Cs of 21st Century learning, which are; creativity, character, citizenship, critical thinking, collaboration and communication. We are teaching children to persevere and have that grit and tenacity not to give up; supporting children to welcome failures, not as set backs, but opportunities to learn; we are encouraging them to think critically and challenge the world around them- and then play an active role within it. By teaching these skills, we believe that we are providing children with a more rounded school experience, focused on their lives and the world they live in. These skills are as important in computing and the following is examples of where the 6Cs can be applied in Computing:

Character: Children will develop perseverance and resilience, solving real-world problems.

Critical thinking: Children will use the processes of Computational thinking to logically analyse and solve real-world problems. They will learn to evaluate the reliability of information they find online and analyse it critically.

Creativity: Children will be given lots of opportunities to identify problems, and then have chance to design and make programs and digital artefacts that solve them, incorporating various their knowledge of algorithms and programming.

Communication: Children will use IT to present and communicate their learning. They will use internet technologies to communicate, adapting their modes of communication appropriately.

Collaboration: Children will work collaboratively to solve problems and design digital artefacts. They will make use of communications technologies to collaborate more effectively.

Citizenship: Children will learn to use technology safely and responsibly. They will use technology to learn about issues affecting their community and the wider world. They will design technological solutions to real-world problems.

The 6Cs and Computing

How our 6Cs will be evident through our computing curriculum

Character	Citizenship	Communication
Children will develop perseverance and resilience, solving real-world problems and debugging their solutions.	Children will learn to use technology safely and responsibly. They will use technology to learn about issues affecting their community and the wider world. They will design technological solutions to real-world problems.	Children will use IT to present and communicate their learning. They will use internet technologies to communicate, adapting their modes of communication appropriately.
Collaboration	Creativity	Critical thinking
Children will work collaboratively to solve problems and design digital artefacts. They will make use of communications technologies to collaborate more effectively.	Children will be given lots of opportunities to identify problems, and then have chance to design and make programs and digital artefacts that solve them, incorporating their knowledge of algorithms and programming.	Children will use the processes of Computational thinking to logically analyse and solve real-world problems. They will learn to evaluate the reliability of information they find online and analyse it critically.

Digital Literacy

Today's children and young people are growing up in a digital world. As they grow older, it is crucial that they learn to balance the benefits offered by technology with a critical awareness of their own and other's online behaviour and develop effective strategies for staying safe and making a positive contribution online.

It is fundamentally important that children are educated to understand that the digital world in which they live, can open so many avenues in terms of their futures – it is so powerful. However, there are many risks to safety and security online. It is often not the internet and the things that we access that are dangerous – it is how we use it. At Our Lady and St Huberts, *digital literacy* has to be more than just one day in February (safer internet day), it has to become part of our children's understanding beyond this day - it has to be part of their everyday lives. Our *digital literacy* progression is broken down into the following areas: Self-image and identity; online relationships; online reputation; online bullying; managing online information; health, wellbeing and lifestyle; privacy and security; and copyright

and ownership – in line with *'Education for a Connected World'*. Content will be delivered on a regular basis in not only computing lessons, but across the curriculum in order for our children to access content that empowers them for their future but in a way that lessens any potential negative impact. Our framework describes the skills and understanding that children and young people should have the opportunity to develop, at different ages and stages. It highlights what a child should know in terms of current online technology, its influence on behaviour and development, and what skills they need to be able to navigate it safely.

All of the statements from this document have been taken from the Education for a Connected World Document.

Feedback and Assessment

In line with the school feedback policy, it is not expected that staff will 'mark' work. However, we recognize that feedback is a vital part in children's learning and progression. Staff should therefore look to provide feedback verbally in an appropriate time period. Where learning has been saved to digital exercise books (Seesaw), staff should use the most appropriate form of feedback – this could be a written comment, but voice notes may also be appropriate.

Assessment is the responsibility of teachers. Ongoing summative assessment should be recorded on Arbor using the curriculum objectives outlined in Year group overviews. Teachers should keep evidence of learning, in the most appropriate way (SharePoint, Seesaw). It is the responsibility of the subject leader to monitor this assessment.

SEND, Pupil Premium and Inclusion for all

It is our belief that **all** children, should have the opportunity to develop across the curriculum including in Computing and ICT capability. Indeed, it is our belief that IT can actively provide accessibility to some areas of the curriculum for children in our care.

Teachers should, therefore:
- Ensure that all children can access learning for Computing.
- Overcome barriers to learning through the use of differentiation and support.
- Provide suitable challenges for more able children, as well as support for those who have emerging needs.
- Respond to the diversity of children's social, cultural and ethnographical backgrounds.
- Actively look for where technology can be used to support children in their learning journey (such as use of the dictation function to support those with difficulties in writing).

Reviewed – January 2023 – Anthony Brown (Subject Lead)

Date of next Review – January 2024