Aims & content of the Computing curriculum at Mount Primary

The National Curriculum for Computing can be divided into three areas; Computer Science (programming), Information Technology (general computing skills) and Digital Literacy (e-safety and an awareness of technology).

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 and be able to 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 and identify a range of ways to report concerns about content and contact.

The subject knowledge is specifically mapped out with this in mind and the children will show progression within their understanding.

Each year group will focus on each of these areas throughout the year. For example, in year 2 they will cover programming when they learn about coding, they will cover information technology when they animate and they will cover digital literacy when they learn about E-safety.

Progression will be demonstrated as children will build upon capabilities and revisit the different aspects throughout the different years. The knowledge that the children need to know, is built upon and vocabulary should be revisited over time to ensure the progression. For example, if year 1 are learning about simple algorithms being instructions for a computer to follow and can create and follow simple algorithms, year 3/4 will learn about debugging and sequencing. This will progress to Y5/6 learning how to loop and use conditionals. The vocabulary is fed through each year and built upon.

Children will revisit these aspects of learning in a variety of different contexts. For example, information technology and 'using a variety of software to present information and data' will be explored through age-appropriate music creating apps, E-book creator, digital art, data handling and animation.

The curriculum has been designed this way so that the children at Mount get a rich diet of computing and at the same time gaining new experiences and knowledge. It is designed in a way so that the children will

revisit many aspects of the curriculum so that they can broaden and deepen their understanding. Mastery is at the heart of everything we do at Mount, and this approach will allow our children to apply the mastery approach to computing.

How do you know children have learned that knowledge?

The children will have their own computing journal and will use this to note down what they have learned in each lesson. It is a way of keeping track of what they have been doing as well as something the children can take with them when they move into a new year. They will be able to look back at what they have done so they can build upon their prior knowledge. The computing journal will also be a useful tool for teacher assessment.

During the lesson, the teacher will use questioning to help inform their assessment. Linked to each unit, Ilearn2 has assessment criteria which teachers will use.

Teachers will know that the knowledge has been learned as they will be putting skills into practice. For example, if you want to check if a child understands what a loop is- the teacher can see what they have done by looking at their code.

Children will also have the opportunity to revisit learning, which will be a good opportunity to see if they have the knowledge previously taught as well as building upon it.

Children will be able to apply taught knowledge in other contexts. For example- children might include a loop into an algorithm as a way to simplify the code, but they might also input a loop in music creator for a different reason.

Children will be able to use the correct vocabulary in the right contexts when explaining what they are doing or what they have done.

How the Computing curriculum caters for all learners

The computing curriculum is designed in a way which caters for all learners, whether it be those who are confident or those who are struggling. The computing scheme we use- Ilearn2- has easy to follow step by step videos which enable children to follow at their own pace. It also offers ideas to the teacher on how to further extend those children who are more confident.

Particularly with coding, the children will only move on at their own pace so it will be easy for the teacher to identify who is struggling. Once identified, the teacher can support where necessary.

How does your content selection develop pupils' cultural capital? (Knowledge they need to become educated citizens – introducing them to the best that has been thought and said and to appreciate human creativity and achievement).

In computing, it is important that children know why they are learning something so it can be more relatable to them. Giving them this information along with how that looks in the real world, will help their understanding of the subject and hopefully engage them more into their learning. For example:

Why are we learning about Programming?

71% of all new jobs in STEM are in computing, but only 8% of STEM graduates are in Computer Science. There are so many exciting job opportunities for competent coders such as game designers, robotics engineers, fighting cyber-crime and even exploring space. When we code, we take complex problems and break them down into smaller parts. We learn what it's like to approach a problem the way a software engineer does, with logical, computational thinking. This logical thinking is a powerful tool in school, work, and life.

Throughout the knowledge taught, there are opportunities to explore our British Values. Particularly in E-Safety, children will learn the importance of individual liberty, diversity, mutual respect for others and tolerance. These conversations will be built into their learning and be age appropriate.

Children will also be required to show resilience when computing, particularly with programming as they will need to problem solve and use some element of computational thinking and in some cases trial and error. This might be frustrating in some cases, so resilience will be needed.

During each lesson, there will be plenty of opportunities to talk and share their understanding with each other as well as discussing scenarios and listening to one another.

Stereotypes about computing and people who work in computing can be discussed and challenged. We can look at significant role models and people who have really made a big impact in computing and technology. Because computing is such a broad subject, it can range from pioneers such as Bill gates, innovators such as Steve Jobs or entrepreneurs like Mark Zuckerberg or Jeff Bezos.

An example of the type of style of writing below. This would need personalising to the Mount History Curriculum.