

West Witney Primary School and Nursery

Curriculum Information



KS1 and KS2 Computing

Computing Curriculum Information Introduction

Intent

At West Witney Primary School and Nursery, the Computing curriculum has been designed so that our learners gain a coherent knowledge and understanding of technology in the world around them and develop an enthusiasm and curiosity to know more about computing and technology. Using the National Curriculum as a basis, the computing programme of study has been mapped with focus, appropriateness, coherence and sequentially. There is a clear progression of substantive knowledge, Tier 3 vocabulary and links between strands of computing (and other subjects) to ensure all pupils achieve well. New knowledge and skills build on what has been taught before, setting the foundation for future learning. Enriching experiences are planned to ignite the children's passion for computing and help them gain knowledge and understanding of technology and its uses. At West Witney, we use the National Centre for Computing Education's (NCCE) scheme of work which is innovatively sequenced to ensure both breadth and depth of learning. The NCCE is built around the 12 principles of computing pedagogy namely: lead with concepts, work together, get hands on, 'unplug, unpack, repack', model everything, foster program comprehension, create projects, add variety, challenge misconceptions, make concrete, structure lessons and read and explore code first. The scheme can be broken into four strands: understanding how technology works is the key theme in the Computing Systems strand. Understanding what data is, how it is stored and how it can be analysed are themes covered in the Data and Information strand. We also study Programming twice a year where the children will develop an understanding of algorithms, debugging and gaming. The Digital Media strand is again visited twice each year, in this strand the children learn how computers can be used to make documents, photographs, music and even 3D models.



Implementation

Computing teaching focuses on enabling children to think as Computer Scientists. We place an emphasis on using technology and give children the opportunity to link their learning to the real world. We recognise and value the importance of their experiences with technology and how that may aid in their understanding- often linking it to their existing knowledge or prior learning. We encourage them to ask questions and deepen their understanding. We recognise that in all classes, children have a wide range of capabilities in computing, and we seek to provide suitable learning opportunities for all children. A variety of teaching approaches are used, including Teacher presentations; role play; hands-on experience with technology such as; Beebots, iPads, laptops and interactive screens. We may also use photographs, written materials, ICT based materials and videos to further develop their understanding.

Impact

The impact of the Computing curriculum at West Witney Primary School is the demonstration that the curriculum has been planned and delivered well. This can be seen through:

- Clear evidence that our children have shown progress and attainment in line with the National Curriculum.
- Our children demonstrate enthusiasm for the subject and can talk with confidence about Computing.
- Our children demonstrate an understanding of a range of computing vocabulary that can be applied, confidently.
- As computer scientists, our children can use their skills to input and analyse data, programme a game/robot, create digital media and demonstrate an

understanding of how computers and computer systems work. They 'know more' so they can make links between their knowledge from different strands of computing.

Recording

Computing at West Witney is recorded in many places; iPads, camera role, class folders and in apps. It is also sometimes evidence in curriculum books. However, in some instances, forms of learning may happen where recording in books is not possible or appropriate. Teachers will use their professional judgement to make a decision on your child's attainment and progress. Children will be given the opportunity to build their understanding and experiences through a variety of tasks that will allow them to show their computing knowledge.

Assessment

Children will have the opportunity to answer key concept questions in a verbal and written format, which will give the teachers an excellent understanding of how well children have understood the taught knowledge and skills. After each Computing topic, teachers will make a summative assessment of whether the child is working towards the age-related expectation, at age related expectation or working at greater depth. To develop their awareness of their knowledge and learning, children will have the opportunity to self and peer assess against learning objectives. Many other formative assessment strategies are used, including conversations with the children and the 'products' seen as a result of their learning e.g. games, videos, circuits, documents etc

Computing Journey at West Witney Primary School

Year	Topic Title					
1	Technology around us	digital painting	Moving a robot	Grouping data	Digital writing	Programming animations.
2	IT around us	Digital photography	Robot Algorithms	Pictograms	Digital music	Programming quizzes.
3	Connecting computers	Stop frame animation	Sequencing sounds	Branching databases	Desktop publishing	Events and actions in programs
4	The internet	Audio production	Repetition in shapes	Data logging	Photo editing	Repetition in games
5	Systems and searching	Video production	Selection in physical computing	Flat-file databases	Introduction to vector graphics	Selection in quizzes
6	Communication and collaboration	Webpage creation	Variables in games	Introduction to spreadsheets.	3D modelling	Sensing movement

Computing systems and networks	Creating media-	Programming	Data and Information-
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Computing systems and networks
In this strand, the children will develop their knowledge of computers and their main parts, as well as the uses of information technology in school and beyond. They will build their knowledge of computer systems, how computers link together and how information technology has changed the way we work. All year groups will revisit how to use devices responsibly and safely and ultimately be able to evaluate the consequences of unreliable/unsafe content. As they move through the school they will develop an understanding of the World Wide Web, internet, websites and different online communication/collaboration platforms.
Creating media
In this strand, the children will be exposed to and build competence in basic office tools such as Paint, Powerpoint and Word. They will be able to use a mouse/mousepad and keyboard to choose tools and create pictures or documents. As they move through the school they will explore other forms of digital media from photography, audio production, video capture, stop frame animation, digital music, webpage creation, vector graphics and 3D modelling.
Data and information
In this strand, the children will get a grounding in data sets and data comparison tools such as tally charts and pictograms. As they move through the school, they will build on this knowledge by looking at attributes, databases and data points and how computers can help us to analyse data quickly and efficiently. The children will compare paper-based and computer-based databases and link this to real-world databases. Ultimately the children will be able to create their own spreadsheet of data and analyse it using Excel formulae and choose the best way to present their data.
Programming
In this strand, the children will initially gain a basic understanding of instructions, commands and algorithms. This knowledge will be built on over time as well as key Computer Science vocabulary such as 'debugging', coding, sequence, sprite, loops and variable. This strand is varied and builds over the time, this will initially use Beebots and Scratch Junior and then use Scratch and MakeCode. Ultimately the children will be able to design an algorithm, debug an algorithm, join a series of commands, loop commands, create a program, create a specific challenge (maze-based challenge), create increasingly complex programs (count-controlled/simultaneous loops), create a simple circuit connected to a computer, develop a game and improve it using variables (with/without a user input).

