What will our computing learners do when they leave us?

By the end of their time at West Dean C of E Primary school, our Year 6 computing learners will have experienced a high-quality computing education. Pupils will have developed a deep and broad knowledge, being able 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 pupils 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.

We offer a structured sequence of lessons where the content allows for a broad, deep understanding of computing and how it links to pupil's lives. It offers a range of opportunities for consolidation, challenge and variety. This allows pupils to apply the fundamental principles and concepts of computer science. They develop analytical problem-solving skills and learn to evaluate and apply information technology. It also enables them to become responsible, competent, confident and creative users of information technology.

Each lesson contains revision, analysis and problem-solving. Through the sequence of lessons, we intend to inspire pupils to develop a love of the digital world, see its place in their future. Cross-curricular links are also important in supporting other areas of learning. Our lesson plans and resources form Teach Computing help pupils to build on prior knowledge at the same time as introducing new skills and challenges. In KS1, the focus is on developing the use of algorithms, programming and how technology can be used safely and purposefully. In KS2, lessons still focus on algorithms, programming and coding but in a more complex way and for different purposes. Pupils also develop their knowledge of computer networks, internet services and the safe and purposeful use of the internet and technology. Data Handling is featured more heavily in KS2. Skills learnt through KS1 and LKS2 are used to support data presentation.

Learning in computing will be enjoyed across the school. Pupils will use digital and technological vocabulary accurately, alongside a progression in their technical skills. They will be confident using a range of hardware and software and will produce high-quality purposeful products. Pupils will see the digital world as part of their world, extending beyond school, and understand that they have choices to make. They will be confident and respectful digital citizens going on to lead happy and healthy digital lives.

Curriculum Coverage (NC)
Aims

The national curriculum for Computing aims to ensure that all pupils:
- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology.

KS1	KS2
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.	**Pupils should be taught:** ● 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.

Teach Computing Curriculum Overview - We use the National Centre for Computing Education *Teach Computing* curriculum.

	Computing systems and networks[1]	Creating media	Programming A	Data and information	Creating media	Programming B
Year 1	Technology around us (1.1)*	Digital painting (1.2)	Moving a robot (1.3)	Grouping data (1.4)	Digital writing (1.5)	Programming animations (1.6)
Year 2	Information technology around us (2.1)	Digital photography (2.2)	Robot algorithms (2.3)	Pictograms (2.4)	Digital music (2.5)	Programming quizzes (2.6)

	Computing systems and networks	Creating media	Programming A	Data and information	Creating media	Programming B
Year 3	Connecting computers (3.1)	Stop-frame animation (3.2)	Sequencing sounds (3.3)	Branching databases (3.4)	Desktop publishing (3.5)	Events and actions in programs (3.6)
Year 4	The internet (4.1)	Audio production (4.2)	Repetition in shapes (4.3)	Data logging (4.4)	Photo editing (4.5)	Repetition in games (4.6)
Year 5	Systems and searching (5.1)	Video production (5.2)	Selection in physical computing (5.3)	Flat-file databases (5.4)	Introduction to vector graphics (5.5)	Selection in quizzes (5.6)
Year 6	Communication and collaboration (6.1)	Webpage creation (6.2)	Variables in games (6.3)	Introduction to spreadsheets (6.4)	3D modelling (6.5)	Sensing movement (6.6)

National curriculum coverage - Years 3 and 4

	3.1 Connecting computers	3.2 Stop-frame animation	3.3 Sequencing sounds	3.4 Branching databases	3.5 Desktop publishing	3.6 Events and actions in programs	4.1 The internet	4.2 Audio production	4.3 Repetition in shapes	4.4 Data logging	4.5 Photo editing	4.6 Repetition in games
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		✓		✓			✓	✓			✓	

National curriculum coverage - Years 5 and 6

	5.1 Systems and searching	5.2 Video production	5.3 Selection in physical computing	5.4 Flat-file databases	5.5 Introduction to vector graphics	5.6 Selection in quizzes	6.1 Communication and collaboration	6.2 Webpage creation	6.3 Variables in games	6.4 Introduction to spreadsheets	6.5 3D modelling	6.6 Sensing movementz
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	✓	✓						✓	✓		✓	

Teach Computing Progression of Skills

We use the **National Centre for Computing Education** *Teach Computing* curriculum. Teachers use the following two documents in conjunction with this overview for detailed planning of the progression of skills in this curriculum:

- **KS1 TCC Curriculum Progression of Skills**
- **KS2 TCC Curriculum Progression of Skills**

2 year overview	Apple Class	Maple Class	Beech Class	Chestnut Class
Autumn	Technology All Around Us Digital Painting	Information Technology Around Us Digital Photography	Connecting Computers Stop-Frame Animation The Internet Audio Production	Sharing Information Video Production Internet Communication Webpage Creation
Spring	Moving a Robot Grouping Data	Robot Algorithms Pictograms	Sequencing Sounds Branching Databases Repetition in Shapes Data Logging	Selection in Physical Computing Flat-file Databases Variables in Games Introduction to Spreadsheets
Summer	Digital Writing Programming Animations	Making Music Programming Quizzes	Desktop Publishing Events and Actions in Programmes Photo Editing Repetition in Games	Vector Drawing Selection in Quizzes 3D modelling Senses

Sensing
PG, CS

3D modelling
ET, CM

Variables in games PG, DD

Introduction to spreadsheets
ET, DI

KS2 ▼

Sharing information
NW, ET

Selection in physical computing
PG, CS

Vector drawing
ET, CM

Internet communication
NW, ET

Repetition in games
PG, DD

Year 5

Year 6

Video production
CM, DD

Flat-file databases
DI, ET

Selection in quizzes AL, PG

Webpage creation
CM, DD

Photo editing ET, CM

Data logging
CS, DI

Repetition in shapes AL, PG

Events and actions in programs PG, DD

Branching databases
DI, ET

Stop-frame animation
ET, CM

The internet
NW, SS

Year 4

Year 3

Programming quizzes
PG, DD

Audio production
ET, CM

Desktop publishing
ET, CM

Sequencing sounds
PG, DD

Connecting computers
NW, CS

Making music
CM, DD

KS1 ▼

Technology around us
CS, AL

Moving a robot
AL, PG

Digital writing
ET, CM

Information technology around us NW, CS

Robot algorithms
AL, PG

Year 1

Year 2

Digital painting
ET, CM

Grouping data
DI, AL

Programming animations PG, DD

Digital photography
ET, CM

Pictograms
DI, ET

National Centre for Computing Education

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Download the curriculum resources: ncce.io/get_tcc