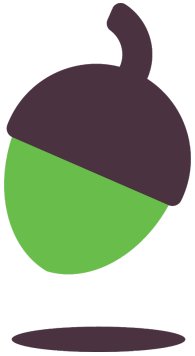
Computing

Primary: Key Stage 2

Curriculum plan 2020-21



OAK
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1. Curriculum Principles

Coherence and flexibility

The computing curriculum is structured in units. For the units to be coherent, the lessons within them must be taught in order. However the curriculum is flexible in terms of the order in which you teach units within a year group, except for programming where concepts and skills rely on prior learning and experiences.

Knowledge organisation

The curriculum applies to the National Centre for Computing Education's computing taxonomy. This has been developed through a review of the KS1-4 computing programme of study, and the GCSE and A Level computer science specifications, across all awarding bodies. All learning outcomes can be described through a top-level taxonomy of ten topics, ordered alphabetically as follows:

- Algorithms
- Computer Networks
- Computer Systems
- Creating Media
- Data & Information

- Design & Development
- Effective use of tools
- Impact of technology
- Programming
- Safety & Security

The taxonomy categorises and organises content into strands which encapsulate the discipline. Whilst all strands are present at all phases, they are not always taught explicitly.

Inclusive and ambitious

We want Oak to be able to support all children. Our units will be pitched so that children with different starting points can access them. Our lessons will be sequenced so that each builds on prior learning. Our activities will be scaffolded so all children can succeed. We use unplugged or real world activities to unpack difficult concepts in computing as part of a semantic wave of learning. We also use a range of scaffolding approaches when teaching programming, ranging from copying code, exploring some commands or functions, fixing code with bugs to solving specific problems with code.

Application through software

We need pupils to be thinking during their lessons - both to engage with the subject and to strengthen memory of what is being learnt. Some of our lessons require practical application of concepts and skills on a computer using

appropriate software. We supplement our lessons with guidance on how to use such software to reinforce the learning from the lesson.

Motivation through learning

We believe that computing is inherently interesting, and seek to motivate pupils through the subject matter. Where possible, we draw on real world experiences to provide an engaging viewpoint on computing concepts. Every student should have the opportunity to implement their skills and knowledge and ultimately feel a sense of achievement. We provide opportunities for pupils to be creative and solve problems by building their own programs and applications, for example.

2. Subject structure overview

Key Stage 2

Year 5 units only available after Autumn half-term

Year	Unit Name	Length of unit
5	*Sharing Information*	*6 lessons*
5	*Video Editing*	*6 lessons*
5	*Vector Drawing*	*6 lessons*
5	*Selection In Physical Computing*	*6 lessons*
5	*Chatbot Selection*	*6 lessons*
5	*Flat File Databases*	*6 lessons*
6	Communication	*6 lessons*
6	Web Page Design	*6 lessons*
6	3D Modelling	*6 lessons*
6	Variables in Games	*6 lessons*
6	Sensing	*6 lessons*
6	Spreadsheets	*6 lessons*

Year	Unit Name	Computing Systems and Networks	Creating Media	Programm-ing	Data & Information
5	*Sharing Information*	✔			
5	*Video Editing*		✔		
5	*Vector Drawing*		✔		
5	*Selection In Physical Computing*			✔	
5	*Chatbot Selection*			✔	
5	*Flat File Databases*				✔
6	Communication	✔			
6	Web Page Design		✔		
6	3D Modelling		✔		
6	Variables in Games			✔	
6	Sensing			✔	
6	Spreadsheets				✔

3. Suggested sequence

Year 5 units only available from after Autumn half term

Year 5	*Sharing Information*	*Video editing*	*Vector drawing*	*Selection in physical computing*	*Chatbot Selection*	*Flat-file databases*
Year 6	Communication	Web page design	3D Modelling	Variable in Games	Sensing	Spreadsheets

4. Unit specifics

Year 5	Sharing Information	Video editing	Vector drawing	Selection in physical computing	Chatbot Selection	Flat-file databases
	How computing systems share Information How the internet shares information Collaboration	Plan, record, edit a video. Add titles, credits etc. Option to include green screen.	Using shape tools, combining with group/ungroup, arranging layers, resizing, rotating etc.	Using Crumbles to explore physical inputs and outputs. "if...then" introduced for final project.		Using records and fields to understand stored information. Retrieving information using search & sort.
Year 6	**Communication**	**Web page design**	**3D Modelling**	**Variable in Games**	**Sensing**	**Spreadsheets**
	How to effectively search and how search engines work.	Using a wysiwyg editor to create and link several pages. Links to external sites. Implications, ownership etc.	Using software like Tinkercad to create 3D models, exploring 3D space, applying scale, real world problems			Exploring how to organise data for purpose. Creating new, calculated, data automatically using basic formulas.