

Computing at LECA

Intent

Why Computing?

At LECA we believe that Computing allows for the development of unique skills and knowledge that no other subject allows. We want our children to be critical thinkers, problems solvers and efficient users of technology – not simply consumers.

We want them to create and develop a progressive set of skills and knowledge through a well sequenced curriculum. Additionally they will have the opportunity to develop them as themes and concepts are revisited – building on prior learning and applying it to new contexts, situations and challenges.

Through our computing curriculum at LECA, we aim to give our pupils the life-skills that will enable them to embrace and utilise new technology in a socially responsible and safe way in order to flourish. We want our pupils to be able to operate in the 21st century workplace and we want them to know the career opportunities that will be open to them if they study Computing.

All students at LECA will become independent users of computing technologies, gaining confidence and enjoyment from their activities, while staying safe and becoming responsible users.

We want the use of technology to support learning across the entire curriculum and to ensure that our curriculum is accessible to every child. Not only do we want them to be digitally literate and competent end-users of technology but through our Computing curriculum we want them to develop creativity, resilience and problem-solving and critical thinking skills. Our pupils will have the breadth of experience to develop their understanding of themselves as individuals within their community but also as members of a wider global community and as responsible digital citizens.

Implementation

The LECA Computing curriculum is mapped to the National Curriculum and uses the Teach Computing Curriculum (National Centre for Computing Education (NCCE)) guidance to support our planning and sequencing of the learning.

Computing at LECA

The units outline the objectives and the success criteria and map against the National Curriculum key themes. The lessons within a unit must be taught in order. However, across a year group, the units themselves do not need to be taught in order, with the exception of 'Programming' units, where concepts and skills rely on prior learning and experiences.

The Teach Computing Curriculum uses the National Centre for Computing Education's computing taxonomy to ensure comprehensive coverage of the subject. This has been developed through a thorough 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 high-level taxonomy of ten strands:

- **Algorithms** — Be able to comprehend, design, create, and evaluate algorithms
- **Computer networks** — Understand how networks can be used to retrieve and share information, and how they come with associated risks
- **Computer systems** — Understand what a computer is, and how its constituent parts function together as a whole
- **Creating media** — Select and create a range of media including text, images, sounds, and video
- **Data and information** — Understand how data is stored, organised, and used to represent real-world artefacts and scenarios
- **Design and development** — Understand the activities involved in planning, creating, and evaluating computing artefacts
- **Effective use of tools** — Use software tools to support computing work
- **Impact of technology** — Understand how individuals, systems, and society as a whole interact with computer systems
- **Programming** — Create software to allow computers to solve problems
- **Safety and security** — Understand risks when using technology, and how to protect individuals and systems

The taxonomy provides categories and an organised view of content to encapsulate the discipline of computing. Whilst all strands are present at all phases, they are not always taught explicitly.

The units for key stages 3 are based on a spiral curriculum. This means that each of the themes is revisited regularly (at least once in each year group), and pupils revisit each theme through a new unit that consolidates and builds on prior learning within that theme.

Computing at LECA

This style of curriculum design reduces the amount of knowledge lost through forgetting, as topics are revisited yearly. It also ensures that connections are made even if different teachers are teaching the units within a theme in consecutive years.

Curriculum Overview

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
Year 7	Impact of technology – Collaborating online respectfully (7.1)*	Networks: from semaphores to the internet (7.2)	Using media: gaining support for a cause (7.3)	Programming essentials in Scratch: part I (7.4)	Programming essentials in Scratch: part II (7.5)	Modelling data: spreadsheets (7.6)
Year 8	Developing for the web (8.1)	Representations: from clay to silicon (8.2)	Mobile app development (8.3)	Media: vector graphics (8.4)	Computing systems (8.5)	Introduction to Python programming (8.6)
Year 9	Python programming with sequences of data (9.1)	Media: animations (9.2)	Data science (9.3)	Representations: going audiovisual (9.4)	Cybersecurity (9.5)	Physical computing (9.6)

*The numbers in the brackets are a 'quick code' reference for each unit, eg 7.1 refers to the first Year 7 unit in the recommended teaching order.

Lesson Sequence

Year Group	Suggested Order	Unit Name	Lesson	Learning Objectives	National Curriculum Links													
					3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9					
7	1	Impact of technology – Collaborating online respectfully	1	- Create a memorable and secure password for an account on the school network														
7	1	Impact of technology – Collaborating online respectfully	1	- Remember the rules of the computing lab														
7	1	Impact of technology – Collaborating online respectfully	2	- Find personal documents and common applications														
7	1	Impact of technology – Collaborating online respectfully	2	- Recognise a respectful email														
7	1	Impact of technology – Collaborating online respectfully	2	- Construct an effective email and send it to the correct recipients														
7	1	Impact of technology – Collaborating online respectfully	3	- Describe how to communicate with peers online														
7	1	Impact of technology – Collaborating online respectfully	4	- Plan effective presentations for a given audience														
7	1	Impact of technology – Collaborating online respectfully	4	- Describe cyberbullying														
7	1	Impact of technology – Collaborating online respectfully	4	- Explain the effects of cyberbullying														
		Impact of technoloov –																

Each unit is supported by clear Learning Objectives that are mapped to the National Curriculum Programme of Study and supported by progressive and challenging Success criteria. The class teacher designs clear, sequenced and progressive opportunities for learning for to allow all pupils to access the learning.

Computing at LECA

Inclusive and ambitious

Each lesson is sequenced so that it builds on the learning from the previous lesson, and where appropriate, activities are scaffolded so that all pupils can succeed and thrive.

Scaffolded activities provide pupils with extra resources, such as visual prompts, to reach the same learning goals as the rest of the class.

Exploratory tasks foster a deeper understanding of a concept, encouraging pupils to apply their learning in different contexts and make connections with other learning experiences.