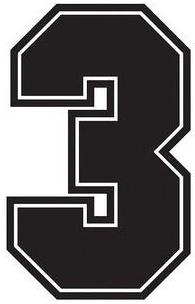
Scheme of Work



Year 3 Computer Science

Three lessons every two weeks. Optional subject.

Homework: Weekly or fortnightly homework

The aim of this year is to prepare pupils for the IGCSE course. It is expected several will continue to IGCSE but this may not necessarily be the case.

All pupils will explore computing principals and algorithmic thinking, namely reading and writing algorithms.

They will be able to translate flowcharts and pseudocode into python computer code and understand many computing principles.

End of year examination

Topic	Learning objective(s)	Term/Sequence	Notes and pupil assessment	Homework
Computational Thinking skills	To develop pupils skills in algorithmic thinking, decomposition etc.	Autumn 1 / 2 *This and the next unit can be taught concurrently.	Tasks set on Google classroom. **A digital report uploaded to Classroom** Unit graded on 1-7 scale with comment. http://csunplugged.org/ http://www.cs4fn.org/ https://barefootcas.org.uk/ https://teachinglondoncomputing.org/resources/developing-computational-thinking/	Dependant on task on this topic

Understanding computers	To discover how computers work	Autumn 1	PG online resources – via firefly (school web)	Dependant on task on this topic
Python Programming	To be able to program in a procedural and functional way. To write own functions and procedural code to solve a variety of problems. To explore python library's such as turtle, pygame and TkInter	Autumn 1 / 2 *This and the above unit can be taught concurrently.	Coding tasks set on Google classroom. Use of Cambridge flipbooks – level 1, 2 and 3. **Commented coding tasks uploaded to Classroom** Unit graded on 1-7 scale with comment.	Dependant on task on this topic
Physical computing	To use Arduinos and BBC Microbits to explore the internet of things	Spring 1	Use of block-based and python coding for microbits. C++ style with the Arduinos	Dependant on task on this topic
Networks	To discover how data travels across the world	Spring 1	PG online resources – via firefly (school web)	Dependant on task on this topic
Digital Security and law	To understand the laws that apply in digital. To understand the threats posed. To understand the how threats can be managed and threats reduced as much as possible	Spring 2	Resources on school website PG online resources – via firefly (school web)	Dependant on task on this topic

Web technologies	To explore the nature of the Internet and the web. To read and write HTML, CSS and JavaScript code.	Summer 1	PG online resources – via firefly (school web)	Dependant on task on this topic
End of year examination	Prep/revision	Summer 2 (early)	Website for information and also revision guides are available	Examination Q based.
Database development	To build and interrogate your own software system	Summer 2	PG online resources – via firefly (school web) MS Access	Dependant on task on this topic