Cycle A

Computer Science @ All Souls'

Terms 5 and 6

EYFS

Children will experiment and explore with control technology and develop their directional language.

Children could create narratives about mini-adventures and journeys or create landscapes for the vehicles to travel to and through.

Children must show their digital literacy skills by being able to share their equipment and be respectful.

Year 1/2

(Term 5) Bee-Bot

Children will write a set of commands for a Bee-Bot. This will be based around a particular theme, linked to the term's learning. Children will use algorithms to navigate their Bee-Bot around obstacles. The children will also be introduced to new computing vocabulary:

Algorithm: a set of steps to solve a problem.

Program: a set of instructions that tells a computer what to do.

Sequence: to place programming instructions in order, each executed one after the other.

(Term 6) Espresso Coding

Year 1 children will learn that programs execute by following clear instructions. They will know that programs respond to inputs to do different things. They will also learn to combine start and input events to create more advanced apps and programs using precise instructions.

Year 2 children will learn that programs respond to different sorts of inputs and that the keyboard can be used to control objects on screen, not just by clicking them directly. They will know that one object can be used to control another object, e.g. writing code so clicking a button gives an instruction to make a lorry move.

Year 3/4

(Term 5) Espresso Coding

Both Year 3 and Year 4 children will recap what they have learnt so far.

Year 3 children will then learn to make things happen in a sequence, creating simple animations and simulations. They will know how to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects.

Year 4 children will learn how computers use variables to count things and keep track of what is going on, then create simple games which use a score variable. They will know that computers use repetition and loops to do things over and over again.

(Term 6) Lego Education SPIKE Essential

This is another new and exciting addition for the school curriculum. Using a combination of Lego bricks and computer coding software, it brings together a range of subjects, including science, technology, engineering, literacy and mathematics, to give children confidence and critical thinking skills.

Children will develop computational thinking skills, including creating and modifying sequences, testing, debugging and using loops. They will also explore the engineering design process, including defining a problem, brainstorming solutions, and testing and redefining prototypes. Children's oral communication skills will be strengthened by discussing their experiences collaboratively, using technical vocabulary. Each unit will engage children in narrative-based problem solving and allow them to discover innovative and original ways to achieve an outcome.

Year 5/6

(Term 5 & 6) Piper Kits

Piper Kits allow children to build their very own computer and then use them to learn to code and control objects. This is a brand new, exciting addition to the school curriculum allowing the children to take control of their learning by working together in small teams.

Children will initially read the Piper Kit 'Top Secret' letter containing their mission for the next two terms.

In the first stage, children will assemble their Piper Computer Kit following the blueprint provided with it. Piper kits will be built as a whole class collaboration, using computational thinking journals to record which stage they have got to and any problems they have had whilst building. Children will talk, discuss and collaborate on their builds, supporting each other as they go.

The second stage involves the Piper Kit Story mode. Children will power up their Piper Kit desktop and complete several missions focusing on electric currents, conductivity and circuits. They will also learn how to code using the Piper Kit software.

Troubleshooting will be a major focus for the children throughout the process. Teachers will support the children throughout the process, but emphasis will be placed on working together as a team, independent of adult guidance.

Cycle B

Computer Science @ All Souls'

Terms 5 and 6

EYFS

Children will experiment and explore with control technology and develop their directional language.

Children could create narratives about mini-adventures and journeys or create landscapes for the vehicles to travel to and through.

Children must show their digital literacy skills by being able to share their equipment and be respectful.

Year 1/2

(Term 5) Bee-Bot

Children will write a set of commands for a Bee-Bot. This will be based around a particular theme, linked to the term's learning. Children will use algorithms to navigate their Bee-Bot around obstacles. The children will also be introduced to new computing vocabulary:

Algorithm: a set of steps to solve a problem.

Program: a set of instructions that tells a computer what to do.

Sequence: to place programming instructions in order, each executed one after the other.

(Term 6) Espresso Coding

Year 1 children will learn that programs execute by following clear instructions. They will know that programs respond to inputs to do different things. They will also learn to combine start and input events to create more advanced apps and programs using precise instructions.

Year 2 children will learn that programs respond to different sorts of inputs and that the keyboard can be used to control objects on screen, not just by clicking them directly. They will know that one object can be used to control another object, e.g. writing code so clicking a button gives an instruction to make a lorry move.

Year 3/4

(Term 5) Espresso Coding

Both Year 3 and Year 4 children will recap what they have learnt so far.

Year 3 children will then learn to make things happen in a sequence, creating simple animations and simulations. They will know how to code with 'if statements', which select different pieces of code to execute depending on what happens to other objects.

Year 4 children will learn how computers use variables to count things and keep track of what is going on, then create simple games which use a score variable. They will know that computers use repetition and loops to do things over and over again.

(Term 6) Lego Education SPIKE Essential

This is another new and exciting addition for the school curriculum. Using a combination of Lego bricks and computer coding software, it brings together a range of subjects, including science, technology, engineering, literacy and mathematics, to give children confidence and critical thinking skills.

Children will develop computational thinking skills, including creating and modifying sequences, testing, debugging and using loops. They will also explore the engineering design process, including defining a problem, brainstorming solutions, and testing and redefining prototypes. Children's oral communication skills will be strengthened by discussing their experiences collaboratively, using technical vocabulary. Each unit will engage children in narrative-based problem solving and allow them to discover innovative and original ways to achieve an outcome.

Year 5/6

(Term 5 & 6) Espresso Coding

Children will initially recap learning from Year 1 to 4.

They will then learn how computers use numbers to represent things such as how fast things are moving and where they are. Children will know and understand speed, direction and co-ordinates in relation to coding.

After this, children will learn how computers can generate random numbers and how these can be used in simulations.

They will then learn to use variables in more complex ways and to manipulate inputs to create useful outputs.

Finally children will learn more about how computers use property values and parameters to store information about objects.

To end the Espresso Coding scheme of learning, children will create their own app, using the skills and knowledge from their previous learning. This will be an independent project, where they will debug any errors and allow others to test out their app. Children will fully evaluate and explain how they created their app using technical vocabulary and they will also document the purpose of their app, who the intended audience would be and why they chose to create that specific type of app. .