

## Virtual Sessions | Secondary

**Requirements:** Each session will be delivered to a classroom virtually through a teacher's computer connected to a whiteboard/projector. This will require a web camera, speakers and microphone. In addition, all pupils will need to have a pen, pencil and paper available to them.

### Cryptography

**Unplugged** 2 x 1 hour sessions

Session 2 requires access to a computer either individually or in small groups.

Session 1 will cover an introduction to cryptography and three different ciphers with additional online worksheets that can be completed as practise. Session 2 will cover a final cipher before pupils have the opportunity to do our virtual version of the Break Into the Box activity, which is a huge favourite from previous experiences.

### Python Maths

**Plugged** 3 x 1 hour sessions

Requires access to a computer and access to the website [repl.it](https://repl.it)

An introduction to Python in a visual and artistic way. Session 1 introduces the Python programming language which pupils will learn and explore through the use of Turtle. Pupils will learn the initial commands and improve their computational thinking skills as they develop their ability to program. Session 2 begins to look at more complicated tools that are used throughout computer science such as for-loops, if statements and user feedback. Session 3 sees students move onto using lists and Python's random library to do some quite advanced programming.

### Monte Carlo Simulations

**Plugged** 2 x 1 hour sessions

Requires access to a computer and access to the website [repl.it](https://repl.it)

Probability and statistics can be much more than pulling balls out of a bag or drawing cards from a deck. Monte Carlo simulations give students a chance to explore probability and statistics in an exciting new way. Students with an understanding of Python will be led through some interesting experiments in which they will use randomly generated data to make some interesting discoveries including throwing darts to predict Pi and why the casino always wins.

### Planets and Orbits

**Plugged** 1 hour session

Requires access to a computer and access to the website [geogebra.org](http://geogebra.org)

The sun orbits the earth? The planets orbit in circles? The earth floats in the water of the heavens? The historic models of the solar system are numerous and in most cases incorrect. Take a trip through history as we explore how observations and mathematics led us to the current models of the solar system before pupils construct their own models online.

### Brain Games

**Unplugged** 2 x 1 hour sessions

Requires pen, paper, packet of spaghetti, blu-tack.

This workshop encourages learners to use computational thinking and problem solving skills to complete collaborative challenges individually and in small teams. Learners will complete a number of challenges involving physical and mental tasks that will develop their collaboration, communication, problem-solving and computational thinking.

### It's Easy to be Green

**Unplugged** 2 x 1 hour sessions

Requires basic 'junk' prototyping materials.

The purpose of this workshop is to give pupils an opportunity to learn about renewable and non-renewable energy. Pupils will have an opportunity to design an energy efficient product or service that benefits the customer and has a positive impact on the environment. This will be based on the knowledge they've gained in the workshop.

### Animal Classification | Biology

**Plugged** 2 x 1 hour sessions

Requires access to a computer and access to the website [Scratch.mit.edu](http://Scratch.mit.edu) or Scratch 3 installed.

This workshop provides learners with an opportunity to learn all about different groups of animals whilst having an opportunity to develop their computational thinking skills in Scratch. Pupils will have an opportunity to develop their own Dichotomous Tree in Scratch which will make the program determine which school of animal you're thinking of is from.

### Fuelling the Future

**Plugged** 3 x 1 hour sessions

Requires access to a computer and Scratch for sessions 2 & 3.

These sessions look at the difficult task facing society in the near future and how to produce enough energy to power the world. The sessions delve into a possible solution to our energy issues while developing programming skills to develop a model of nuclear reactions.

We are here to support you. Other topics can be provided. If you have specific requirements please talk to us.

Call 01792 513747 or email [info@technocamps.com](mailto:info@technocamps.com)

