



Wednesday 12 Feb 2025
Life Sciences UTC

Programme of Activities

10.00 – 10.15	Arrival in our Lab & Welcome (including security induction & account registration)
10.15 – 11.00	Workshop 1: Algorithms (Rabeea)
11.00 – 11.30	Giant Sorting Network (outdoor activity)
11.30 – 12.00	Lunch Break
12.00 – 12.45	Workshop 2: Cybersecurity (Hannah)
12.45 – 13.45	Hands-on Workshop: Lego EV3 drives the warehouse
13.45 – 14.00	Closing Talk

All workshops take place in Lab 3 of the George Holt building.

Information about the Activities

Algorithms

When technology makes decisions for us, for example recommending a video to someone on social media or finding the fastest way home, it will use algorithms. There are many algorithms that influence our daily life and help technology think for us. During this lesson students will explore how algorithms process data and make automated decisions. They will focus on recommendation systems used by social media and then will attempt to simulate a technology/algorithm that will analyse a user's preferences.

Giant Sorting Network

In this outdoor lesson, pupils will play the role of the "compute nodes" in a parallel sorting algorithm. They will experience first-hand how parallelism speeds up computation, but also makes it more challenging to reason about programs.

Cybersecurity

Cyber Security is necessary in many areas of everyday life. Ciphers are just one of the prevention methods that are used daily to protect the systems we use and our data against various threats. In this lesson students will learn how to use ciphers effectively and how to encrypt and decrypt simple ciphers. Additionally, they will start to explore the topic of encryption and how the various levels of complexity.

Lego EV3 Drives the Warehouse

Robots managing large warehouses are one of the many examples where automation helps humans to solve a task faster and cheaper. For this to be effective, robots need to be at least partially autonomous, i.e., able to sense and react to the physical world without (constant) human intervention. In this hands-on lesson, pupils program Lego EV3 robots to follow a line, avoid obstacles, and ultimately navigate a warehouse safely and autonomously.