



*Hilbre High School*  
Wednesday 01 March 2023

## Programme of Activities

<b>10.00 – 10.15</b>	Arrival in our Lab & Welcome (including security induction & account registration)
10.15 – 11.00	<b>Workshop 1: An Introduction to Cyber Security</b>
11.00 – 11.30	<b>Giant Sorting Network</b> (outdoor activity)
11.30 – 12.00	Lunch Break
12.00 – 12.45	<b>Workshop 2: Weigh your choices!</b>
12.45 – 13.45	<b>Hands-on Workshop: EV3 Drives the Warehouse</b>
13.45 – <b>14.00</b>	Closing Talk

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

## Information about the Activities

### An Introduction to Cyber Security

As reliance on technology is growing, so are risks and dangers of being online. Threats range from individuals or institutions being hacked, to sophisticated malware being installed on devices. We are thus increasingly dependent on the cyber security industry for our defense. This lesson exposes students to puzzles as they arise in the cyber security industry and introduces them to the skills and opportunities of this field.

### 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.

### Weigh your choices!

In this unplugged lesson, pupils will explore algorithms for sorting and searching using sets of weights and a weighing scale. It teaches both algorithm complexity and the comparison model of computation.

### 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.