Brynteg School Year 9 STEM Day, Prosthetics in Motion workshops

EESW STEM Cymru – Post-Delivery Case Study

1. School Information

- School name: **Brynteg School**
- Teacher name and role: **Francesca Smith – Science teacher**
- Date of workshop/activity: **10th November 2025**

2. Workshop/Activity Overview

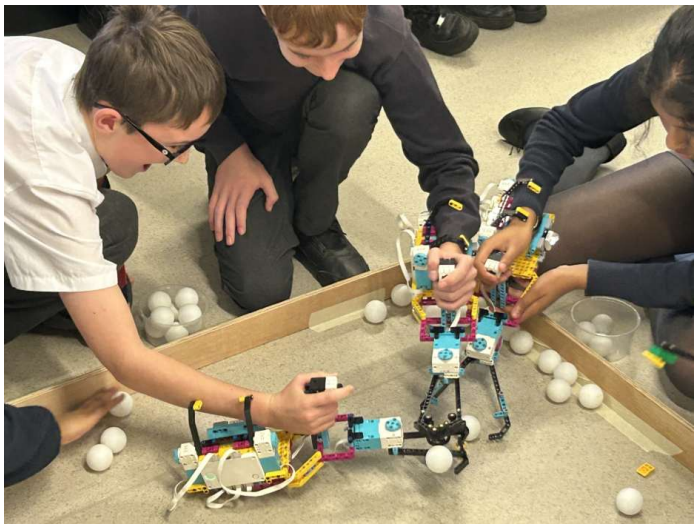
- *Title of workshop/activity:* **Prosthetics In Motion**
- *Year group involved:* **Year 9**
- *Number of learners participating*: **57** (two sessions)
- *Brief description of the session:*

Pupils work in small teams to assemble a prosthetic arm from a kit of LEGO. They also write a program using light and pressure sensors to control the fixing mechanism and to operate a pinching 'hand'. Once built, in line with the instructions, teams are tasked with improving its efficiency by redesigning the 'hand' attachment so it can be used to effectively and quickly pick up ping pong balls. Once designs are ready, they compete against other teams in a large variation of the game Hungry Hippos, trying to pick up more ping pong balls than other teams in a 30 second game.

3. Curriculum Links

- *Relevant curriculum areas supported:* **ICT, Science, PSHE, Design Technology**
- *Key skills developed (e.g., problem-solving, teamwork):*

Communication, teamwork, problem solving and creative skills, numeracy skills, resilience and attention to detail when following instructions.



- *Reason for activity choice:*

The activity was used as part of a wider school program of STEM enrichment, and a Year 9 STEM day which brought a variety of external providers and industry representatives to the school. We chose this activity as appeared fun, the LEGO aspect would be familiar but the context and task itself something very different to what they might normally do.

4. Impact on Learners

• *What did learners enjoy most?*

Firstly how novel it was, a new area of learning for them. It was fun, with an element of competition at the end. They enjoyed learning and being proactive in an area not only relevant to real life but because it can often socially be difficult for teenagers to see someone wearing a prosthetic. They naturally want to know what it is, how it works etc but it can be difficult for them to ask that person about it. This workshop overcame those barriers for the pupils

• *What impact do you think the workshop had on pupils?*

It improved pupil's confidence around the subject of prosthetics and their understanding of how they work. It was great for them to see that STEM roles can help people live their lives and the different roles that many people play in contributing to design, creation and testing of a prosthetic.

5. Feedback on EESW Delivery

- *How engaging did you find the workshop for your pupils?* **Extremely engaging**
- *Was the workshop pitched at the right level for your pupils?* **The right level** – a good balance between accessibility and challenge.
- *How valuable was the workshop in supporting STEM learning?* **Extremely useful**.