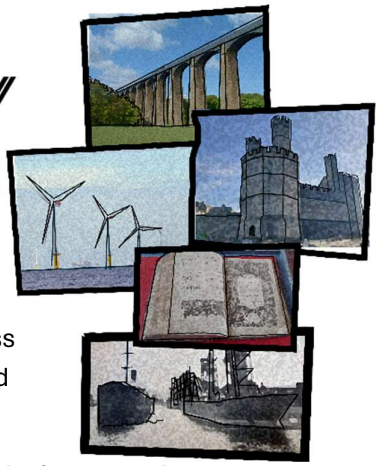
DDOE, HEDDIW, YFORY

nationalgrid

Exploring Wales's engineering past to solve today's challenges and design tomorrow's solutions

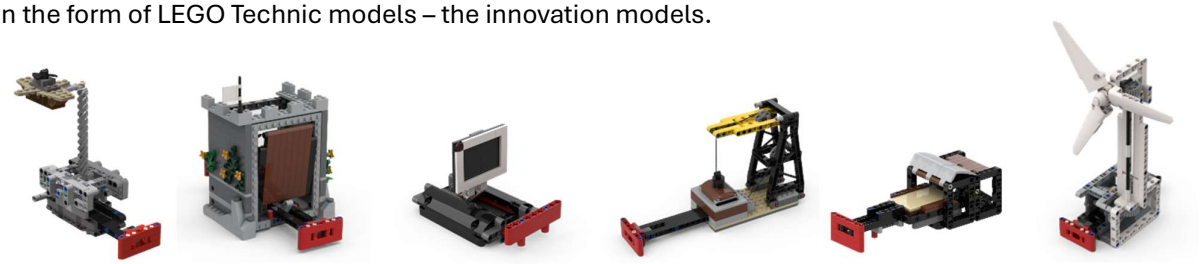


Activity Outline

Strand 1 – STORI STEM A research and design project that offers a range of cross curricular options. Flexible enough to adapt to a schools curriculum themes and objectives but guided and supported by EESW example resources.

Pupils develop **research and enquiry skills** as they explore engineering from Wales's past and investigate whether similar challenges exist today. They strengthen **critical thinking** by comparing contexts and evaluating what has changed, while applying **creativity and design thinking** to develop modern solutions.

Strand 2 – TAITH YR ROBOT A robot coding navigation challenge. Pupils are tasked with identifying and navigating a route around a map that visits examples of STEM from Wales's past, present and future in the form of LEGO Technic models – the innovation models.



Programming the robot helps pupils develop a rich mix of technical, cognitive and interpersonal skills.

They can use **any small robot** such as a LEGO Spike or one of the many micro:bit bots available, EESW can help with a loan robot if required.

They build **computational thinking** by breaking the route into logical steps, refining instructions, and understanding how code translates into real-world movement. As they tweak measurements, angles and speed, they apply **mathematical reasoning** and **problem-solving**, learning to test, evaluate and improve through trial and error. The iterative nature of adjusting code fosters **resilience and perseverance**, as pupils learn that mistakes are part of the process. Planning the robot's route strengthens **spatial awareness** and **strategic thinking**, while working in a small team encourages **communication, collaboration and shared decision-making**.

Altogether, the project blends creativity with precision, celebrating Welsh culture and identity while helping children think like engineers - curious, methodical, solution-focused and socially responsible.

Pupils have the opportunity to share their **Stori STEM** and to demonstrate their **Taith Yr Robot** at either a Showcase event or at an in-school celebration before being awarded either a Aur, Arian or Bronz award.

All pupils completing both strands will receive a certificate.

Frequently Asked Questions

Who is the workshop for?

The project is **fully funded** for **primary schools** in Wales. The resources have been produced with Year 5 and 6 learners in mind and the LEGO Technic pieces pupils use to build the challenge models are generally suitable for pupils aged 9+. However, we do not enforce any age limits and schools are welcome to make adjustments to the project to allow younger pupils to take part.

How many pupils can take part?

Up to you - This project can be used for single classes, multiple classes or smaller groups through an extra-curricular club. EESW will provide each school with one set of innovation models but we can provide additional challenge mats if required.

When does this project run?

Up to you - You are welcome to engage with the project at any time of the year and to spend as much time on it as you like. We will be hosting regional showcase events that you are welcome to attend to share your research projects and to demonstrate your bot. Dates and venues will be shared once registration is completed.

Do participants have to attend an event?

No, the regional showcase events are optional and up to 10 pupils per school will be invited. If you don't attend a showcase event, we would encourage you to share digital examples of pupils work so that we can showcase these through our project web page. Subject to availability EESW STEM Cymru will try to accommodate in-school celebration events for groups that cannot attend a showcase event.

If you are engaging in this project as a transition activity managed by a secondary school. The showcase event will be hosted by the secondary school as part of transition arrangements.

Is this a competition?

No. We want to celebrate creativity, curiosity, teamwork, problem-solving and perseverance, as well as successful robot runs and brilliant ideas, though the showcase events will include some competitive elements the overall focus will be on what each school has achieved throughout the programme rather than competition between schools.

Do schools need to have their own robot?

No. Schools can use any robot of a suitable size such as a LEGO Spike, EV3 or one of the many micro:bit controlled bots available. If schools don't already have a suitable robot, EESW can arrange a bot loan and deliver an in-school coding workshop to show pupils how it works.

Do I need to be a STEM or coding expert?

Definitely not! The programme is designed to help teachers and pupils learn together. Resources and guidance will be provided, along with opportunities for training and support if you are not already familiar with a particular robotics or coding package.

If you have never used a programmable robot before, don't let that put you off, Ddoe, Heddiw, Yfory is a great place to start.

Do participants need to complete both strands of the project to take part?

Yes - To attend a regional showcase event and to be eligible for participation certificates and prizes issued by EESW/National Grid, schools must have engaged with the **Stori STEM** (research project) **and** the **Taith Yr Robot** (robot coding challenge) but schools can decide to involve different groups of pupils in each element.

Does the school get to keep the robot?

No - Schools are offered a robot on loan. The length of that loan can be negotiated with the EESW team. Repeat loans are also available.

We ask for the robot to be returned when not in use so that we can make as many robots available as possible and can also maintain them in-between loan periods.

Do schools get to keep the challenge models and mat?

No - We ask schools to return these resources when they have finished the project so they can be redistributed for use by as many schools as possible.

Is this free?

Yes - The project is delivered as a partnership between *EESW STEM Cymru* and *National Grid* and as such is free to 10 schools per term.

A robot is loaned free of charge, if you would like to arrange a coding workshop to help pupils learn the skills they need to control that robot, that workshop is free. The challenge models and mat are also provided free of charge.

You will only be charged if resources are not returned as agreed (£175 per set of challenge models/maps, £90 per robot or £50 if a robot is returned but has been damaged beyond repair/continued use)

What do schools need to do to get involved?

Go to www.STEMCymru.org.uk to register and let us know which half term you would like to take part, a few details about the school and the pupils and we'll let you know if spaces are available in your area.

Still have questions?

Don't worry, we'll provide guidance and support to help you and your pupils get the most from the programme a full Teacher Guide with Stori STEM examples is available on our website and you can contact us at anytime.

The most important thing is to get involved, have a go and enjoy the journey from Ddoe, to Heddiw, to Yfory!

EESW STEM Cymru

Website: Ddoe, Heddiw, Yfory
Contact email: info@stemcymru.org.uk