

Innovation Awards 2022 – Shortlist

We are delighted to announce the shortlisted finalists of the **Innovation Awards 2022**.

The Innovation Awards, in partnership with the Welsh Government, recognises the most original project work by students studying Design and Technology, with awards for GCSE, AS level and A level work. Awards are also given for Creativity, CAD/CAM (computer-aided design and manufacturing) and Intellectual Property

Shortlisted Entrants

GCSE

- **‘Bike Safe’** - Jacob Taylor Chow, from Ysgol Glan Clwyd

Judges’ comments: A clever concept that automatically alerts emergency services if the bicycle is involved in an accident. Some high-quality engineering and programming, and useful CAD testing undertaken when developing and refining the idea.

- **‘Gym Spotting Device Using Repurposed Seatbelts from Scrapped Cars’** - James Clark, from Ysgol Gyfun Gymraeg Bro Edern for his useful

Judges’ comments: A well-engineered safety aid for spotting when weight training. Very effective use of waste materials, sourcing and adapting car seatbelts, using a cradle-to-cradle approach rather than manipulating new materials. A well-constructed, fully functioning product responding to a real-life problem.

- **‘Mountain Goat Inspired Climbing Shoe’** - Steffan Hoogendoorn, from Ysgol Gyfun Gymraeg Bro Edern

Judges’ comments: The use of an emerging material TPU95 as a flexible polymer to achieve the nature-inspired sole of a shoe is effective. The design is based on a goat’s hoof and provides enhanced grip and traction for different terrains when out walking, climbing, and hiking. Evidence of extensive CAD skills to model, test, and develop the concept through the iterative cycles, culminating in 3D printing the final proposal.

AS

- **‘Food Peg’** - Charlotte Warren, Ysgol Uwchradd Aberteifi

Judges’ comments: A clever concept that promotes environmental awareness and supports children with plants and growing organic produce / encouraging nature/gardening. This 3D printed mould takes mashed food waste and freezes it into a pointed shape for inserting into the ground to biodegrade as a fertilizer. Excellent CAD CAM skills, and a multiple-focus product.

- **‘Crutch Design Proposal’** - Finnley Colwill-Downs, from Brynteg Comprehensive School

Judges’ comments: A revitalised design for a walking aid. Good use of ergonomic data to fit human bodies, with enhanced features where the aid is held, gripped, and

how the device cushions impact as the user moves.

- **‘Integrated Kitchen Knife Block’** - Ewan Brough, Brynteg Comprehensive School

Judges’ comments: An improved kitchen block, removing the risk of young/small children gaining access to knives from the block. A unique locking system prevents removal. Creative CAD work, with effective 3D CAM output.

A Level

- **‘Portable Blood Centrifuge’** - Jacob Davies, from Ysgol Uwchradd Aberteifi

Judges’ comments: Extensive research into Malaria disease, and the outcome allows the user to separate a blood sample to test for Malaria. Unpowered, this design is completely portable, allowing simple testing in remote areas with no need for any additional specialist equipment.

- **‘Pressure Washer Concept Proposal’** - Niamh Harris, Brynteg Comprehensive School

Judges’ comments: No need to worry about tangling your hose pipe and pressure washer cable - this portable pressure washer allows the user to walk freely with no reliance on power cables. Some high-quality designing and development which follows detailed and critical user needs and wants investigations.

- **‘Quad Clamp’** - Sophia Grace Evans, from Ysgol Llanfyllin

Judges’ comments: To combat the theft of farming / agricultural vehicles/machinery, this device is fitted to the floor, so that the quad bike can be locked to it, preventing it from being moved and stolen. A clever approach to securing valuable equipment that is relied upon every day. A different method of security compared to current products available on the market.

- **‘Solar Powered System to Dry Wetsuits’** - Dylan Brannigan, Ysgol Gyfun Gwyr

Judges’ comments: Perfect for swimmers and surfers who rinse and dry wetsuits after use. Effective hanging design, complete with air cooling system with sustainable power supply. A neat, compact answer to a popular problem!

- **‘Toe Protection for Cricketers’** - Benjamin Morris, from King Henry VIII Comprehensive, Abergavenny

Judges’ comments: A very detailed design journey, showing how this cricketers foot protector prevents injuries. Some excellent testing and development. Much commercial viability in this product. A very hard-hitting video summarising this project.

- **‘Hexagonal Pods’** - Polly Robatto, Ysgol Gymraeg Bro Morgannwg

Judges’ comments: An eco-environment, very aesthetic and supporting of the natural environment. A high-quality scale model of a high-quality modern dwelling.