technocamps

Fully-funded
STEM Enrichment
Programme

PRIFYSGOL
BANGOR
UNIVERSITY

Key: Wizard
Message: SRESASSAEIT(IHOTSNMILRSD:TYSNOIIUSES

Key: Rain
Message: EERLJDREHHYEYQYTWUOOAEYOISWPU
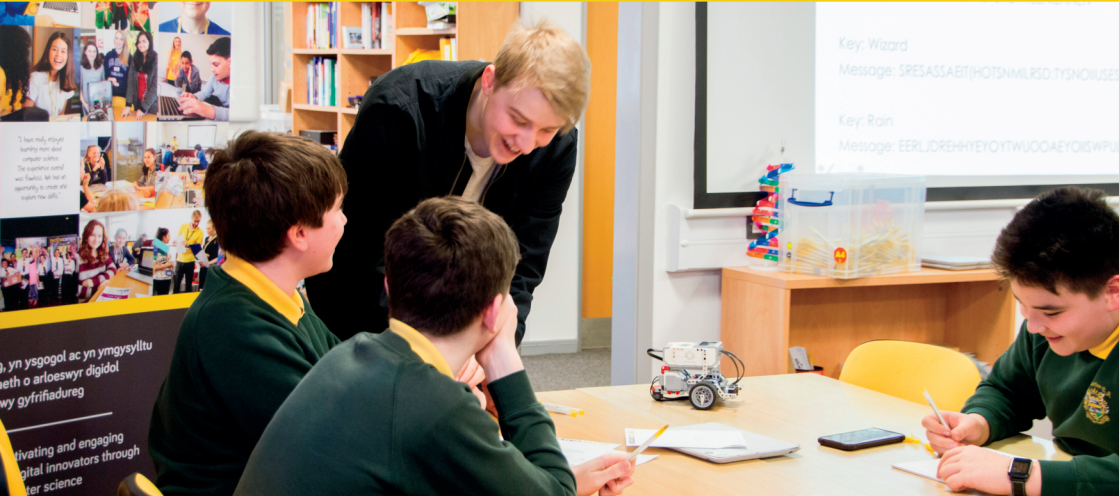
We are funded by the Welsh Government to help you teach Computing and other STEM subjects to your pupils. Our fun and interactive free workshops aim to inspire, motivate and engage young people in STEM at no cost to you. We also offer workshops to support the Computer Science GCSE including Python and Greenfoot.

All workshops are available in English or Welsh, and we can deliver girls-only or mixed workshops.

www.technocamps.com

Prifysgol
Abertawe
Swansea University

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

PRIFYSGOL
BANGOR
UNIVERSITY

Cardiff Metropolitan University
Prifysgol Metropolitan Caerdydd

Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

PRIFYSGOL
ABERYSTWYTH
UNIVERSITY

PRIFYSGOL
Glyndŵr
Wrecsam
Wrexham Glyndŵr
UNIVERSITY

University of South Wales
Prifysgol De Cymru

STEM Enrichment Workshops

technocamps

PRIFYSGOL BANGOR UNIVERSITY

Computational Thinking

- Problem decomposition
- Abstraction
- Pattern recognition
- Algorithm design

Brain Games

- Physical / Mental games
- Problem solving
- Communication
- Team work

Renewable Energy

- Design and prototyping
- LEGO Mindstorms
- Engineering
- Block based coding

Reaction Time

- Scientific method
- Data collection
- Data analysis
- Block based coding
- BBC micro:bit

LEGO Forces and motion

- Physics
- Scientific enquiry
- Problem solving
- Communication skills

Make Some Noise

- Programming
- Design and Technology
- Musicianship
- Sonic Pi
- BBC micro:bit

Digital Tech Skills Builder

- Animation
- Game making
- Website creation

Computational Art

- Mathematics
- Geometry
- Trigonometry
- Coding in Python

Micro:bit Makers

- Project based learning
- Physical computing
- Block based coding
- BBC micro:bit

Welsh Bacc. Skills Builder

- Enterprise
- Entrepreneurship
- Marketing
- Data handling/ analysis
- App development

First LEGO League Missions

- Robotics
- Teamwork
- Problem solving
- Resilience
- Challenge

Code Breakers

- Cryptography
- Computer security
- Stenography
- Cyphers
- Internet safety

STEM Enrichment Workshops

Computational Thinking

Computer Science

Critical Thinking and Problem Solving

2 - 3 hour session

This workshop encourages learners to use their thinking and problem-solving skills to complete a number of collaborative challenges in small teams.

- Improved skills in communication, collaboration and problem solving.
- Finding challenging situations fun and stimulating.
- Improved resilience.

Renewable Energy

Computer Science, Technology, Engineering

Creativity & Innovation

2 - 3 hour session

This workshop introduces some scientific and engineering concepts behind renewable energy - specifically wind turbines.

- Understand how important design is to a project and the factors that influence it.
- Improve understanding of programming concepts.
- Be able to work as part of a team and evaluate and feedback effectively.

Brain Games

Computer Science

Critical Thinking and Problem Solving

2 - 3 hour session

This workshop aims to introduce or reinforce computational thinking principles for learners with little or no programming experience.

- Improved knowledge of Decomposition, Abstraction, Pattern Recognition and Algorithms.
- Improved problem-solving abilities.
- Improved programming skills in Scratch.

Reaction Time

Computer Science, Science

Critical Thinking and Problem Solving; Planning and Organisation

2 - 3 hour session

This workshop shows how physical computing devices can be used to collect data in an experiment. It also shows how this data can be analysed and interpreted to draw conclusions and test hypotheses.

- Improve understanding of the scientific process, e.g. Questions, Hypotheses, Methods, Data and Results.
- Be able to use programmable devices confidently in a scientific investigation.
- Be able to analyse data and make conclusions from it.

STEM Enrichment Workshops

technocamps

PRIFYSGOL **BANGOR** UNIVERSITY

LEGO Forces and Motion

Science, Technology, Engineering

Critical Thinking and Problem Solving

2 - 3 hour sessions

This workshop engages learners in STE(A)M as they experiment with forces, motion and interaction in the context of sports.

- Investigate push and pull forces and use evidence to solve problems.
- Apply scientific enquiry skills.
- Develop and optimise solutions.
- Strengthen oral communication skills.

Digital Tech Skills Builder

Digital Technology GCSE

Critical Thinking & Problem Solving; Planning and Organisation; Creativity & Innovation; Personal Effectiveness

3 hour session

This workshop covers the skills required to complete the practical aspect of Unit 2 'Digital Practices' of the WJEC Digital Technology GCSE. The session will cover one of the following applications: Adobe Animate, Adobe Dreamweaver, Game Maker.

- Aware of what is required for Unit 2 – 'Digital Practices'.
- Confident in the basic use of the application covered.
- Starting to formulate ideas for a product that will meet the requirements for the unit.

Make Some Noise

Computer Science, Technology, Engineering

Creativity & Innovation

2 x 2 - 3 hour sessions

This workshop introduces the idea that programming can be used in more creative applications such as music. This workshop is delivered in 2 modules - making instruments with BBC micro:bits and/or creating music with Sonic Pi.

- Understand how sensors can be used for input.
- Be able to connect external devices to the BBC micro:bit for output.
- Begin to understand how a programming language can be used to create music.

Computational Art

Computer Science

Creativity & Innovation

2 - 3 hour session

This workshop introduces Python for KS3 students in a way that illustrates how coding can be applied to a creative outcome.

- Write simple Python programs using Python Turtle.
- Understand how to use variables, functions and parameters.
- Understand how a physical device can be controlled to produce artwork.

STEM Enrichment Workshops

technocamps

PRIFYSGOL BANGOR UNIVERSITY

Micro:bit Makers

<u>Computer Science, Technology</u>

Critical Thinking & Problem Solving; Creativity & Innovation

2 - 3 hour sessions

This workshop introduces basic coding using the BBC micro:bit and shows how the device can be used to make a product to solve a specific problem.

- Know the different parts of the BBC micro:bit and what they do.
- Apply previous knowledge of block based coding to the BBC micro:bit
- Know how external input can be used to control a device.

First LEGO League Missions

<u>Computer Science, Engineering</u>

Critical Thinking & Problem Solving; Planning & Organisation; Creativity & Innovation; Personal Effectiveness

2 x 3 hour sessions

This series of workshops aims to introduce students to the First Lego League Challenge.

- Improved problem solving
- Work together to create a successful solution to a problem
- Aware of the challenges involved in First Lego League
- Understand how line following is useful in robotics
- Improved programming skills
- How tactics play a part in competition.

Welsh Bacc. Skills Builder

<u>Technology</u>

Creativity & Innovation, Personal Effectiveness

3 x 2 hour sessions

This workshop introduces and improves the skills needed to complete various aspects of the Welsh Baccalaureate, particularly the Enterprise and Employability Challenge. It can also include further sessions introducing app development.

- Understand how to use SWOT analysis
- Understand markets, market research and social media marketing
- Understand the 4 P's
- Learn the skills needed for reflection
- Be proficient in basic app design

Code Breakers

<u>Computer Science, Mathematics</u>

Critical Thinking and Problem Solving

1 - 2 hour session

This workshop introduces the concepts behind code breaking and cryptography.

- Understand how and where cryptography is used.
- Be able to encrypt and decrypt messages using Caesar cypher / pigpen cypher.
- Improved problem solving and communication skills.

How our workshops support the new Areas of Learning and Experience

Science & Technology

Workshop \ What matters AoLE	Being curious and searching	Design thinking and engineering	The world around us	Matter and the way it behaves	Forces and energy	Computation is the foundation
Computational Thinking		✓				✓
Brain Games		✓				✓
Code Breakers						✓
Reaction time	✓	✓	✓			✓
Smart Greenhouse	✓	✓	✓			✓
Computational Art		✓				✓
Renewable Energy		✓			✓	✓
Make Some Noise		✓				✓
Micro:bit Makers		✓				✓
WB Skills Builder		✓				✓
FLL Missions		✓				✓
Digital Tech Skills Builder		✓				✓

How our workshops support the new Areas of Learning and Experience

Mathematics & Numeracy

What matters AoLE / Workshop	The number system	Algebra uses symbol systems	Geometry focuses on relationships	Statistics represent data
Computational Thinking	✓	✓		
Brain Games	✓	✓		
Code Breakers	✓	✓		
Reaction time	✓	✓		✓
Smart Greenhouse	✓	✓		✓
Computational Art	✓	✓	✓	
Renewable Energy	✓	✓		
Make Some Noise	✓	✓		
Micro:bit Makers	✓	✓		
WB Skills Builder	✓			✓
FLL Missions	✓	✓		
Digital Tech Skills Builder	✓	✓		

Appendix - Curriculum for Wales

How our workshops support the new Areas of Learning and Experience

Languages, Literacy & Comms

Workshop / What matters AoLE	Languages connect us	Understanding languages is key	Expressing ourselves through languages	Literature fires imagination
Computational Thinking		✓		
Brain Games		✓		
Code Breakers		✓		
Reaction time		✓		
Smart Greenhouse		✓		
Computational Art		✓		
Renewable Energy		✓		
Make Some Noise		✓		
Micro:bit Makers		✓		
WB Skills Builder				
FLL Missions		✓		
Digital Tech Skills Builder		✓		

How our workshops support the new Areas of Learning and Experience

Humanities

What matters AoLE / Workshop	Enquiry, exploration & investigation	Events and human experiences	Our natural world is diverse and dynamic	Human societies are complex and diverse	Informed, self-aware citizens
Computational Thinking	✓				
Brain Games	✓				
Code Breakers	✓				
Reaction time	✓				
Smart Greenhouse			✓		✓
Computational Art					
Renewable Energy			✓		✓
Make Some Noise					
Micro:bit Makers					
WB Skills Builder					
FLL Missions					
Digital Tech Skills Builder					

How our workshops support the new Areas of Learning and Experience

Health & Well-being

What matters AoLE / Workshop	Developing physical health and well-being	How we process and respond	Our decision-making impacts	How we engage with social influences	Healthy relationships are fundamental
Computational Thinking					
Brain Games			✓		
Code Breakers					
Reaction time	✓				
Smart Greenhouse					
Computational Art					
Renewable Energy					
Make Some Noise					
Micro:bit Makers	✓				
WB Skills Builder					
FLL Missions			✓		
Digital Tech Skills Builder					

Appendix - Curriculum for Wales

How our workshops support the new Areas of Learning and Experience

Expressive Arts

Workshop \ What matters AoLE	Exploring the expressive arts is essential	Responding and reflecting	Creating combines skills and knowledge
Computational Thinking			
Brain Games		✓	
Code Breakers			
Reaction time			
Smart Greenhouse			
Computational Art	✓		
Renewable Energy			
Make Some Noise			
Micro:bit Makers	✓		
WB Skills Builder			
FLL Missions			
Digital Tech Skills Builder	✓	✓	✓

If you are interested in booking any number of workshops, get in touch. We can also adapt or develop workshops based on your teaching needs, just let us know how we can help.

www.technocamps.com

bangor@technocamps.com
01248 38 2728

@Technocamps BU