The Institution of Engineering and Technology

EESW IET 150
MY SUSTAINABLE COMMUNITY COMPETITION – Teacher's competition handbook

EESW IET 150 - MY SUSTAINABLE COMMUNITY Competition Handbook

This handbook is given as a guide for teachers, supervisors, and group leaders to support young people taking part in the competition. The handbook explains how to take part, a competition brief, simplifying each stage and guidance on completion. Supporting resources include a PowerPoint, an introduction video and a young person's handbook.

The closing date for all entries is ***Friday 28th January 2022***, please submit all work to IET150@eesw.org.uk

Contents

1. Introduction

What is the EESW IET 150 - MY SUSTAINABLE COMMUNITY Competition?

The **IET 150 - MY SUSTAINABLE COMMUNITY** Competition will help encourage young people to consider their community response to the sustainability and climate change agenda and to consider a career in STEM by giving students a positive experience using their STEM knowledge, skills, and experience to meet the challenge brief.

How it works

The EESW & The IET will provide groups/individuals with a **MY SUSTAINABLE COMMUNITY** introduction video, handbook(s) and PowerPoint to get started.

As part of the resources, young people will be given a brief and ideas they may wish to consider, then it's over to them to research and design a solution to meet the **MY SUSTAINABLE COMMUNITY** Competition requirements. Their work should be submitted to: IET150@eesw.org.uk no later than *Friday 28th January 2022.*

Projects submitted by the closing date will be entered and assessed for the opportunity to win an award.

There are three categories of entry – **Individuals**, **Small Groups** (*up to 10 per group*) or **Large Groups** (*over 10 per group*), plus two classes for each category – **Class 1** (*ages 7-10*) and **Class 2** (*ages 11-14*).

Multiple age groups can participate if desired, and the competition may be modified to make it age and ability appropriate. The relevant guidelines for running and submitting the project for the competition are included in the handbook.

2. Competition Brief

EESW IET 150 - MY SUSTAINABLE COMMUNITY Competition Brief

Our communities have evolved over thousands of years, but never before has sustainability been so important.

You are required to design and build a sustainable community, similar to where you live, but from the beginning. Imagine an open piece of land with nothing on it, a blank canvas, this is where you begin.

You should include 150 homes for the people within the community to live in, the rest is up to you. You need your community to be sustainable, that means considering the environment and everything that lives in it.

From providing shelter and water, to heating, food sources and your economy, the challenge is yours. Where will the community buy goods? Where will they work? Where will they go for education or if they feel unwell? And finally, how will they get there?

These choices and so many more will be yours to make as you design and create your own sustainable community!

3. Competition Stages

Stage 1 –Welcome

- Each group/individual should have access to the Introduction Video and Young Person's Competition Handbook.
- Each group/individual should discuss their Competition ideas with their Teacher/Supervisor/Group Leader.

Stage 2 Commencing the Competition

As guidance, a group/individual could start with:

- Assessing and researching the current local community, considering other communities around the globe.
- Preparing a planning system. e.g., Gantt chart with Teachers to ensure your time is spent effectively.
- Devising ideas and possible solutions.
- Develop their designs to a finished concept.
- Producing any display or digital models to represent the community/specific part of the community.

Stage 3 Completion

Each group/individual should:

- Produce a portfolio/booklet/poster of work and prepare for submission with Teacher support.
- Produce display model(s)/digital model(s) of their solutions and take pictures/video for submission with the portfolio.
- Submit all completed entries electronically to: IET150@eesw.org.uk no later than *Friday 28th January 2022.*

EESW IET 150 - MY SUSTAINABLE COMMUNITY Key dates

We have included a competition calendar which highlights key dates. Pupils have also been provided with a calendar in their handbooks to encourage effective time management.

Competition	Calendar
1	Submit a digital copy of work to: IET150@eesw.org.uk no later than ***Friday 28th January 2022***.
2	Competition Judging will commence ***Monday 31st January 2022.***
3	Winners notified by ***Friday 25th February 2022***.

4. Guidance

Competition Classes

There are 3 categories of entry – **Individuals, Small Groups** *(up to 10 per group)* **and Large Groups** *(over 10 per group)***.** For each category there are two Classes **– Class 1** *(age 7-10)* and **Class 2** *(age 11-14).*

Competition Class	Individual:	Small Group (2-10):	Large Group (+10):
1 **Age 7-10**	A project booklet/poster, plus a small community model or individual model of part of the community.	A project booklet, plus a completed community model or several individual models of different areas of the community.	A class project booklet, plus a completed community model or several individual models of different areas of the community.
2 **Age 11-14**	A portfolio/booklet/poster, plus a small community model or individual model of part of the community.	A portfolio (suggested length of 14 pages), plus a completed community model or several individual models of different areas of the community.	A class portfolio (suggested length of 15+ pages), plus a completed community model or several individual models of different areas of the community.

***Please note**, all information provided is just a suggested amount, there is no maximum or minimum number of pages required for the booklet/portfolio, or for the number of models submitted. Models can be physical or digital, or a combination of both*.

Portfolio/Booklet/Poster Guidance

Each group/individual should submit either a portfolio, booklet or poster which should look to include some of the ideas below as a guide. It may also include photographs, illustrations, designs drawings, references, tables etc.

Typical portfolio/booklet sections and contents may include the following:

1. Title Page : *Name of school, project title, each student's and team name and class year - design a professional cover.*

2. Contents: *Indexed list of contents in the project with page numbers – if there are sub sections include these.*

3. Overview: *Essential details of the project, such as a statement of the project, the main results, and conclusions*

4. Introduction: *Project brief and background information.*

5. Research and analysis: *The background to the project, with details of research, to assist the investigation. Develop possible solutions to the challenge and any decision analysis – e.g., what are the advantages and disadvantages.*

6. Procedure: *A description of processes leading to the selection of the best solution. How were ideas generated, what system did they involve for decision making and consistency, how did they rank the solutions they have developed?*

7. Design: *An illustrated account of the process of arriving at the final solution. From initial sketches to the final design.*

8. Conclusion: *A statement of solutions to the challenges faced. Include strengths and weaknesses, benefits and opportunities and areas still to develop.*

Display Model Guidance

*To adhere to the ethos of the project, any physical models should be made from **renewable/sustainable or recyclable materials**. As per the requirements of the class/age group, models can be of an entire community, a section of a community or a specific area such as energy generation, transport, a particular service etc. Digital and Concept models can also be submitted. We recommend models are no larger than table tops for easier construction.*

5. Competition Assessment Criteria

The aim of the assessment procedure is to indicate achievement under each of the following criteria (there are a total of 90 marks available, split as shown).

1. Analysis of Brief – 5 marks

- *Understood the brief*
- *Explained the issues involved*
- *Suggested appropriate plans for future development*

2. Project Management – 5 marks

- *Evidence of good time and project management*

3. Produced a Solution – 10 marks

- *Demonstrated solutions*
- *Evaluated solutions using different methods*
- *Discussed how successful your solution will be for the future of the community*

4. STEM Knowledge and Skills – 10 marks

- *Displayed skills in Science, Technology, Engineering and Maths*

5. Sustainability - Commercial, Social and Environmental factors – 10 marks

- *Shown awareness of sustainability (commercial, social, and environmental implications)*
- *Identified any potential estimated cost benefits?*

6. Written Portfolio/Booklet/Poster – 20 marks

- *Portfolio/Booklet/Poster is clear, concise, well-presented, and accurately sets out the process undertaken*

7. Model Design & Manufacture/Digital Design – 20 marks

- *Model(s) or digital design is well designed, creative, and thought provoking*

8. Judge's Discretion – 10 marks

Extra marks, reserved by the judges and awarded for any areas where judges feel extra marks are deserved, for example:

considered, work done, enthusiasm and ideas over and above the guidance given, independent research and reference to information provided in additional resources.

6. Contact Information

For further information on the competition, to take part or for general enquiries please contact EESW.

Email: IET150@eesw.org.uk

Website: www.stemcymru.org.uk **Phone number**: 01656 669381

7. Useful Resources

Engineering Council's 6 Guidelines to Sustainable Engineering

This guidance is intended as an introduction to sustainable development and aims to encourage all those working in engineering to adopt sustainability thinking in their practice. It applies across all sectors of engineering, so sector-specific context and practical step-by-step guidance are not included. For that, users are encouraged to refer to material published by a range of sectoral organisations, including engineering bodies, governments and corporates.

Some links are available on the Engineering Council's sustainability website pages: www.engc.org.uk/sustainability

IET Key Principles

Climate change is a significant long-term challenge for our planet. The responsibility to drastically reduce our impact on the climate falls on all areas, industries and sections of society. Addressing global warming quickly and effectively requires urgent, clear and decisive leadership, both politically and within the industry, and relies on establishing the infrastructure, systems and governance for long term sustainability. Finding a solution, is, without doubt, the most difficult and important engineering challenges of our time, one which the Institution of Engineering & Technology (IET) is determined to lead.

Engineers have the skills, insights and ingenuity to help tackle climate change in ways that optimise efficiency, economy, safety and reliability. As engineers, we are problem solvers and innovators, with a unique world perspective. Most of these issues are significant, challenging and require unprecedented collaborative action. Engineering is central to solving them.

Lots of helpful resources can be found on the IET website to help you understand the current issues around tackling sustainability: www.theiet.org/impact-society/sustainability-and-climate-change/