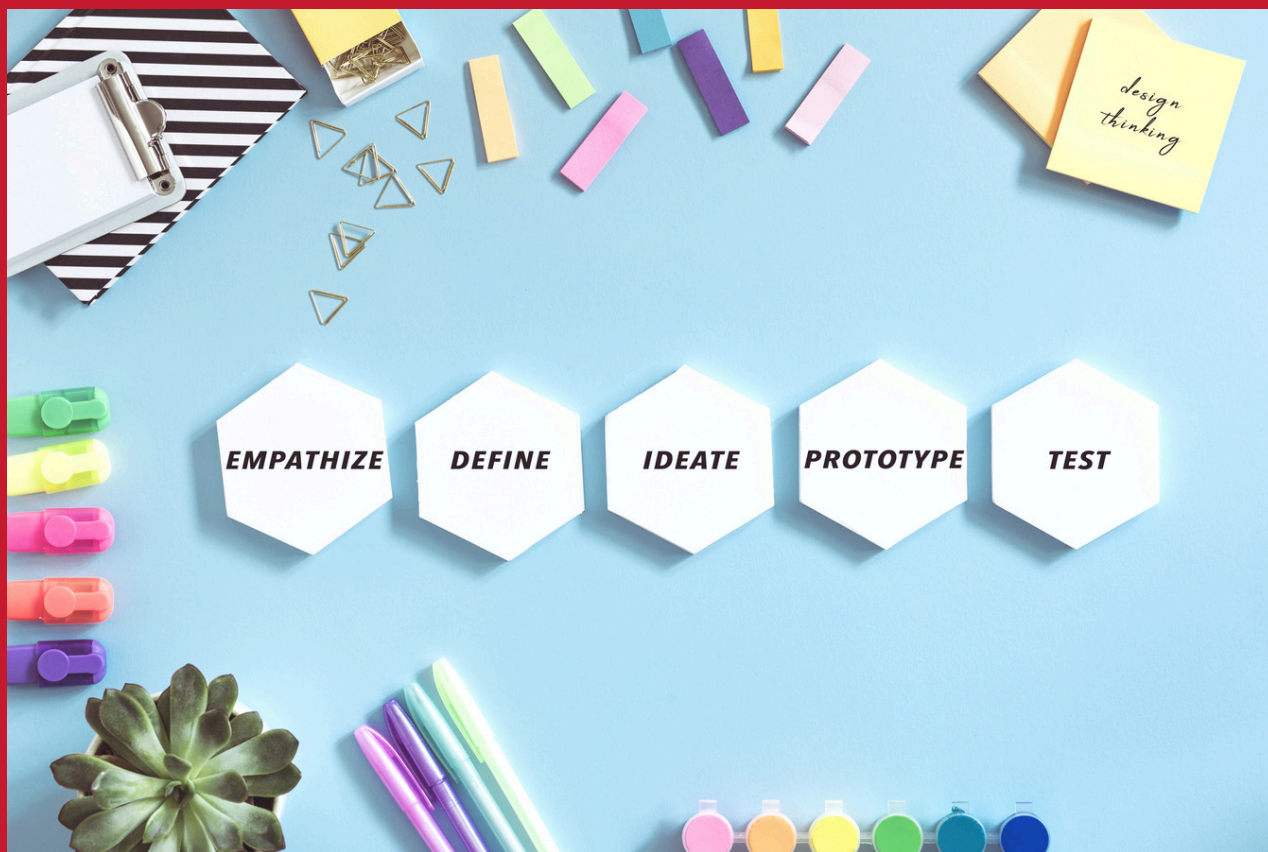


Muinín Catalyst STEAM Education for Sustainable Development and Futures Literacy

SDG 4 STEAM Tasters



Stand Alone Programme: STEAM Tasters

Subject Areas:

Science, Technology, Engineering, Arts, Mathematics, Humanities, Design

8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 	17 PARTNERSHIPS FOR THE GOALS 	 Science Foundation Ireland
				 An Roinn Oideachais agus Scileanna Department of Education and Skills

SDG4 STEAM Tasters



Introductory Micro-Module

Lessons 1 - 5

Subjects: Science, Technology, Engineering, Arts, Mathematics, Humanities, Design

Summary: STEAM Tasters

STEAM Tasters is an engaging and hands-on, five-lesson module designed to introduce learners to content and skills development in challenge-based design. The module aims to foster curiosity, creativity, and critical thinking skills among learners, providing a glimpse into the interdisciplinary nature of STEAM fields.

Design plays a crucial role in learning environments, influencing how information is presented, how engagement is fostered, and how concepts are absorbed.

The lesson activities are all underpinned by stages of Design Thinking, a problem-solving approach that emphasises empathy, creativity, and iterative prototyping to address complex challenges.

The module adapts lessons and activities from our Problem to Pitch core module and other leading innovation organisations. This module introduces learnings to disruptive innovation techniques and offers transferable skills.

In this toolkit, the learner will:

- be immersed in key skills of design
- demonstrate understanding through prototyping
- improve teamwork skills
- develop solutions to problems
- be encouraged to use critical thinking and creativity
- reflect and reconsider

Materials

- Lesson plans
- Worksheets

8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



17 PARTNERSHIPS FOR THE GOALS



SDG4 STEAM Tasters



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Lesson 1: Design Challenge Stations

Design challenge stations offer participants a dynamic and interactive environment to tackle real-world problems, fostering creative thinking and collaboration. These stations provide a hands-on approach, encouraging participants to explore innovative solutions and refine their design skills within a constrained yet stimulating setting. In this lesson learners will be introduced to the process of Design Thinking by selecting one of three challenges without specific skill input.

Resources include: Design Challenge Briefs

Lesson 2: Rapid Prototyping- Improving Your Build

Rapid prototyping speeds up the design process by creating tangible models of a product, enabling designers to test and refine their ideas quickly. In this lesson learners will build upon their skills from the previous lesson, learning specific techniques for prototyping a design, in a new challenge.

Resources include: Worksheet: Rapid Response Prototyping

Lesson 3: Building Empathy

Empathy in design is vital as it allows designers to understand and connect with the needs, emotions, and experiences of the end-users. By putting themselves in the users' shoes, designers can create more inclusive, intuitive, and user-centric products or experiences. Empathy fosters a deeper understanding of diverse perspectives, resulting in designs that not only function effectively but also resonate on a human level, ultimately enhancing user satisfaction and engagement. In this lesson learners will work with specific user profiles to design and prototype a chair.

Resources include: Worksheet: Stanford Design User Profiles

Lesson 4: Ready, Steady, Build!

Learners are set a challenge with deliberate limits that encourages creative thinking and problem solving, as well as enabling them to use the skills they have developed in previous lessons.

Lesson 5: Worst Idea Ever

The Worst Idea Ever is a technique used by innovation developers to ideate their way through bad ideas into good ones. In this lesson, learners will generate bad ideas for goods and services, transforming them into potential good ideas for market.

Module development and expertise: Dr Anita McKeown and Rebecca White, FutureFocus21c

If you wish to use these resources, we can offer an induction and online support throughout the unit. To register for this option, please contact e: hello@futurefocus21c.com

SDG4 STEAM Tasters



Setting up an online learning environment for the lessons on this module:

Our lessons integrate the use of virtual learning environments. To ensure seamless use of our lessons, a module should be setup on your school's virtual learning environment such as Teams, Google Classroom, etc. Learners are encouraged to upload documents to share with their peers. If your virtual learning environment does not support document sharing, we recommend OneDrive or Google Drive.

You can also use Google Sites or Microsoft Sway to encourage learners to present their work over the year - this can easily be set up to reflect the aims of TY and provide a showcase for their work as well as assessment tool.

Setting up a Canva Education account:

If your virtual learning environment does not support document sharing, we recommend OneDrive or Google Drive.

As our lessons integrate design, our lessons also refer to Canva. Educators and schools are able to open a free [Canva for Education](#) account by registering. Canva for Education provides primary and secondary school teachers and students with premium features and templates. You can then also set up lessons and invite your learners to the class.

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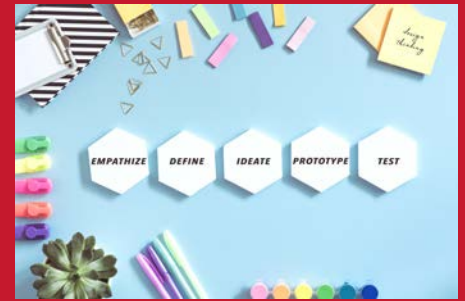
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