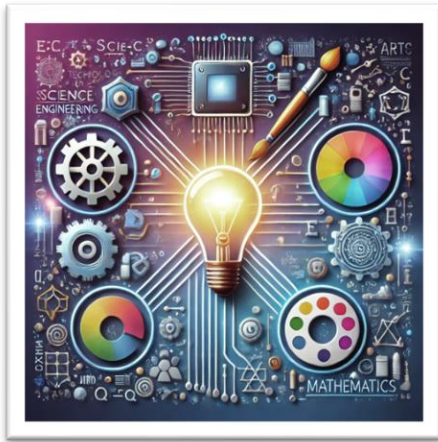


STEAM as an approach

STEAM (Science, Technology, Engineering, Arts and Mathematics) is a multidisciplinary approach to education that removes traditional barriers between subjects and disciplines. It connects science, engineering, mathematics and technology with arts, humanities, and social sciences. STEAM activities are often co-creation projects for learners to improve their understanding of the world around them and their understanding of complex concepts such as sustainability or engineering. Activities can take place both in formal and non-formal learning environments. **STEM competences** encompassing science, technology, engineering, and mathematics are needed in modern societies and economies that are driven by technological innovations.



STEAM is a pedagogical approach and teaching methodology that integrates the STEAM subjects into students' learning processes. This prepares students for real-world challenges, which are often interdisciplinary. STEAM education develops 21st-century skills (transversal skills) like creativity, problem-solving and innovation as well as acknowledges the importance of social and ethical contexts in technology.

The STEAM education provides a natural environment to apply modern pedagogical models like problem-based learning, project-based learning, inquiry-based learning or phenomenon-based learning. The STEAM approach fosters co-creation and co-innovations. It values real-world application and provides hands-on learning opportunities.

Modern STEAM education is responsive to the evolving demands of the modern workforce and society and also addresses the use of Artificial Intelligence (AI). It is important to strengthen gender equality in STEM and address the gender gap in STEAM education across educational levels as well as in informal learning. To enhance the inclusion of women in digital technology and the digital economy, it is essential to encourage girls' and women's participation in STEM studies and careers.

Questions to ponder:

1. What transversal skills can be developed with STEAM pedagogy, for example in co-creation projects?
2. How can STEAM learning activities to be created to promote meaningful and interdisciplinary competences for learners?
3. How to gender equality in STEM be strengthened by encouraging girls' and women's participation in learning STEAM?
4. How can learners have access to the most up-to-date knowledge and exchange with experts in STEAM projects?

For references and more information:

- [Digital Education Action Plan: Action 13 - European Education Area: Women's participation in STEM studies and careers](#)
- [STEM competencies, challenges, and measurements - Publications Office of the EU](#)
- [Addressing the gender gap in STEM education across educational levels - Publications Office of the EU](#)
- [EU Stem Coalition](#)