



# Strategy for the years 2014–2025

## 1. Background

High-level expertise in mathematics, natural sciences and technology (STEM fields) is essential to Finland and the well-being of the Finnish people with regard to both societal decision-making and the professional arena. Sufficient numbers of STEM experts are required everywhere in Finland and this expertise should be genderless. In light of latest research, children and youth should be supported more vigorously in developing their expertise and interest in STEM subjects.

Universities have a central role to play in securing the necessary STEM expertise. The existence of a sufficient number of skilled and inspiring STEM subject teachers must be guaranteed. Basic teacher training and STEM activities must be bridged in new ways. Similarly, STEM subject teachers at all levels of education must be guaranteed the opportunity to participate in lifelong learning. Interaction between schools, universities, the professional world and parents must be strengthened and developed.

In order to achieve this, more versatile and research-based, scientifically high-quality support functions, approaches and resources are required.

## 2. LUMA Centre Finland

LUMA Centre Finland is an umbrella organisation for national and international LUMA activities and it functions as an organised network. It consists of the following 11 LUMA centres operating in conjunction with universities or university consortiums:

- LUMA Centre of the University of Helsinki
- LUMA Centre of the University of Eastern Finland
- LUMA Centre of Central Ostrobothnia (Kokkola University Consortium Chydenius)
- LUMA Centre of Central Finland (University of Jyväskylä)
- LUMA Centre of South-Western Finland (University of Turku)
- LUMA Centre Aalto (Aalto University)
- LUMA Centre of Lapland (University of Lapland)
- LUMA Centre Saimaa (Lappeenranta University of Technology)
- LUMA Centre of the University of Oulu
- LUMA Centre Päijät-Häme (Lahti University Campus)
- LUMATE Centre of Tampere (University of Tampere and Tampere University of Technology)

## 3. Vision

The goals of LUMA Centre Finland and its member centres are to reach a high level of knowhow in science and technology among pupils, students and teachers and to ensure a sufficient number of science and technology professionals all across Finland.



## 4. Mission

The purpose of LUMA Centre Finland and its member centres is to

- inspire and encourage girls and boys aged 3–19 to study and get involved in mathematics, science, IT and technology and to apply for further education in STEM fields all across Finland
- promote awareness among the parents of children and youth about the significance of studying STEM subjects and the professional opportunities they provide
- support education research and the lifelong learning and education of future and current STEM subject teachers
- increase the visibility of STEM subjects in society via events and the media
- support the research-based development of STEM subject teaching

## 5. Operations model

LUMA Centre Finland operates in accordance with an annual plan of action and a national strategy verified by the Board of the Centre in co-operation with its various interest groups across Finland.

- The Centre organises science and technology clubs, camps, theme days (e.g., days where students become acquainted with work life) and courses for children and youth in both physical and virtual environments across the country. To support these activities, instructor training is organised as part of basic teacher education.
- Various models are developed to promote quality in basic teacher education and continuing teacher education. National training events are held for teachers across Finland.
- Studying at school and in clubs is supported and the joy of discovery is increased by national measures promoting project work. The development of basic teaching is promoted via the LUMA SUOMI development program funded by the Finnish Ministry of Education and Culture in 2014–2019.
- Science/technology classrooms and laboratories are developed all over Finland in such a way that they form centres for STEM education and research. Operations are also extended to those LUMA centres that do not have them yet. The research-based development of meaningful study methods, teaching technologies and learning environments is promoted. Interaction with the parents of children and youth and with business life is also increased.
- The profile of Finnish STEM expertise, STEM research and STEM teaching innovations is increased via the national LUMA.fi online portal, LUMA newsletter and LUMA TV. International awareness is raised with the LUMA News webzine and international events.
- Research-based development in the field is advanced via jointly organised events and the scientific journal LUMAT.
- Co-operation with policy makers, interest groups and the media is utilised to reach the set goals.

International co-operation is also harnessed to support the realisation of the national goals.