

Annual report 2024

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1. Director's review

The year 2024 was filled with enthusiasm and activity, and together we achieved good results in relation to the goals of our national mission. We inspired and encouraged children and young people across Finland to study and engage with STEM subjects in new and diverse ways. In addition, we provided comprehensive support for lifelong learning among teachers—from early childhood education to higher education institutions nationwide. We also strengthened research-based educational development, teacher training, and collaborative activities with various stakeholders.

We developed new models for teaching from early childhood education to higher education and teacher training, in collaboration with various stakeholders, including international partners. Our activities also became established in numerous regional LUMA centres through university operational plans and the institutionalization of key actors. Our work supports the goals of the national STEM strategy and its action plan.



Together, we strengthened science education in every corner and cove, reaching over 100,000 future changemakers in Finland during the year. We especially enhanced remote activities by offering high-quality, freely available online teaching materials. Through virtual means, we reached an estimated audience of nearly one million participants. Study visits, either in person or remotely, to the 17 LUMA labs remained among the most popular forms of activity. A new model, the community-based virtual club, reached a total of 1,743 children and served as a new training model for teachers and instructors. In the international StarT LUMA program, we developed a research-based model to promote diversity, involving universities from four countries. A new online course, 'Science Ambassador,' was launched on university digital platforms as an inspiring activity open to all.

Teachers and teacher education were at the core of our activities. Several effective models were strengthened in higher education institutions to implement research-based teacher training within the LUMA framework. We supported the development of LUMA activities in schools through the development community model and the LUMA(TE) certificate. With the support of the Finnish National Agency for Education, we organized popular lifelong learning trainings online and across the country, for example, LUMATIKKA and 'From Teacher to Teacher'. We successfully organized the national LUMA Days in Turku as well as the international Science on Stage event, which brought together participants from over 50 countries. The nationwide LUMA Weeks at the beginning of the year inspired future changemakers across Finland.

Research-based activities and a sense of community were reflected in our work in various ways, from planning to implementation, in line with our research strategy. Numerous theses and publications related to our activities were also completed at universities. The popular national and international LUMAT research forum events, along with the scientific LUMAT journal, supported the realization of our goals. Our operating model is generating widespread international interest. We contributed to international networks such as IDos and the EU STEM Coalition, while also learning ourselves. We established numerous cooperation agreements with universities in different countries, and ERASMUS projects supported our objectives.

One of the year's highlights was the publication of a free LUMA guide, featuring best practices and activities for early childhood education to higher education. In addition, together with the Finnish National Agency for Education, we organized a national LUMA seminar on December 17, 2024, which addressed current themes related to the national strategy, its action plan, and its evaluation. The seminar's theme, 'Building the Future Through Community,' provided significant communal guidelines for the future of LUMA education and activities. Key future directions:

- Teacher education: Ensure the continuation of research-based teacher education programs and develop new initiatives to enhance the role of

teachers, pedagogical and guidance skills, and the development of school operational cultures.

- Resourcing of LUMA centres: Strengthen the resourcing of LUMA centres so they can support education providers in developing LUMA teaching, teacher competence, and extracurricular STEM activities.
- Strengthening STEM competence: Enhance STEM skills and increase the joy of learning through accessible and educationally equitable extracurricular activities, in collaboration with schools, science centres, and other actors.
- Science competitions: Invest in Finnish innovation capacity by providing long-term resources for science competitions and related training.

I warmly thank the university leaders, the board, the advisory council, all contributors, partners, and funders for the excellent collaboration and trust this year and throughout my leadership terms. At the same time, I wish you all the best for the future. The future makers remain in our hearts! Together we are more! (LUMA motto)

With kind regards,

Maija Aksela

Director of the LUMA Centre Finland Network (2013–2025)

LUMA Science Ambassador (2025–)

Professor of Science Education

University of Helsinki



The colorful illustration for the Science on Stage festivals showcased landmarks of Turku and highlighted Finnish LUMA expertise.

2. National task

The year 2024 marked the final year of the national mandate period (2021–2024) granted to LUMA Centre Finland by the Ministry of Education and Culture. The aim of the Ministry's funding was to ensure a high level of competence in mathematics, science, and technology, as well as to secure enough experts in Finland. The LUMA Centre Finland board and actors defined three key actions to achieve this goal. Progress on these actions was assessed annually during the network's development days and adjusted according to the needs of the following year. The following sections describe how the goals were achieved in 2024.

Supporting Teachers' Lifelong Learning

In 2024, the LUMA Centres supported the implementation of curricula in schools and early childhood education units in diverse ways. We provided teaching tools for loan, developed learning materials, and organized study visits both at universities and online. Various events and workshops held throughout the year were especially popular. Workshops were organized, for example, via remote connections and as part of events hosted by other organizations. Both formats reached many target groups for whom traditional study visits were not suitable due to factors such as location, group size, or access to information.

A highlight of the year was the organization of the Science on Stage festival, Europe's largest lifelong learning event in STEM education. LUMA Centre Finland served as the main funder and organizer of the event. Held in Turku from August 12–15, the festival brought together around 750 STEM professionals from 40 different countries. The annual LUMA Days were also held in conjunction with the festival. The theme of the 2024 festival was Sustainability in STEM Education. The event featured workshops, presentations, and a large exhibition where teachers showcased their pedagogical innovations. The festival offered Finnish teachers a unique opportunity to explore the ideas of their European colleagues and to strengthen science education networks both nationally and internationally.

In addition, we continued the LUMA/STEAM certificate collaboration with the Technology Industries of Finland. During 2024, the certificate was awarded to 44 schools in recognition of their efforts to develop competence in mathematics, science, and technology. Six schools achieved the highest level (Level 3), 20 schools reached Level 2, and 18 schools were awarded Level 1.

Strengthening Inter-University Collaboration and External Partnerships

In 2024, universities continued to integrate LUMA activities into teacher education and research. The institutionalization of these activities progressed in many universities, and resources for the development of science education were further strengthened. One example of such collaboration is the Tekoälytaiturit (AI Experts) project, carried out jointly by Aalto University Junior and Tampere University.

Expanding Access to LUMA Activities for Children, Youth, and Families During Leisure Time

In autumn 2024, the LUMA Centre Finland network organized a remote science club, supported by the network's administration and involving seven LUMA centres. The main goal of the club was to provide accessible and inspiring LUMA activities for primary school pupils in grades 1 and 2. At the same time, the club served as a new form of lifelong learning for instructors working in municipal afternoon programs. During the sessions, children had the opportunity to virtually explore different parts of Finland. The broadcasts rotated between Jyväskylä, Rovaniemi, Turku, Helsinki, Lappeenranta, Vaasa, and Joensuu. Some sessions were bilingual, allowing participation from language immersion groups and Swedish-speaking clubs.

The first pilot was held on Tuesday afternoons, and each session was recorded to allow participation at other times. The recordings proved to be very popular and were supplemented with written instructions and a list of required materials for instructors. A total of 114 clubs registered, involving 1,743 children and 259 afternoon club instructors.

3. National STEM Strategy and Action Plan

At the beginning of 2023, the Ministry of Education and Culture published the LUMA strategy, which aims to strengthen competence in science, mathematics, engineering, and technology through 31 concrete actions. LUMA Centre Finland was designated as the responsible party for eight of these actions and contributes to other actions assigned to higher education institutions, science centres, and other field actors, as appropriate. The network is committed to implementing these actions to achieve the strategy's goals by 2030.

The National LUMA Advisory Board, which serves as a consultative forum for the LUMA Centre Finland board, is responsible for monitoring the implementation of the LUMA strategy's actions and reporting annually to the Ministry of Education and Culture. In August 2023, the advisory board established a monitoring working group to pilot the evaluation of the strategy and its action plan. The group also met in autumn 2024 and produced a prioritization of the actions. The results were reported to the advisory board and the Ministry and presented at the LUMA seminar held on December 17 at the University of Helsinki in collaboration with the Finnish National Agency for Education.

4. Joint Projects

In 2024, LUMA Centre Finland coordinated two projects funded by the Finnish National Agency for Education: LUMATIKKA+, which began in 2023, and Opettajalta opettajalle (From Teacher to Teacher), which started in 2024.

LUMATIKKA+

In autumn 2023, a working group of mathematics education experts began developing an updated version of the LUMATIKKA continuing education program, called LUMATIKKA+. In February 2024, eight online courses were launched (seven in Finnish and one in Swedish), focusing on strengthening broad foundational skills in mathematics, special education pedagogy, and diverse assessment methods.

During the summer, the working group gathered in Helsinki for development days to revise the courses based on experiences and feedback from the spring term in preparation for the autumn implementation.

The autumn term began on September 2, with the addition of a final online course: LUMATIKKA+1: Matematisk modellering – ett specialpedagogiskt perspektiv. By the end of 2024, the project had achieved the following within one year:

- 9 online courses and 17 course implementations
- 50 subtitled videos
- 71 written materials
- 17 in-person training sessions and 2 webinars
- Website updates and marketing materials

The participation target set by the Finnish National Agency for Education was 700, which was already reached by autumn 2024, halfway through the project. Participant feedback has been consistently very positive. The program has also attracted interest from partner organizations, leading to collaboration with municipal education

providers and the Finnish Association for Teachers of Mathematics, Physics, Chemistry and Informatics (MAOL), as well as educational equipment suppliers.

Opettajalta opettajalle (From Teacher to Teacher)

The From Teacher to Teacher project aims to support teachers' professional development and growth through a collaborative approach. The project plan is based on feedback collected from the LUMA Developers activities conducted between 2021 and 2023.

The project includes a training series built around new knowledge, hands-on activities, and dialogue. It began in August 2024. The autumn term trainings were held online, with an additional option for teachers to complete the training independently at their convenience via the DigiCampus platform.

The webinars offered through the project aim to provide new teaching materials and methods aligned with the national curriculum. Each webinar consists of three parts: a lecture, a practical segment focused on instructions, discussion, or hands-on activities, and an open discussion session.

By the end of 2024, just under 100 teachers or instructors from various educational levels had registered for the project. By early 2025, this number had already grown to over 200 participants.



LUMA-OPAS

Oivaltamisen ja onnistumisen
iloa yhdessä

Reija Pesonen, Alisa Uusi-Kilponen,
Oona Kiviluoto ja Maija Aksela (toim.)

LUMA-keskus Suomi



The new LUMA Guide was published: The Joy of Discovery and Success Together.

5. Publications and Reports

During the year, numerous research articles, reports, and news items were published, including the LUMA Guide released at the end of the year and the Northern Sámi learning material Kahdeksan.

Pesonen, R., Uusi-Kilponen, A., Kiviluoto, O. & Aksela, M. (2024). *LUMA-opas : oivaltamisen ja onnistumisen iloa yhdessä*. Helsinki: Helsingin yliopisto. 316 s. <https://doi.org/10.31885/9789528407478>

Krook, S. (2024). *Opetusjakso nimeltä Kahdeksan – Oahpahuspakeahтта gávcci Nammasaš*. Avointen oppimateriaalien kirjasto (aoe.fi). 66 s. <https://aoe.fi/#/materiaali/4477>

You can explore other publications from the year on our Publications page.

6. Reach of Activities

The funding of the LUMA Centre Finland network and its regional centres consists of national mandate funding granted by the Ministry of Education and Culture, as well as universities' own funding and support from, for example, companies. LUMA Centre Finland also receives funding from the Finnish National Agency for Education for continuing education projects.

The table below summarizes key figures on the reach of activities by the LUMA Centre Finland network and its regional centres, across all funding sources. In 2024, our direct activities reached approximately **142,100 individuals**. Our main target groups included teachers at all educational levels, as well as children and youth.

Activities supporting high-quality curriculum implementation reached in 2024:

- 62,062 children, youth, or teachers participating in workshops or events during the school day
- 41,334 children or youth visiting LUMA centres for study visits
- 368 youth and 865 higher education students participating in university or online courses
- 139 students completing work-life orientation (TET) internships
- 1,148 teachers or students participating in national science competitions
- 7,958 instances of borrowing teaching tools or materials
- 13,268 children, youth, and teachers reached through school and daycare visits

- 2,995 Finnish and 270 international teachers participating in continuing education

Leisure-time activities reached in 2024:

- 4,938 children or youth participating in clubs and virtual clubs
- 478 children or youth participating in camps and virtual camps
- 620 children attending science festivals



..... Keynotes

Children as Future Problem Solvers?

Senior University Lecturer **Anu Laine**
UNIVERSITY OF HELSINKI



Developing Nationwide Teaching and Learning Ecosystem with Learning Analytics and AI

Professor **Mikko-Jussi Laakso**
UNIVERSITY OF TURKU



Call for papers is
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www.luma.fi/en/lumat-symposium/

Advertisement for the LUMAT Research Symposium.

7. Joint Events

LUMA Weeks were celebrated in 2024 from January 17 to 27. During the weeks, the network shared ready-made materials, event tips, and ideas for organizing LUMA Week activities in schools and kindergartens across Finland. For the first time, the LUMA Weeks program was published in newsletter format in 2024, and the practice was well-received.

The 2024 LUMA Days were organized in collaboration with the Southwest Finland LUMA Centre and Skolresurs in Turku on August 14–15. The event was held in conjunction with the Science on Stage festival, as described in section 2, National Mission.

Two LUMAT research seminars were held during the year. Presentations covered topics such as mathematics education, computer science, sustainable development, and agency. In addition, the annual LUMAT Research Symposium was organized for the 14th time on June 3–4, with the theme New Trends in Math and Computing Science Education.

The LUMA Centre Finland board, the network's highest decision-making body, met five times during the year. The National LUMA Advisory Board, which serves as a consultative forum for the board, met once. In addition, LUMA centre staff held regular monthly remote meetings, as has become customary. The entire network also gathered in October in Kokkola for development days, during which the past year was reviewed, and new goals were set for the following year.

8. Communications

In 2024, the LUMA Centre Finland website (<https://www.luma.fi/>) published a total of 61 news articles: 41 in Finnish (luma.fi/sanomat), 8 in Swedish (luma.fi/sv/nyheter), and 12 in English (luma.fi/en/news). This represents a 25% increase compared to the previous year. According to site analytics, the pages were viewed at least 30,000 times. The most popular content included the remote afternoon club, LUMA Days, and the list of schools in Finland specializing in LUMA subjects. The Science on Stage event received wide international visibility, with over 150 articles published globally. The event pages had over 25,000 visitors in 2024.

A blog series titled Nationally Inspiring LUMA Models was published in LUMA News during the year. The series highlighted one excellent practice from each of the 13 LUMA centres. All parts of the series can be read in the final issue.

Follower and engagement numbers continued to grow across social media platforms:

- Instagram: +172 followers
- YouTube: +75 subscribers
- Facebook: +108 likes

Facebook's reach for the year was 56,000, and Instagram's reach was 11,000. The most engaging Facebook content was the new continuing education program, From Teacher to Teacher. On Instagram, posts about school collaborations and the

LUMATIKKA+ program generated the most interest. Major events like Science on Stage and LUMA Days 2024 were also popular highlights on social media.

The LUMA newsletter reached thousands of readers in 2024. The average open rate improved slightly from the previous year to 46.8% (+7.3%). The English-language newsletter had an open rate of 42.1%. Subscriber numbers increased throughout the year.

LUMAT Journal

In 2024, LUMAT published three special issues and one general issue. The themes of the special issues were planned in collaboration with the editorial board to support current scientific discourse. The themes included:

- Sustainable Chemistry and Education
- Cultivating a Future-Ready Workforce: Reimagining STEM Education

Additionally, a collaborative issue was published with the international mathematics education research community MAVI. The special issues were edited by invited researchers from Finland and abroad. The journal's Editor-in-Chief and Managing Editor was Docent Johannes Pernaa (science education in chemistry) from the University of Helsinki. The editorial board consists of approximately 25 respected researchers from around the world.

In 2024, the journal received 278 article submissions, of which 30 were accepted and published. Another 48 were moved to the 2025 publication queue. The acceptance rate was 12%, and the rejection rate 88 %. Articles were downloaded approximately 48,000 times, and abstracts were viewed 102,000 times via the LUMAT website. In addition, tens of thousands of reads occurred through Scopus, the DOAJ portal, and the ERIC database. Based on its H-index, LUMAT remains the number one science education journal in the Nordic countries. More information is available in the journal's Scopus statistics and 2024 article metrics.

LUMAT-B published one general issue containing four articles. In addition, it released the conference proceedings of the 29th International Mathematical Views Conference 2023, organized by the international MAVI community, which included 24 papers. In 2024, LUMAT-B articles were read and downloaded approximately 22,000 times. The Editor-in-Chief and Managing Editor was again Docent Johannes Pernaa from the University of Helsinki.

9. A Brief Overview of 2024 in Regional LUMA Centres

Aalto University Junior

Aalto University Junior expanded its operations and became increasingly embedded in schools. In 2024, we encouraged over 33,000 children and young people from 120 municipalities across Finland to dive into the worlds of research and creativity. One-third of these budding researchers and artists were reached through remote activities. With scalable projects, we were able to extend in-person teaching beyond the campus. Core activities and partnerships remained central again this year. We focused especially on diversity and engaging children and youth from various backgrounds. Easy-to-read materials and multilingualism enriched our events. As part of international collaboration, we organized three remote workshops for schools in Kryvyi Rih, Ukraine, in the spring. It was a peak year for projects: four different initiatives brought us into schools and reached thousands of children and youth. We also secured additional funding for the coming years, ensuring continued momentum.

University of Helsinki Science Education

In 2024, the University of Helsinki's science education classrooms remained actively used. A total of 380 groups and 8,200 learners from various educational levels participated in study visits. Among them were 150 upper secondary groups with 3,231 students. These visits included experimental work, researcher visits, campus and study introductions, and various demonstrations. Remote workshops significantly increased participation. A total of 34 remote workshops were held, reaching 150 groups and 2,911 students and teachers. Each session began with a shared introduction, followed by classroom-based activities led by teachers, and concluded with a joint wrap-up. Activities also included science camps, clubs, and workshops at various events.

LUMA Centre of the University of Eastern Finland

The year was eventful for the LUMA Centre at the University of Eastern Finland, with the best reach figures in recent history, over 7,100 participants, doubling the number from 2023. A major focus was on events. We organized workshops at the Taitaja competition in Kuopio, SciFest in Joensuu, the Kallavesi Fair in collaboration with SnellmanEdu, Kuopio's Night of the Arts, and several smaller events. The Light for Families event, organized in collaboration with the PREIN Flagship of Photonics, attracted nearly a thousand visitors in both spring and autumn. In addition to events, collaboration with schools and kindergartens expanded, including the creation of

new visit activities. In the spring, Science Moments at the library brought children into the world of science.

LUMA Centre of Central Ostrobothnia

In 2024, the activities of the LUMA Centre of Central Ostrobothnia became more diverse. The science classroom Kokko gained wide visibility, and its escape room game attracted lower secondary school students to get excited about science. The centre also utilized mobility funding granted by the network to conduct outreach visits beyond Kokkola, enabling a broader reach among students. In total, approximately 2,000 children or youth and around 400 teachers were reached through various events. Among the most frequently used loanable tools were robotics kits, especially popular among primary school pupils. These tools were used by about 1,300 children and 100 teachers across the region. Collaboration with Centria University of Applied Sciences and local upper secondary schools was close and productive. Regular meetings and joint events improved communication and coordination. The centre also participated in several science events, such as the Innokas programming tournament and Kokkola Material Week, increasing its visibility and impact.

Central Finland LUMA Centre

The year 2024 was filled with events at the LUMA Centre of Central Finland, reflected in the number of people reached, over 6,230. In the spring, the 10th anniversary of JYUniorit – the University for Children and Youth was celebrated, with 700 pupils and their teachers participating in school programs. The centre also took part in the citizen science event Lähde: Muuttolintujen kevät (Source: Spring of Migratory Birds), where 60 pupils joined a morning birdwatching trip, and 164 followed the afternoon children's nature panel either in person or online. Workshops for children at major events like Yläkaupungin Yö in May and Researchers' Night in September were once again very popular. Thanks to funding from the Finnish Cultural Foundation (SKR), a science camp for lower secondary students was organized at the Konnevesi Research Station—participants came from as far as Turku and Helsinki! The Halloween event at the Natural History Museum was filled with little witches and monsters. The centre also hosted many TET (work-life orientation) visits throughout the year.

LUMA Centre of Southwestern Finland

In 2024, the LUMA Centre of Southwest Finland reached nearly 9,000 children, youth, parents, pupils, and teachers. One of the year's major new initiatives was the two-year project The Universe in Different Languages, funded by the Finnish Cultural Foundation (SKR). The project is a collaboration with Skolresurs and Avaruuspuisto Väisälä, and in autumn, it brought mobile planetarium shows and workshops to over ten schools. Additional funding was also received for a sequel to the previously

produced video series Mathematical Mysteries. Another new initiative was the Science Club for Adults, held twice during the year, which attracted many participants and received excellent feedback. However, most of the centre's working hours were still dedicated to daily activities, such as leading classroom workshops and organizing events.

LUMA Centre Lapland

The 2024 operational year for LUMA Centre Lapland was active, reaching approximately 7,500 participants and focusing on three main events and activities:

1. LUMA Workshop Tour in April–May (1,192 participants), implemented by first-year class teacher students as part of their LUMA studies.
2. Science Week Events in September (2,735 participants), including: Science Week Pre-Events for early childhood education (Sept 11–13), Science Week for Schools (Sept 16–19), Teacher training events, The Koulussa säteilee tour with the Cloud Chamber and workshops in Western Lapland and Rovaniemi.

These events were also part of the newly developed uJunnu science education initiative within the LUC higher education community, where LUMA Centre Lapland has played an active role as a developer and coordinator.

3. Science Camps organized by the centre (139 participants), held in Rovaniemi during the summer and twice at the Kittilä Library.

The centre also participated in science teacher training events and their organization, contributed to LUMA-related project collaborations, and worked on translating and producing LUMA materials in Northern Sámi. Expert and research collaboration took place with various LUMA and technology actors and centres, and the centre actively participated in numerous events. The loan service for educational tools remained active throughout the year, reaching around 1,000 participants.

LUMA Centre of Ostrobothnia

The year 2024 included a wide range of science education activities, reaching 1,659 children and youth and 246 teachers. A new initiative, the Science Cottage concept, was launched and attracted many families. The popular Insights and Ideas tour continued, bringing science education activities to schools in four municipalities.

Major events included the CanSat satellite competition and the LUMASTER project-based learning competition. Notable new collaborations included a technology-themed continuing education session for the teaching staff of Vaasa Lyceum Upper Secondary School and a new opportunity for social services students from Vaasa University of Applied Sciences to complete their guidance training by assisting with SAGA science classroom visits.

In the autumn, the centre had the honor of hosting the LUMA Centre Finland network's annual development days at the University of Vaasa campus, showcasing both the centre's activities and the university's research. More details about the year can be found on the centre's blog.

Junior University

In 2024, Junior University fully implemented its curriculum-integrated city collaboration models:

- In Lappeenranta, all 8th graders visited workshops mainly organized by LUT degree programs in March, and all 5th graders participated in the LUTra Festival focused on entrepreneurship education in April.
- In the autumn, a Junior University expert visited all 3rd grade classes to deliver Water Days lessons on clean water.
- All 8th graders from Imatra also visited campus workshops later in the year.
- The science tracks of the newly merged Lappeenranta upper secondary schools included several campus days across different subjects.
- Math Ambassadors reached all upper secondary students during their first mathematics course, aiming to encourage more students to choose advanced mathematics.

Additionally, around 600 lower secondary students from Hamina and Kouvola, as well as many preschoolers from Lappeenranta, visited workshops.

In Lahti, Junior University developed robotics materials that reached all 5th graders, and hands-on workshops were organized to support teachers. In Lappeenranta, the Science, Sustainability, and Technology Education Seminar was held for the second time, featuring expert talks and practical training sessions, including ESA's Earth Observation training and programming workshops from the LUMATIKKA+ project.

Junior University's staff resources were significantly strengthened to five full-time employees, with the addition of a full-time supervisor and the permanent hiring of a planner who had previously worked on projects.

LUMA Centre of the University of Oulu

Remote researcher visits to upper secondary schools continued to grow in popularity, with over 100 visits conducted in 2024. The regional mathematics competition for 7th graders in the Oulu area was held for the 13th time, with 689 students from 35 schools participating. The LUMA Centre at the University of Oulu also took part in popular events such as Amazing North, Save the Bothnian Bay Day, and Researchers' Night. Workshops were organized for school groups in collaboration with the Nature School, and university students visited schools to

demonstrate the speed of light experiment. Upper secondary school groups visited the university's chemistry teaching laboratory for hands-on experiments. In total, workshops and events reached nearly 3,000 participants. School group visits to the university campus were organized regularly throughout the academic year. Continuing education activities reached nearly 400 professionals in education and early childhood education.

LUMA Centre Päijät-Häme

The reach of the LUMA Centre Päijät-Häme grew to nearly 5,000 people in 2024. Most participants were children and youth from early childhood to upper secondary education who took part in activities at the Science Classroom SOLU, the mobile LUMA unit, clubs, and camps. Some activities were part of the Lahti Junior University science education path: all 9th graders in Lahti visited the Science Classroom SOLU for the sixth consecutive school year, and preschoolers conducted water research.

Expert Noora Kivikko led a research-based project funded by the Finnish National Agency for Education in collaboration with the municipality of Asikkala, focusing on strengthening the relevance of climate change and sustainability education.

Highlights of the year included two highly popular public science education events at the Niemi campus: a spring event on geology and an autumn Kekri celebration. Another major milestone was the successful transition of the centre's expert staff into permanent positions for the next four years.

Skolresurs

The 2024 operational year was highly active for Skolresurs. A total of 223 events were organized for children, youth, teachers, and educators—the highest number since 2013. A major highlight was Science on Stage 2024, where Skolresurs was involved in the organization.

Participation numbers also reached a new record:

- 1,814 teachers and educators
- 7,850 children and youth

Nearly half of the young participants—about 3,500—came from Stafettkarnevalen 2024, where Skolresurs presented a popular program titled “The Die is Cast.”

A particularly positive development was the increased participation of language immersion schools from the Turku region, Vaasa, and Uusimaa. In Turku, several upper secondary schools visited, including immersion classes and students studying Swedish at various levels. In Vaasa, the participant profile was similar. In Uusimaa,

Sibbo immersion school received both teacher training on Mathematics in Nature and student activities on the same theme for the entire school.

Tampere University Juniversity

In 2024, Juniversity celebrated its fifth anniversary as a university-level, multidisciplinary science education initiative. Internal collaboration with faculties was strengthened through new introductory courses and joint project applications.

The year was marked by major developments and successes. In spring 2024, the website was renewed, and Tampere University hosted its first student recruitment event, Jatsoon!, which reached over 3,500 young people and their teachers. In autumn, new facilities were opened on the central campus, celebrated with a week-long event.

Juniversity's total reach exceeded 30,000 people, with approximately 80% of activities focused on STEM themes. This represented a 50 % increase compared to the previous year.

10. People Involved

Names are listed in alphabetical order by surname.

Network Administration (University of Helsinki)

Maija Aksela, Director

Topias Ikävalko, Finance

Oona Kiviluoto, Network Coordinator

Johannes Pernaa, Editor-in-Chief of LUMAT Publications

Maikki Roiha, LUMAT Layout (until 30 June)

Marianne Scott, Event Coordinator (until 30 August)

Jemima Unger, Communications Specialist

LUMATIKKA+ Continuing Education Project

Eveliina Hietakymi, Project Planner

Riikka Qvintus, Coordinator

Alisa Uusi-Kilponen, Project Manager

LUMAT Journal

Johannes Pernaa, Editor-in-Chief, Managing Editor, and Layout (1 July–30 November)

Maikki Roiha, Layout (from 1 December)

Aleksi Takala, Layout (until 30 June)

Section Editors:

Outi Haatainen, University of Helsinki
Mika Koskenoja, University of Helsinki
Johanna Naukkarinen, LUT University

Special Issue Editors:

Andreas Ebbelind, Maike Vollstedt, Vesife Hatisaru, Martin Ohrndorf, Aylin Thomanek, Outi Haatainen, Emmi Vuorio, Johannes Pernaa, Mohamad Termizi Borhan, Mohd Mokhzani Ibrahim, Lee Tien Tien, Nur Hamiza Adenan

Aalto University Junior

Saija Huoponen, Project Coordinator for Robotics Sessions, starting 5 August 2024
Aleksi Höylä, Project Coordinator for Technology Sessions, until 31 May 2024
Veli-Matti Ikävalko, Director
Sara Jääskeläinen, Project Coordinator for AI Experts, starting 19 August 2024
Riikka Keto-Tokoi, Specialist (Technology)
Pilvi Saaristo, Planner
Heidi Sillanpää, Coordinator (Natural Sciences & Mathematics)
Heidi Simppala, Coordinator (Arts and Entrepreneurship)
Ilkka Tittonen, Representative of LUMA Centre Finland
Additionally, approx. 35 student assistants

University of Helsinki Science Education

Anne-Maria Ernvall-Hytönen, Associate Professor
Outi Haatainen, Postdoctoral Researcher
Eveliina Hietakymi, Project Planner
Topias Ikävalko, Specialist
Kaneli Kalliokoski, Coordinator
Lea Kutvonen, Senior University Lecturer
Joonatan Kölhi, Research Assistant
Antti Laaksonen, University Lecturer
Aino Lasanen, Research Assistant
Veera Lupunen, Coordinator
Maija Nousiainen, University Lecturer
Teemu Pennanen, Coordinator
Reija Pesonen, Coordinator
Noora Pyyry, Associate Professor
Annika Reijonen, Research Assistant
Anastasia Shmakova, Research Assistant
William Smolander, Doctoral Researcher
Heli Virtanen, Doctoral Researcher
Karoliina Vuola, Doctoral Researcher

Additionally, other research assistants and instructors from science classrooms were actively involved.

Centre of the University of Eastern Finland

Mervi Asikainen, Head of Centre

Saana Kinnunen, University Teacher, LUMA Coordinator

Justus Kinnunen, Project Planner

Juho Tiainen, Project Planner

LUMA Centre of Central Ostrobothnia

Ismo Hakala, Director

Pentti Impiö, Senior Planner

Mikko Myllymäki, Research Coordinator

Anna Polso, University Teacher (until 31 July 2024)

Central Finland LUMA Centre

Anni Aroluoma, Specialist (25%)

Anniina Koliseva, Specialist (75%)

Jan Lundell, Director

Asmo Roponen, LUMA Evaluation (part-time)

Ilona Savolainen, LUMA Instructor (hourly contract)

LUMA Centre of Southwestern Finland

Reetta Kynnäräinen, LUMA Coordinator

Sanna Launiainen, LUMA Coordinator

Laszlo Major, Head of Centre

Pasi Nurmi, Unit Director

Matleena Tuomisto, LUMA Coordinator

Additionally, student instructors

LUMA Centre Lapland

Partow Izadi, LUMA Specialist

Jonna Katajamäki, LUMA Advisory Board (Arctic Centre)

Ulla Kemi, LUMA Specialist

Saara Krook, Sámi Translation Project, 1 Aug – 31 Dec 2024

Teppo Kuusela, LUMA Coordinator

Pekka Muotka, LUMA Actor

Pieti Tolvanen, Director

Nina Ågren, LUMATIKKA+ Specialist, starting 9 Oct 2023

Plus 6 LUMA Instructors (hourly contract)

LUMA Centre of Ostrobothnia

Otto Ellonen, University Teacher, Electrical Engineering (starting 1 April 2024)

Hanna Hankaniemi, LUMA Coordinator

Outi Kaarela, Specialist, Science Education

Janne Koljonen, Director

Outi Kurri, Specialist, Science Education

Saara Lehto, Specialist, Science Education

Josefin Stolpe, Specialist, Science Education (starting 8 January 2024)

Saana Söderlund, Specialist, Science Education

Junior University

Anu Heinonen, Specialist (starting 1 August 2024)

Nina Herttuainen, Planner

Leena Ikonen, LUMA Coordinator

Nina Kykkänen, Head of JU Team and Member of the LUMA Centre Finland Network Board & Chair of the LUMA Coordination Group (starting 1 June 2024)

Johanna Naukkarinen, Member of the LUMA Centre Finland Network Board & Chair of the LUMA Coordination Group (until 31 May 2024)

Maiju Rintakumpu, Planner, Lahti

Approximately 15 LUMA Assistants (hourly contract)

LUMA Centre of the University of Oulu

Sari Harmoinen, Director

Kati Kyllönen, Planner

LUMA Centre Päijät-Häme

Olga-Sofia Alitalo, Specialist (70%)

Tarja Kariola, Director

Noora Kivikko, Specialist, Doctoral Researcher (on parental leave starting 1 June)

Veera Pukkila, Specialist (60%)

Suvi Simpanen, Specialist (70%)

Skolresurs

Christian Ahläng, Operations Coordinator

Katarina Drugg, Financial Affairs

Linda Karvonen, Administrative Coordinator

Elin Kjellberg, Continuing Education Planner

Niklas Ollila, Translator

Bengt-Johan Skrifvars, Executive Director

Kim Virta, Continuing Education Planner

Ronald Österbacka, Chair of the Skolresurs Steering Group

Tampere University Juniversity

Paju Becker, Coordinator (starting 19 August 2024)

Anniina Halonen, Coordinator

Tuulikki Harsia, Specialist

Taru Huuha-Korhonen, Coordinator (starting 5 August 2024, 80% workload)

Susanna Kaitera, Specialist (until 2 August 2024)

Henna-Riikka Piispanen, Training Assistant (starting 2 May 2024)

Hanna Riippi, Coordinator

Laura Salkonen, Senior Specialist

Pekka Verho, University of Tampere Representative on the LUMA Centre Finland
Network Board, Chair of the LUMATE Committee

Additionally, 15 part-time science education instructors and 150 student
ambassadors in 2024