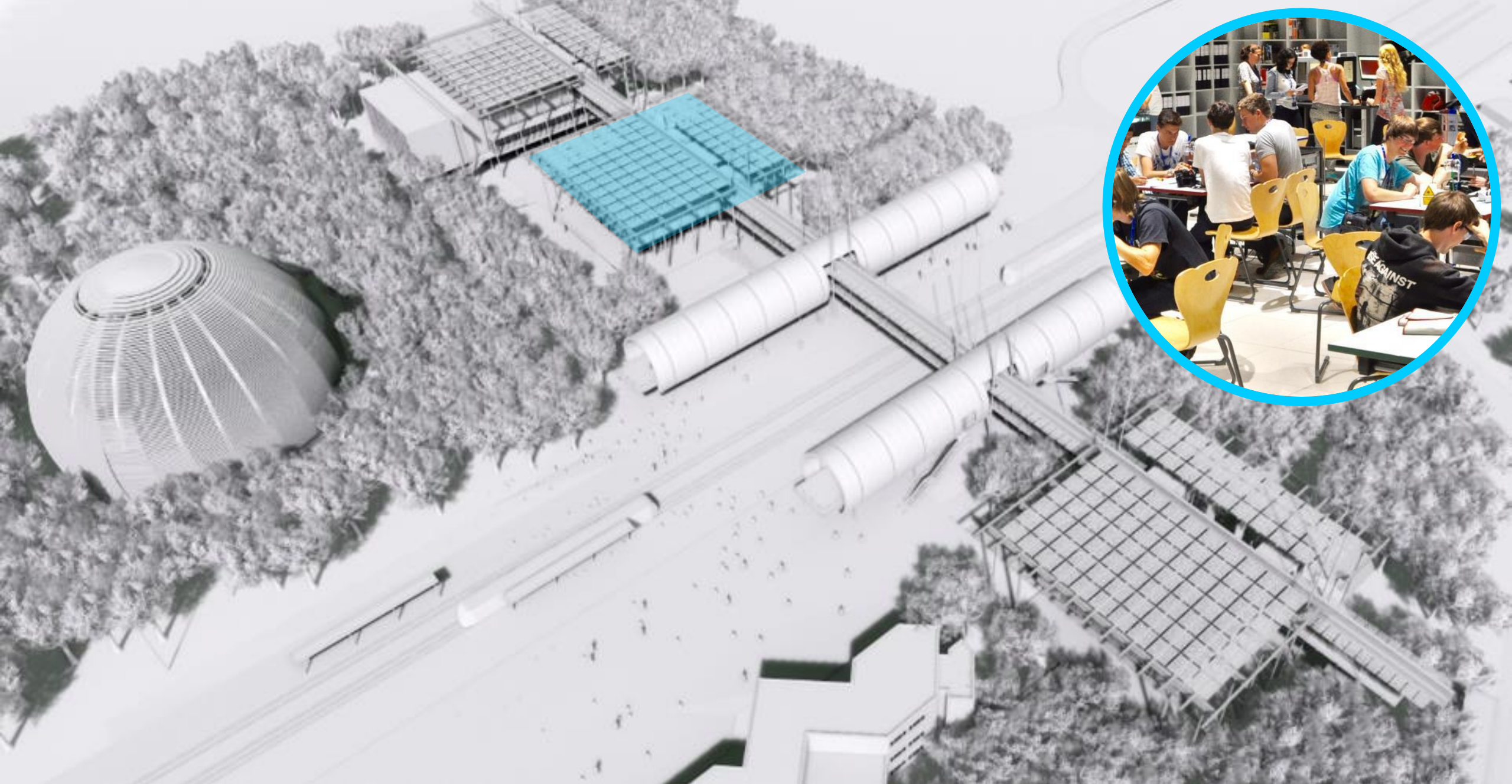


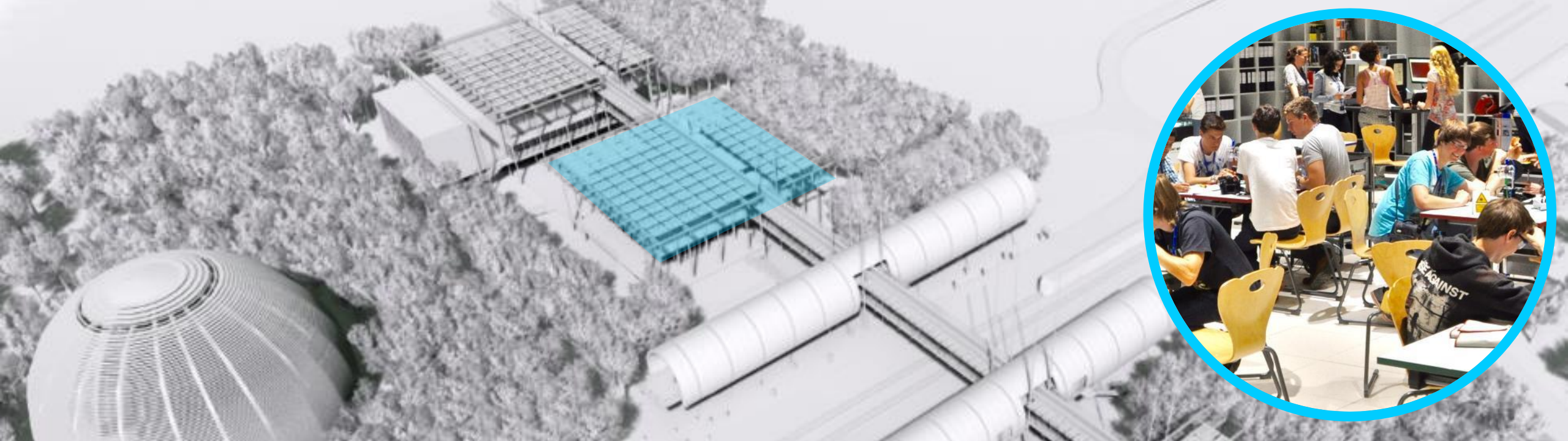


Update: Science Gateway Education Labs

Dr. Alexandra Jansky & Dr. Julia Woithe

8 December 2020



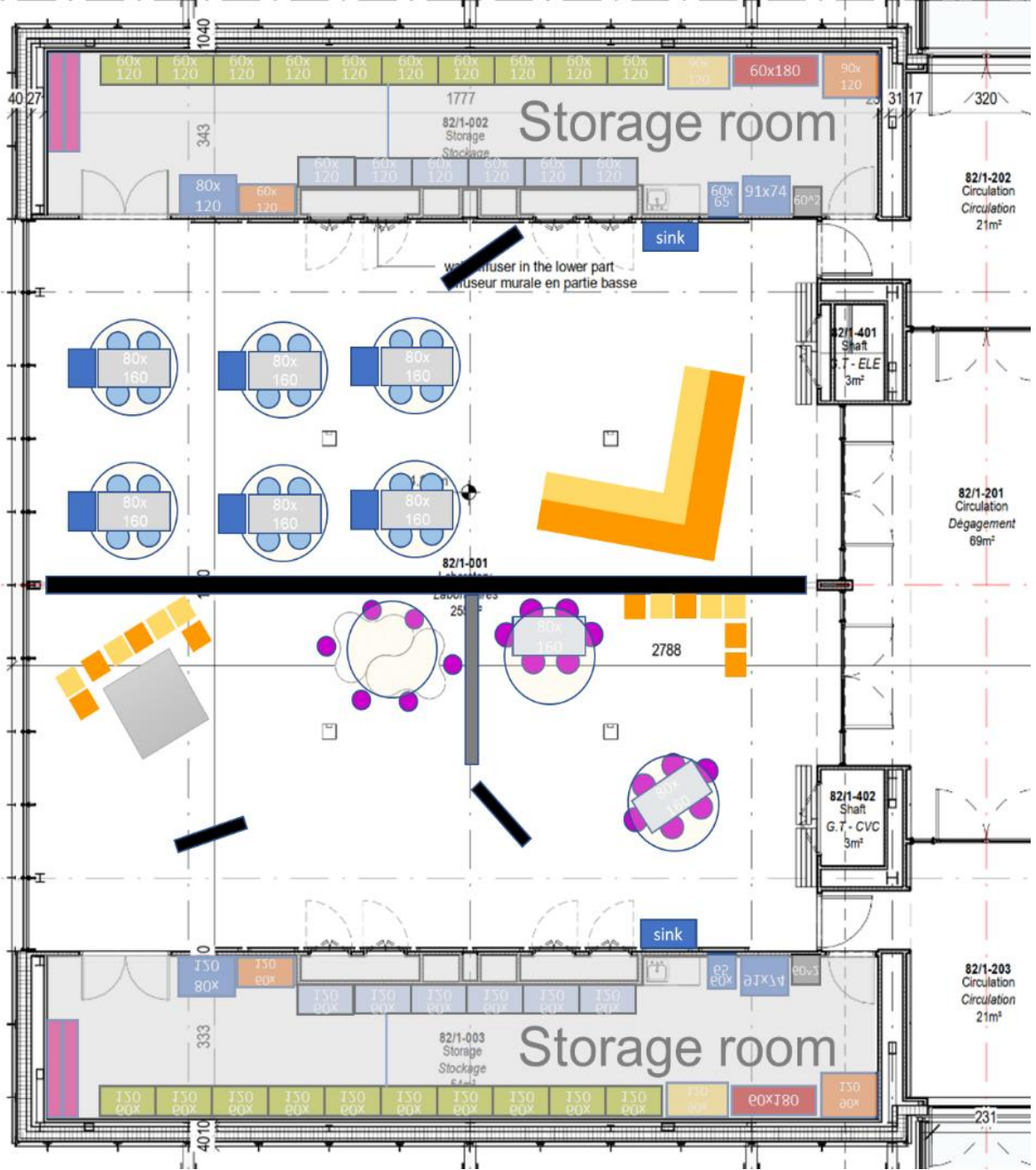


The Education Labs

Discover your inner scientist

The hands-on labs at Science Gateway will allow learners aged 5+ years to explore their scientific curiosity and learn to conduct scientific investigations. Through enquiry-based learning activities, they will be able to engage with members of CERN's scientific community and explore the science, the discoveries and the technologies at CERN.

The physical space

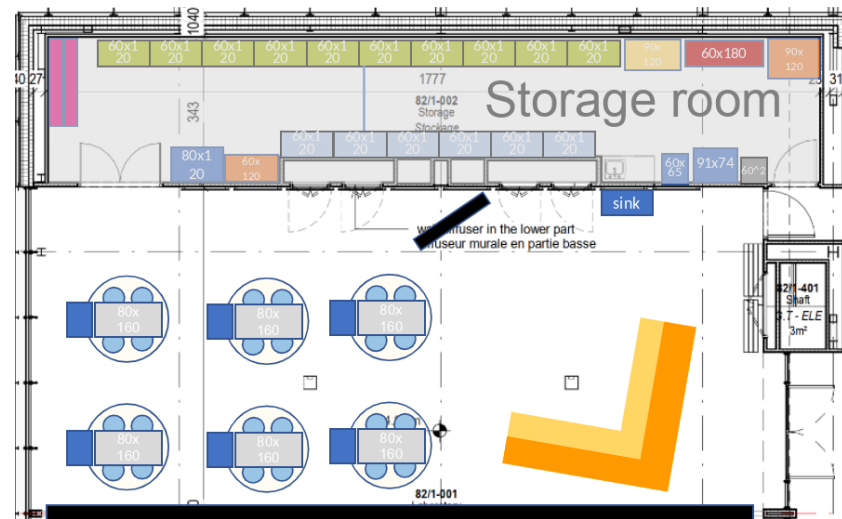


- 255 m² lab space
- Two preparation rooms à 54 m²
- Modular space with flexible division into two labs & noise cancelling curtain
- One possible layout →
 - Introduction & discussion areas with interactive smartboards
 - Furniture adapted to age groups as well as the different activities

Activities for school groups

Example for high school students

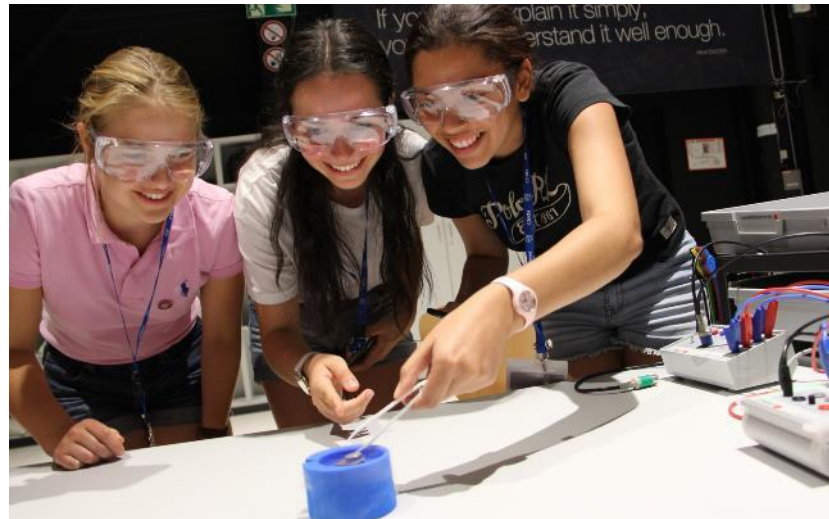
Lab layout



Layout for high school students

Start and end in the introduction & discussion area, learners perform experiments at dedicated tables

Experiments on superconductivity



Experiments at the tables

Learners study the behaviour of high-temperature superconductors cooled down by liquid nitrogen



Demonstration experiments

Tutors demonstrate the properties of liquid nitrogen & show the behaviour of high-temperature superconductors

Activities for families

Example for a family weekend

Lab layout



Layout for a mixed audience

Tables and stools for some activities, open areas for instruction, discussion or to perform experiments together

Experiments on linear accelerators



Accelerator experiments

Learners study the behaviour of electrically charged objects in electric fields and assemble/manipulate easy versions of linear accelerators. In the open areas, tutors assist with using more advanced equipment

Content development

Workshops for groups of participants 5+ years old

Education Labs Kick-off Workshop



WHEN?

29 – 31
January 2020



WHERE?

CERN's
IdeaSquare



WHO?

46 experts on science education
and outreach from 17 countries
and 25 affiliations



WHY?

Content development
and
collaboration

Age groups

Families

5+ years

School students

5 – 7 years

8 – 11 years

12 – 15 years

16+ years

Science teachers

18+ years



Foci of content development

Detection



- sensors,
- detection principles,
- particle detectors

Computing



- robotics,
- safety aspects at CERN e.g. radiation safety

Vacuum and Cryogenics



- states of matter,
- insulation,
- cooling,
- phase transitions

Magnetism



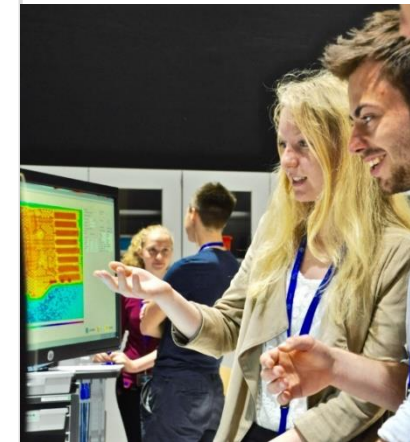
- visualising magnetic fields,
- strength of magnets,
- Lorentz force

Applications



- medical applications e.g. X-rays, PET
- food irradiation

Engineering



- tunnel building,
- caverns,
- alignment,
- electrical connections



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