

School lab



Among the many extracurricular learning places, school labs play a particularly important role. Generally affiliated with a university, a research centre or a science museum, such labs offer hands-on learning experiences for entire school classes or individual students, with a general focus on the STEM disciplines (i.e. science, technology, engineering and mathematics). The first labs emerged in the 1990s and were founded by dedicated individuals with the main aim of promoting interest in natural sciences, rather than being initiated by education policymakers or education scientists. Since then, the number of labs has risen sharply and there are now more than 400 school labs in Germany alone^[41].

School labs come in various forms. Their offerings can differ from lab to lab, ranging from one-off events to full-day workshops that are held on a daily basis and must be booked in advance. The content covered generally includes relevant topics from the STEM disciplines, although some labs are also dedicated to social sciences and humanities. In addition, the topics are often aligned with the school curriculum and complement the school lessons. All school labs share the common mission of getting children and young people interested in science. This is achieved by following an enquiry-based learning approach and allowing visitors to experience science in a hands-on way through independent experimentation. Transferring knowledge by involving participants in

experimental activities is a central pillar of all school labs. Another common aspect of the labs is to provide an authentic approach to science in an appropriate environment, such as a professionally equipped laboratory. Personal contact with experienced scientists and researchers who supervise the students during their visit adds to the authenticity of the learning experience. Besides providing learning opportunities, school labs also convey a modern image of science and technology and their role in today's society. Furthermore, they provide an insight into scientific activities and careers, thereby encouraging young people to take up STEM subjects and studies, thus helping to address the general shortage of skilled workers in these fields. By supporting and complementing schools in providing professional orientation, the school labs also assume a social and economic role.

Overall, the concept of school labs has proved to be very successful, and they are often so popular that they are fully booked for months or even years in advance. School labs present an authentic out-of-school learning environment with a hands-on approach to science, and various studies have suggested that they have the potential to increase students' interest in STEM (e.g. ^[42,43]). A visit to a school lab is therefore an enriching experience for students and a valuable addition to regular school lessons.

Recommended reads:

- ♦ Itzek-Greulich et al. (2017), *Effectiveness of lab-work learning environments in and out of school: A cluster randomized study*, Contemporary Educational Psychology 48, 98-115.
<https://doi.org/10.1016/j.cedpsych.2016.09.005>
- ♦ Garner N. & Eilks I. (2015), *The Expectations of Teachers and Students Who Visit a Non-Formal Student Chemistry Laboratory*, Eurasia Journal of Mathematics, Science & Technology Education, 11:1197-1210.
<https://doi.org/10.12973/EURASIA.2015.1415A>
- ♦ Euler M. & Schüttler T. (2020), *Schülerlabore*. In *Physikdidaktik - Methoden und Inhalte*, 127-166, Springer Spektrum. https://doi.org/10.1007/978-3-662-59496-4_5