

STEAM Concept for the Klax School

Introduction

The Klax School was founded 35 years ago and has continuously evolved its teaching concept. Originally focused on the arts, it has expanded to include a digital education focus. As part of this development, the school has:

- Built a MakerSpace
- Introduced the elective subject “Digital Design”
- Expanded the WAT (Economics, Work, Technology) subject to include “Life in the Digital Age”

From Grade 1 onwards, the school teaches “Maker” and “Coding” to develop 21st-century skills.

Klax School is committed to nurturing a deep understanding and passion for STEAM (Science, Technology, Engineering, Art and Mathematics) among both students and teachers. By integrating STEAM subjects and curriculum content into the MakerSpace, cross-curricular learning becomes possible.

Creativity—a core principle of the school since its inception—is now blended with technical themes through STEAM. In the CreativeHub on Schönhauser Allee, students experience an “Art-Technology-Digital” day. The aim is to foster critical thinking, problem-solving, and creativity—key skills for success in a rapidly changing, tech-driven world.

Klax School supports personalized learning paths through hands-on, interdisciplinary methods and promotes social responsibility in line with its educational goals.

Vision and Goals

Vision

- To create a dynamic learning environment where students explore and apply STEAM knowledge in real-world contexts, preparing them for future careers in technology, digitalization, design, research, and innovation.

Goals

- Build strong foundational skills in mathematics, science, digital literacy, art and technology
- Encourage curiosity and analytical thinking
- Promote interdisciplinary, research-based learning by connecting STEAM with arts and humanities (STEAM)
- Foster creativity and innovation through hands-on experiences in coding, robotics, and design thinking

- Prepare students for STEAM careers with exposure to advanced technologies, research, and real-world challenges

Key Components of the STEAM Concept

Curriculum Integration

- **Math:** Practical applications like data analysis, coding, and financial literacy enhance problem-solving and analytical skills. Advanced students benefit from an enrichment program called “Math Workshop.”
- **Computer Science:** Introduced in elementary school through tools like Scratch, Python, and robotics kits.
- **Science:** Emphasizes hands-on experiments, field trips, and partnerships with universities to deepen scientific understanding.
- **Technology:** Integrated into many subjects using tools like 3D printers in the MakerSpace to foster innovation.
- **Art:** Fosters creativity and visual literacy through projects that integrate design, storytelling, and cultural exploration. Students engage in activities such as digital illustration, sculpture, and mixed media, often collaborating with other disciplines to create cross-curricular projects. Art is also embedded in MakerSpace challenges, encouraging aesthetic innovation alongside technical skills.

Project-Based and Interdisciplinary Learning

- Three project weeks per year, MakerSpace sessions during lessons.
- Students build sustainable cities, develop apps, or create models for renewable energy.

MakerSpace

- Equipped with a laser cutter, CNC milling machine, robotics kits, electronics, and prototyping tools.
- Students engage in practical design and building projects.

Competitions

- Participation in contests like "Jugend forscht," robotics challenges, and Math Olympiads encourages collaborative innovation.

Teacher Development

- Ongoing professional development in STEAM teaching methods and new technologies
- Cross-disciplinary collaboration supports integrated learning experiences and aligns with Klax pedagogy

Partnerships and Resources

- **Universities & Research Institutes:** Provide access to labs, mentoring, and guest lectures
- **Industry Collaborations:** Students join internships and workshops with tech companies and start-ups
- **Community Engagement:** Hosting STEAM fairs, open labs, and parent workshops to extend learning beyond the classroom

Digital Tools and Platforms

- **Coding & Robotics:** Platforms like Scratch, Python, Arduino introduced early to enhance computational thinking
- **Virtual Labs & Simulations:** Useful for complex experiments or inaccessible topics
- **Online Learning:** Tools like Khan Academy, Code.org, and Tinkercad support self-directed learning

Implementation Timeline

Short-Term (1–2 years)

- Curriculum development for upper school STEAM modules
- Teacher training programs
- MakerSpace expansion
- Pilot interdisciplinary STEAM projects

Mid-Term (3–5 years)

- Broaden project offerings linking STEM and the arts (STEAM)
- Strengthen university and industry partnerships
- Host school-wide STEAM competitions

Long-Term (5+ years)

- Certification as a “STEAM-Friendly School”
- Ongoing curriculum updates, teacher training, and involvement in the global STEAM community

Assessment and Budget

- **Student Progress:** Measured via tests, projects, presentations
- **Feedback:** Collected from students, parents, and teachers for continuous improvement
- **Impact Evaluation:** Tracks student satisfaction, career choices, and higher education placements

Funding and Resources

- Sourced through grants, partnerships, and school budgets
- Focused on teacher training, equipment acquisition, and partnership development

Conclusion

The Klax School's STEAM concept aims to shape innovative, critically thinking individuals equipped to succeed in a technology-driven world. The integration of STEAM across all subjects and grades, combined with creativity and strong partnerships, ensures students are well-prepared for future academic and career success. This vision aligns with the school's core values: individualized learning, creativity, and social responsibility, while responding to the growing demand for high-quality STEAM education.