

The logo for PhysikClub features the text "PHYSIKCLUB" in a blue, sans-serif font. It is flanked by two orange, curved, swoosh-like shapes that resemble stylized wings or a dynamic motion graphic.

PHYSIKCLUB

The logo for the Schüler Forschungszentrum is an oval shape with a blue-to-orange gradient. The text "SCHÜLER FORSCHUNGS ZENTRUM" is written in white, sans-serif capital letters inside the oval.

**SCHÜLER
FORSCHUNGS
ZENTRUM**

PhysikClub

Students Research Centre

Understanding Physics
by doing
self-reliant and independent research

Learning is like exploring an
undiscovered country...





Removing the blocks...



What teachers must not do!

Solving all
problems

Deciding
everything

Explaining
everything

Dictating
everything

Planning
everything

Controlling
everything

Visualizing
everything

Correcting
everything

Feeling
responsible for
everything

Writing
down
everything

Giving
always
instructions

What teachers should do!

**LETTING
LOOSE**

Scaffolding

Monitoring

Allowing
discuss

giving
advice

Moderating

workspace

Coaching

Constructivist teaching and learning theory

- Knowledge can't be absorbed or transferred, but must be constructed individually
- Learning is an active process with individual and collective aspects
- „Education is a self-organizing system, where learning is an emergent phenomenon“;
(Sugata Mitra, 2010)

Organisation

- Cooperation between:
 - Albert-Schweitzer-Schule (ASS) Kassel (general secondary school)
 - City of Kassel, Hesse
 - Ministry of Education, Hesse
 - University of Kassel, Hesse
 - Ministry of Science, Hesse
- Research in all MINT-classes:
 - Physics/Astrophysics
 - Biology
 - Chemistry
 - Maths
 - Engineering



Staff



Head & Founder:
Klaus-Peter Haupt

Staff:

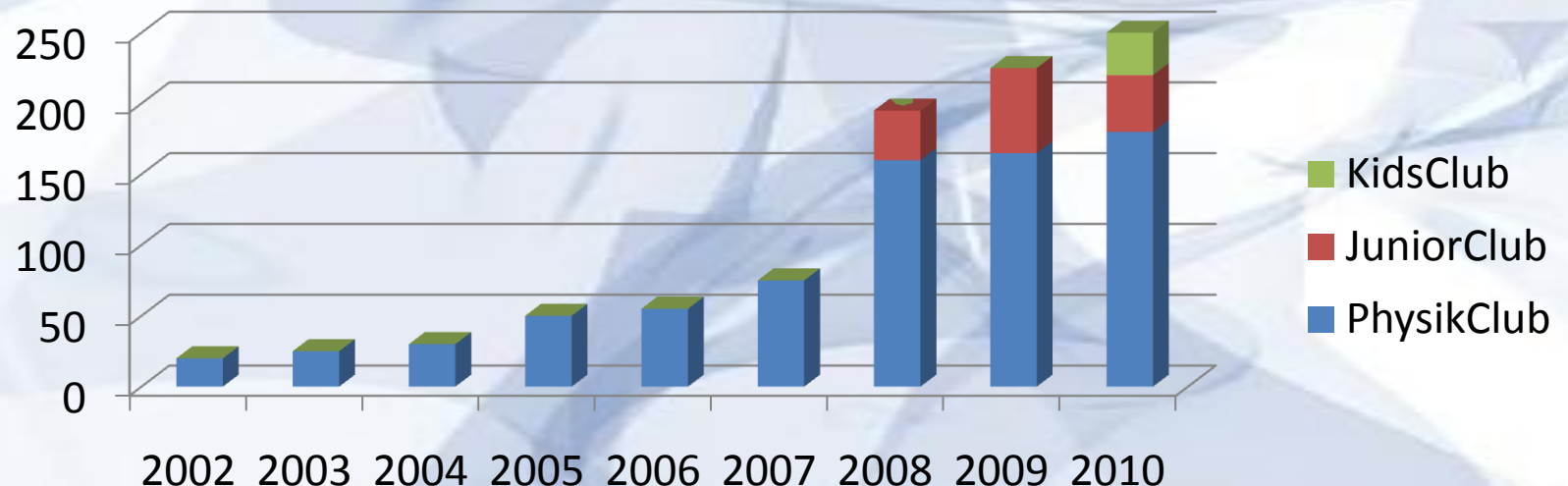
20 collaborators:

- students
- teachers
- freelancers

Alumni-concept: Most students were formerly participating students in the PhysikClub

Internal structure and participants

- KidsClub: classes 5 - 6, age 10 - 11, tuesdays, 14:00-15:30
- JuniorClub : classes 7 – 8, age 12-13, fridays 13:45-15:15
- PhysikClub: classes 9 – 13, age 14 – 19, fridays 15:30-18:30
- Students come from different schools in northern Hesse



Principles

- No time-pressure
- No testing
- No grades
- Knowledge is a tool for solving problems
- Interdisciplinary work
- Competence-orientated
- Long-term researches
- Authentic projects
- Teamwork



Presentations

- Scientific presentations on thursdays and fridays
- Running presentations every Friday
- Annual presentations at the end of every school year
- Participation in national science fair („Jugend forscht“)
- Participation in several different fairs and exhibitions
- Students congress (2010: 1200 visitors)



Workshops

- Annual workshops to one distinctive subject
 - Working groups
 - Lectures held by scientists
 - Presentations of the results
 - Excursions
- Examples:
 - Cave-exploration
 - Navigation
 - Mountains and stars
 - Cosmic sounds



Holiday-academy

- Academy for younger students (8-10) in the summer holidays
- Hands-on-experiments and smaller projects
- ~20 students
- Duration: one week
- Presentation and lunch the final day



Awards



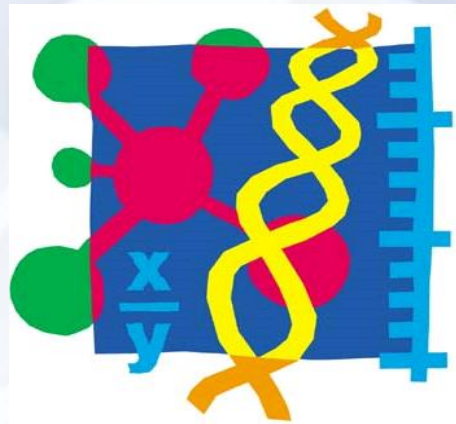
Teacher Award



Georg-Kerschensteiner Award



1. Platz: 2006, 2007
 2. Platz: 2010
- Sonderpreis: 2009



Nat-Working Award
Robert-Bosch-Foundation



Regional and National Youth
Research Competitions

- 74 projects in the 1. round, including 30 projects for young students which end in the 1.round
- 32 projects in the 2. round
- 10 projects in the final round
- 3 winner of the national price in physics

Networking

U N I K A S S E L
V E R S I T Ä T

- Institute of physics
- Institute of didactics
- Department of genetics
- Institute of engineering



- Didactics of Physics, University of Mainz
- Astronomical-Physical Cabinet, Kassel
- German Aerospace Centre, Cologne
- MPI Katlenburg-Lindau
- MPI Göttingen
- NAT-working program, Robert-Bosch-foundation
- AAK, Kassel
- Alfred-Wegener-Institut, Bremerhafen



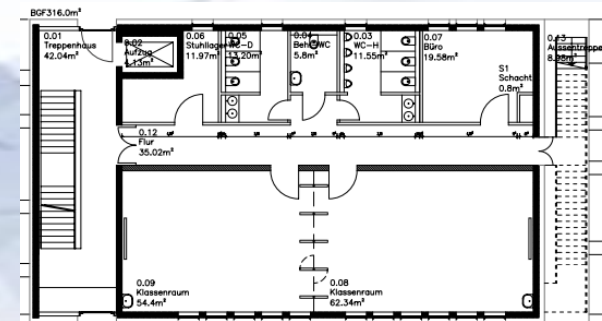
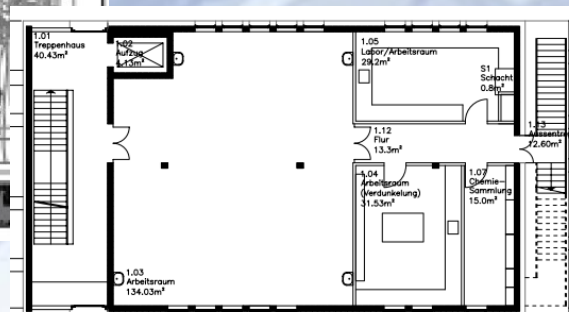
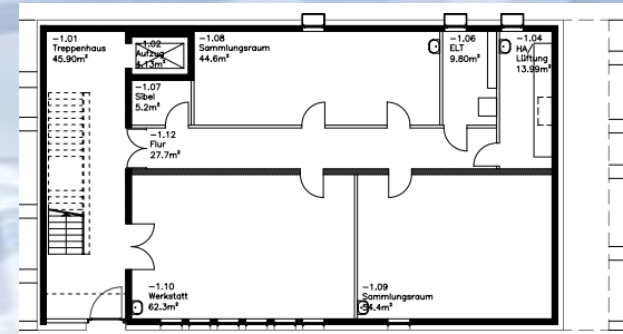
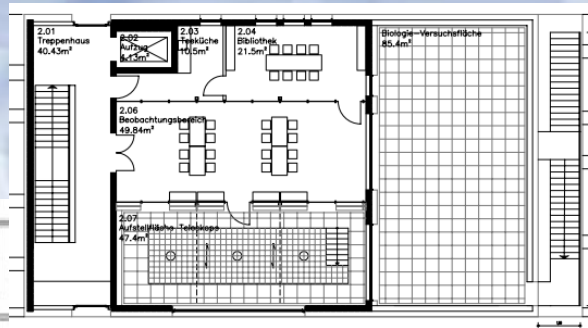
GEORG-AUGUST-UNIVERSITÄT
GÖTTINGEN

- Institute of physics
- Institute of astrophysics



Expansion

- 2011-2012 an own building for the PhysikClub/SFN is built
- 900m² for research and education
- observatory



Thank you for your attention!

Any Questions?