



PhysicsClub / Student Research Centre

Presented by
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Winners of the National Youth Research Competition
("Jugend forscht") 2009



PhysicsCLub: Short Notes

Organisation: Albert-Schweitzer-Schule Kassel
(General Secondary School)

Target groups: Students aged 10-13: Junior PhysicsClub
Students aged 14-19: PhysicsClub

Contact person: StD Klaus-Peter Haupt
Website: <http://www.physikclub.de>



Submitted in STELLA Online Catalogue in March 2009



http://www.stella-science.eu/initiatives_view.php?id=691



Chosen as Good Practice Initiative for the STELLA e-Book

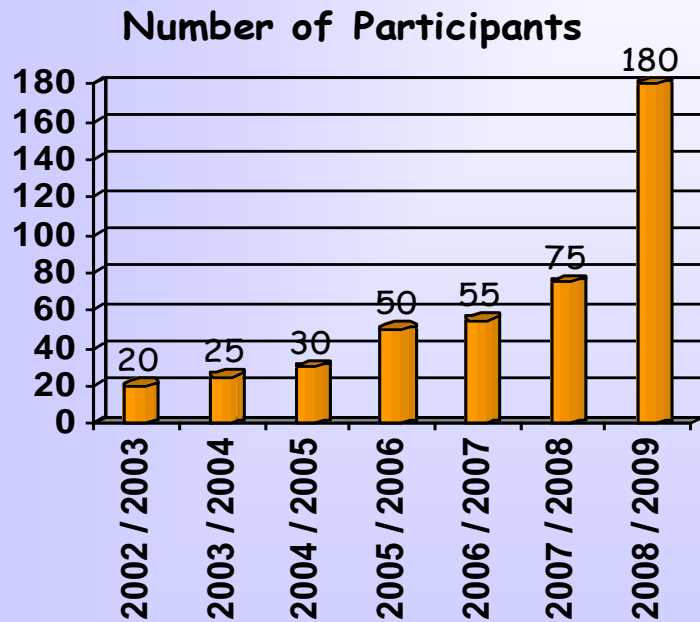


Success Story of PhysicsClub (1)

„No student will volunteer for practicing Physics on Friday afternoons....“

(A self-critical supposition in the beginning, 2002)

But it turned out differently...





Success Story of PhysicsClub (2)

- Currently about 180 students from more than 20 schools from Northern Hesse are working on more than 50 projects.
- They are supported by 20 advisors, who mostly are former members (alumni) of the PhysicsCLub.





From PhysicsClub to Student Research Centre of Northern Hesse

Due to limited space, increased requests also from other subjects (Biology, Chemistry) and a higher number of required advisors, the PhysicsClub is going to be expanded.



A new building - the Student Research Centre of Northern Hesse - is being built as department of the University of Kassel on the area of the Albert-Schweitzer-School.

The total area on four floors mounts to more than 1400 m². There will be an observatory on the roof available for all schools in Kassel and the public.



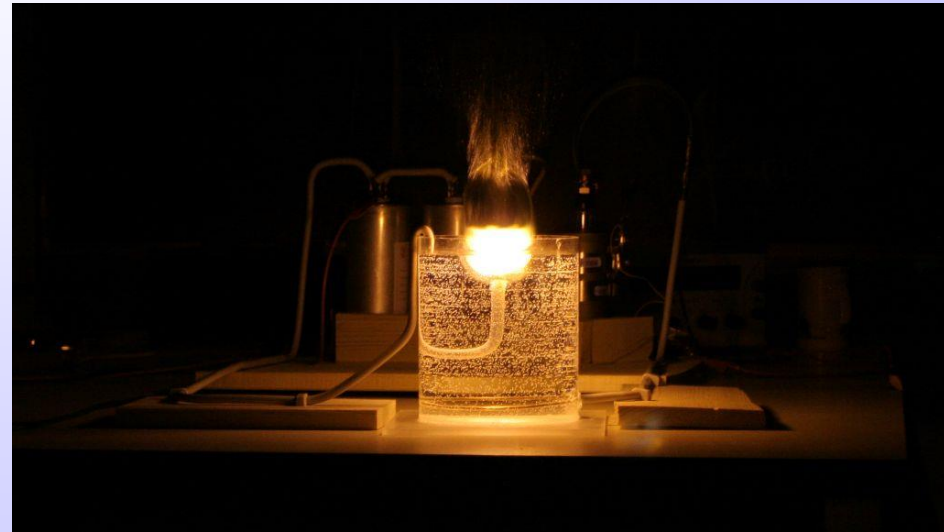
Success Factors of PhysicsClub (1)

1. Innovation in teaching sciences at school

- High-grade technical equipment
- Stimulating / motivating learning environment



Simulation of the inside of comets



Generation of a ball-lightning



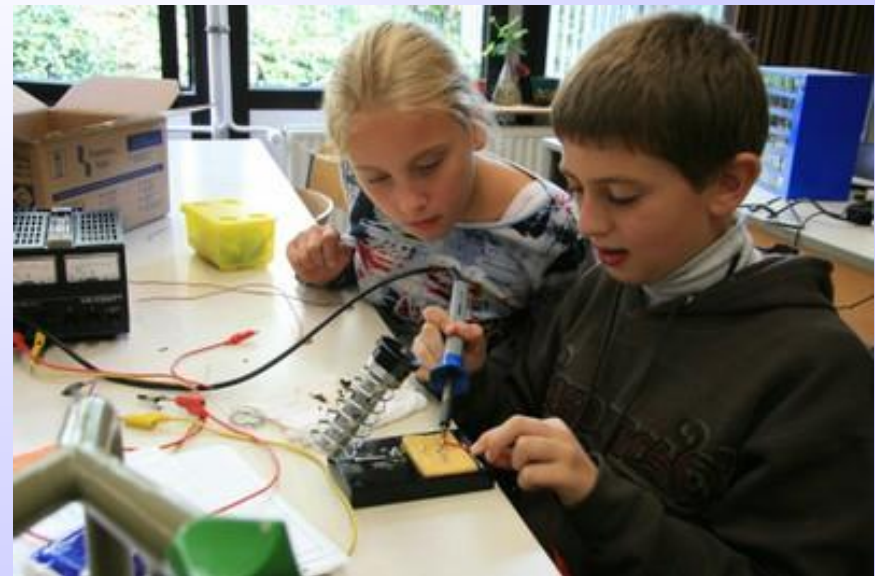
Success Factors of PhysicsClub (2)

2. Pupils are enabled to pursue academic work independently

- Pedagogical framework: constructivist learning theory
- Stimulation of numerous competences
 - professional qualification
 - self-competences
 - social competences
 - methodological competences



Construction of a drive without motor



Soldering of electronic components

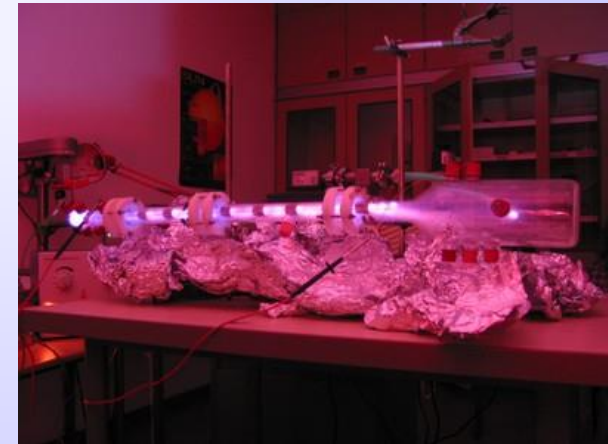
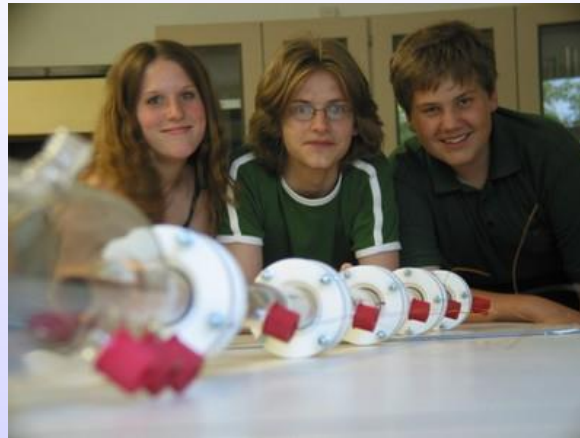
(Pictures from Junior PhysicsClub)



Success Factors of PhysicsClub (3)

3. Students work on real up-to-date research projects

- Subjects: Physics, Astronomy, Biology, Chemistry, IT, Geophysics



Example 1: Construction of a linear accelerator



Success Factors of PhysicsClub (4)



Example 2:

» Techno-Quappe «

Development of a silent
underwater drive





Success Factors of PhysicsClub (5)

4. Promotion for the participation in research competitions:

- "Jugend forscht"
- "Schüler experimentieren"



Example:
The PhysicsClub team on the
National Youth Research
Competition 2007





Numerous Awards

HESSEN

Hessisches
Kultusministerium

School Award of The Ministry of
Education of the State of Hesse

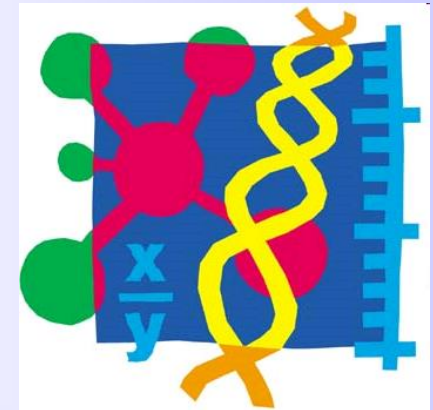
$$R_k = \frac{h}{e^2}$$

Klaus-von-Klitzing-Preis

Förderpreis für engagierte Lehrerinnen
und Lehrer naturwissenschaftlicher Fächer



Regional and National Youth
Research Competitions



Nat-Working Award
Robert-Bosch-Foundation



Teacher Award



Georg-Kerschensteiner Award





Dissemination Activities & Media Feedback

- Website with lots of up-to-date information, archive, brochures, pictures and videos
- Wikipedia entry:
http://de.wikipedia.org/wiki/Physikclub_Kassel
- Articles in Newspapers and Science Magazines
- Reportages on radio and TV





Co-operation / Sponsoring

PhysicsClub co-operates with several scientific institutions:

- Institute for Physics, University of Kassel
- Didactics of Physics, Universität of Kassel
- Institute for Genetics, Universität of Kassel
- Institute for Mechanical Engineering, University of Kassel
- Didactics of Physics, University of Mainz
- Astronomical-Physical Cabinet, Kassel
- German Aerospace Centre, Cologne
- ...

Financial Support:

In September 2008, the "Sponsoring Society Student Research Centre of Northern Hesse of the University of Kassel" has become a registered association. It serves to provide financial and manned support for the PhysicsClub/Student Research Centre. Furthermore the work is financially supported by several regional sponsors.



Resumée

PhysicsClub:

- PhysicsClub has started at regional level, but has had national impact
 - thanks to the inventiveness and commitment of the originator,
 - thanks to the high motivation of students and advisors,
 - thanks to the high standard research work and results,
 - thanks to the awards obtained,
 - thanks to the consequent dissemination of results.

By now, PhysicsClub is the leader of school research in Germany!

Impact on Students:

- The attendance of the PhysicsClub has lead to an overall improvement of students' school performance.
- Up to now, all students, who have attended the PhysicsClub as high school graduates, have subsequently enrolled in a MINT degree programme.
- Some of them still support the PhysicsClub as advisors.



Further Information

<http://www.physikclub.de>



Thank you for your attention! 😊