

# COURSES AND EDUCATIONAL PROJECTS FOR SCHOOL PUPILS

ATTRACTING TALENTED YOUNG SCIENTISTS AND SUPPORTING THEIR EDUCATIONAL TRAINING: WE ARE COMMITTED TO AN INTERDISCIPLINARY AND SUSTAINABLE CONCEPT OF EDUCATION SUPPORTING EXPERT KNOWLEDGE, GENERAL EDUCATION AND ENTHUSIASM FOR SCIENTIFIC RESEARCH.

Since 2004, the Hessian Student Academy complements and expands the teaching courses of public schools. The academy is held during the fall break at Burg Fürsteneck in the heart of the hilly landscape of the Rhön.

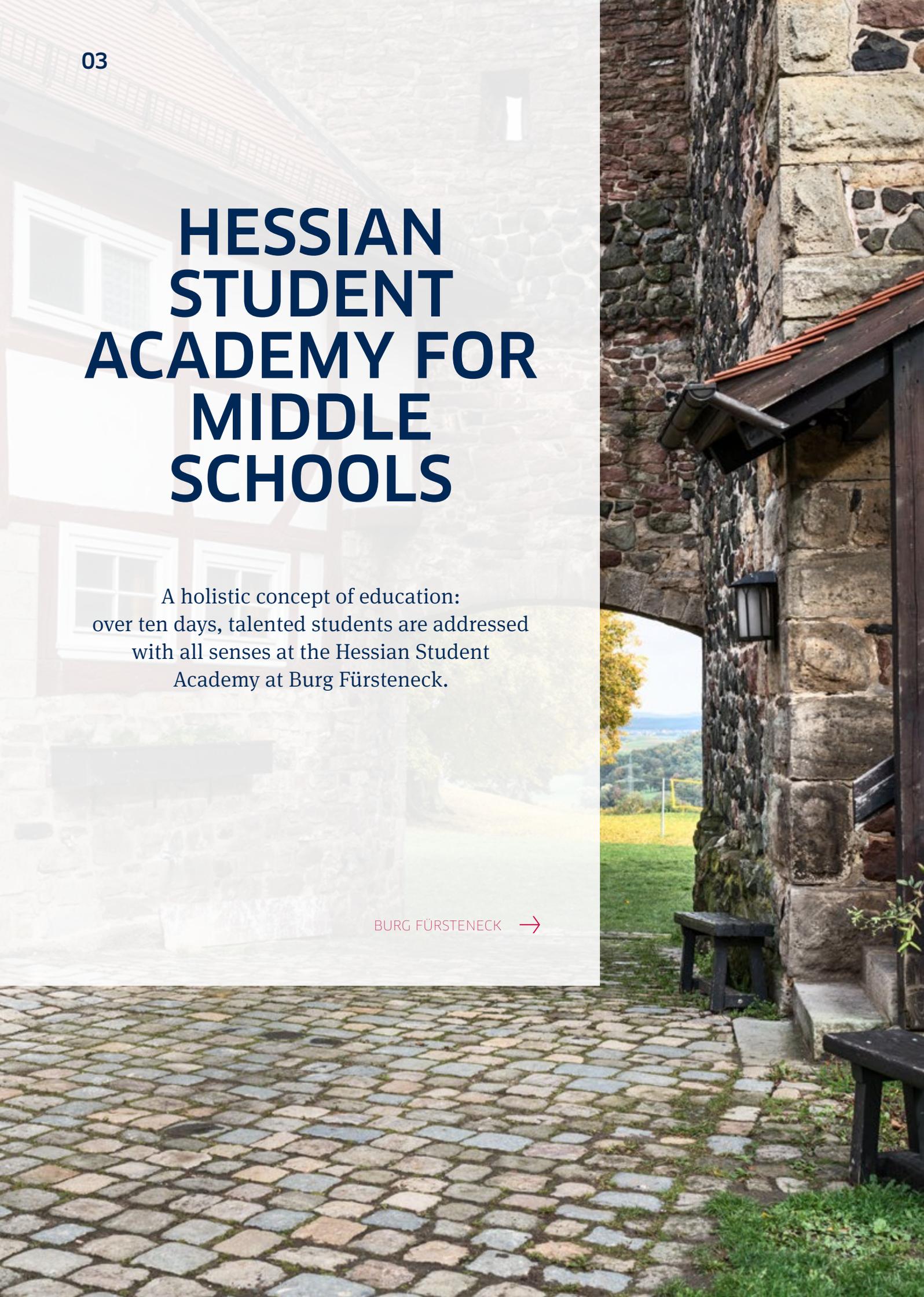
**BURG FÜRSTENECK**



# HESSIAN STUDENT ACADEMY FOR MIDDLE SCHOOLS

A holistic concept of education:  
over ten days, talented students are addressed  
with all senses at the Hessian Student  
Academy at Burg Fürsteneck.

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# DISCOVER KNOWLEDGE

Practice makes perfect: for this reason, the Beilstein-Institut has been supporting the education of young scientists since 2011. It funds the Hessian Student Academy for Middle Schools, where younger students of German school grades seven to nine can follow their specific (learning) interests in the fall break at Burg Fürsteneck – located between Fulda and Bad Hersfeld. The courses are led by university teaching staff and advanced students.

## Independently exploring chemistry from different perspectives

The first Academy for Middle Schools took place in October 2011. Sixty participants came together for ten days to participate in an extracurricular educational program. This included various activities such as sports and leisure in addition to the majors and electives in different subject areas.

The main courses covered the fields of chemistry, biology, mathematics, business ethics and cultural studies. “The wonderful world of metals” was the focus of the chemistry course. Twelve participants were able to learn different experimental methods and extend their existing knowledge from school. In the field of biology, students concentrated on the microcosm and its small hidden worlds, taking a closer look at the pond as an eco-system with the water flea as an example. The topic of the mathematics course was “Geometry in the plane, in space and hyperspace;” this included in particular training the brain to think geometrically. The business ethics course was titled “Courage, power, morale:” given the current economic and political developments as a background, participants discussed the question of whether and how economics and ethics fit together. Theatrical improvisation or the “Art of the Moment” was on the agenda in the field of cultural studies: in addition to theory amongst other things, the two teachers mediated a deeper understanding of body language.

The Hessian Student Academy encourages creative encounters with sciences and arts: making learning fun.

## LEARNING IS FUN

In addition to a main course, each pupil could take two elective courses from the fields of photography, theatre, the visual arts, dance and music. More activities such as interactive games, juggling and unicycle riding, geo-caching and yoga ensured that the attendees had a great time at Burg Fürsteneck. On the last day, when 130 guests were given an insight into the students' work, it became clear how successful the premiere of the first academy for middle schools had been – and how useful it was as a precursor to the Upper-School Academy which has been offered since 2004.

In 2012, the Academy for Middle Schools went into its second round. Once again, 60 gifted intermediate school students from schools in Hessen were given the opportunity to pursue topics in the natural sciences, media studies and art and culture. This time five main courses from the fields of chemistry, mathematics, biology, cultural studies and aesthetic practice and media culture were offered. "The world is colorful" was the title of the chemistry course, in which 12 participants discovered, for example, what properties dyes have, where they come from and how these compounds are chemically structured. Meanwhile 14 young mathematicians "ran riot" in the broad area of games theory. They were given an insight into how it works and its possible applications.



The joy of learning and extending the boundaries of school education are the main focus of the academy.



Burg Fürsteneck provides students with an interdisciplinary-oriented educational concept: besides sports and leisure, this includes majors and electives in chemistry, biology, mathematics, business ethics and cultural studies. All courses are led by university teaching staff and advanced students.



Stimulate enthusiasm for sciences and allow the participants to experience the fascination of chemistry in various facets: after the successful academies in the previous two years, in 2013 the Beilstein-Institut supported the Hessian Student Academy for Middle Schools for the third time.



In the footsteps of Sherlock Holmes: applied chemistry and criminological research working closely together.

In the main course on biology, 11 students took part: under the motto “Dark goings-on in secret” they explored the ground as a complex entity of rocks, air, water and living creatures.

On an equally exciting journey into the unknown, participants of the cultural studies course named “Musical improvisation: reinventing music!” addressed the question of whether one really can spontaneously make music and if so, how. Amongst other things, the course on media culture focused on the power of the media discussing what media there are, how they work

and what role they play in society. In small teams the young editors went in search of suitable topics, surfed and blogged and produced video clips about facts worth knowing about the academy.

As in the previous year, the five main courses were complemented with an extensive elective program. Each attendee was able to choose two additional courses from visual arts, experimental theatre, acrobatics, drumming and photography. In addition, interdisciplinary leisure and sports activities were offered in the program – contra-dance, sport working groups, T-shirt design and introduction to relaxation techniques.



## ENERGY FOR LIFE

Following the successful academies of the previous years, the Beilstein-Institut supported it for the third time in fall 2013. This time Burg Fürsteneck played host to 62 students, who were able to choose a main course from five subject areas – chemistry, art and culture, biology, mathematics and physics. A downright appetite-stimulating title was “Pizza, ice cream and gummy bears.” In the chemistry course, the participants investigated how food provides the energy for life, which nutrients are essential for the human body and which foods supply them. Not only were ready-made dishes scrutinized, the participants also created food products themselves.

In biology, participants took part in a criminal journey of discovery à la Sherlock Holmes, CSI & Co. Using laboratory analyses, they attempted to identify a person from blood, hair, fingerprints, DNA and saliva samples. Quite a different world opened up to the students of the course in art and culture, as they followed Shakespeare’s characters in the sixteenth century. They rehearsed brief scenes from the plays, which right up to the present day have a great influence on theatrical works, and performed them on the stage.

In the mathematics course, an attempt was made to build a bridge between technology and art, with the focus on perspective drawing and the design of geometric structures. The main course in physics ultimately proved to be very practical and useful with students occupying themselves with the planning, building and optimizing of low-energy houses. At the end of their seminar, they investigated whether and to what extent there was potential for energy savings to be made at Burg Fürsteneck.

In 2013, the five main courses were also supplemented with electives from the areas of literature and dance, the visual arts, media studies, drumming and digital photography. These courses received just as much positive feedback as the other leisure-time activities and complemented each other to make a varied, colorful program – giving each participant an excess of “energy for life.”



The tasks are taken from everyday life and solved by science – but not automatically: the students have to contribute and get involved, explore and research to come to an appropriate solution.

To solve the tasks, students have to independently overcome the traditional subject boundaries, such as between chemistry and biology, for example, when it comes to the analysis of blood groups.