Early childhood education/primary schools

KidsGoMINT in Essen

Even nursery school children already have a naturally inquisitive mind. This is the precise starting point for the KidsGoMINT initiative, a joint idea of the zdi Network (MINT-Netzwerk Essen) and Essen’s youth welfare office. Easy access to natural science and engineering topics is guaranteed by a specially developed experiment kit for a variety of topics. In this approach, short and light-hearted stories take into account children’s everyday lives as well as the thematic experiment itself. The stories carry the children off into a world of fantasy in which "Max the Mole" is the mascot faced with challenges for which technical solutions must be found.

Cooperation with “The Little Researchers House” in Kamp Lintfort

In March 2012, the zdi Network joined forces with “The Little Researchers House”, a local foundation. The objective is to stage activities for nursery school children too that are as wide-ranging and professional as possible. The partnership is also supported by several Lions Clubs.

Learning Workshops in Höxter

With “The Little Researchers House” and various career guidance measures, many STEM activities have already been launched in Höxter in the past for different target groups. Up until 2010, however, there was no consistent integration of primary schools. To fill this gap in the education chain, the zdi Network adopted the “Learning Workshop” concept. The learning workshops do not just contribute to promoting STEM. They also make an important contribution to fostering the individual development of children up to ten years of age and to better teaching. Learning workshops are the personalisation, materialisation and institutionalisation of a participative teaching and learning culture. They invite children to touch and feel and wonder at things as well as provoke questions for which the children themselves can find answers. With this concept, teachers increasingly become learning companions.

KisTe Experiment Kits in Siegen

First and foremost, the KisTe initiative means inspiring primary school children for mathematics and natural sciences with the help of experiment kits. Thanks to the dedication of the zdi Network, children at primary schools in the region have already been gathering experience in STEM subjects through these kits since 2009. Integrating childhood learning processes into classroom teaching - such as observation, trial and error, and validation - optimises it for children’s needs.
Research Kits in Unna

Primary school children in and around Unna are lucky: By the end of 2010 all 65 primary schools had been fitted out with research kits. Flecki is the research kit’s mascot who is waiting to help kids discover more about magnetism and electricity. As are teachers experienced in the subject. The kit’s contents and educational concept were developed by the zdi Network in cooperation with two teachers. The Network also trained the primary school teachers and provided background information and an accompanying guide.

Research Rooms in Siegen

The purpose of research rooms is to give primary schools the possibility to run classes on natural science and technology-related topics on a regular basis and without any constraints. They provide a stimulating learning environment and the offer includes long-term support to help organise, plan and conduct trials. The concept also aims to overcome inhibitions and embolden teachers and pupils to get to grips with natural science questions. The overarching goal is to enrich natural science lessons within general studies teaching in the long term by improving overall conditions.
Secondary schools

Student Competition in Aachen

Since 2010, the zdi Network (ANTalive) has made it possible for particularly motivated pupils to gain a practice-oriented insight into the job of an engineer. The Network enters two teams of pupils in a competition staged by Aachen University of Applied Sciences. In the framework of this contest, students in the fourth semester of their mechanical engineering and mechatronics programme are confronted with a real problem from industry. The groups are assisted by team coaches and have a week to develop a feasible solution for their task before presenting it to a jury.

BINGO in Bielefeld

BINGO, the career initiative for engineers in East Westphalia-Lippe, is known well beyond the region for its professional hands-on events as a source of information about technical professions. In fact, these are its hallmark! At the heart of the initiative are the BINGO Action Days, where once a year around 1,300 pupils visit regional companies to find out about technical professions and job prospects. Filmhaus Bielefeld e.V. has followed the BINGO Action Days since 2004 in the framework of a film project. The result since then is 25 short films that present technical professions and the respective companies through the curious eyes of the pupils.

Open Courses in Wuppertal

The zdi Network (BeST) offers pupils aged 12 and upwards from 53 schools in the Solingen-Remscheid-Wuppertal triangle the opportunity outside their regular schooling to familiarise themselves with innovative technologies in an experimental environment. Thanks to close contacts to companies in the region, course participants can gain an insight into innovative technologies and the respective professions as well as an overview of engineering and natural science programmes through cooperation with the University of Wuppertal (BUW).

SchulPOOL Physics Initiative in Neuss

In 2009, the zdi Network adopted the “Optimised Learning” concept developed by the University of Wuppertal (BUW) for physics teaching in schools, in short: SchulPOOL. The package includes particularly interesting trials and experiments for use in physics lessons with both demonstration kits for teachers as well as whole classroom sets.

Fire Simulation House in Bochum

In the second half of its final year, a technology class at a partner grammar school of the zdi Network (IST.Bochum.NRW) built a fire simulation house for Bochum’s fire brigade. The model house is intended for demonstration purposes to teach people how to react when faced with a fire in the home as well as to train budding firefighters.

Project Course in Duisburg

Thanks to new legislation on grammar school education and school-leaving examinations, for the first time since the 2011/2012 school year there is scope for senior pupils to undertake project
courses in place of the extended essay common to date. Project courses allow them to study a broader range of topics in their minor and major subjects and create a basis for additional teaching concepts, thus facilitating preparatory scientific work along thematic pathways that is far more profound. Cooperation with non-school partners is expressly welcomed. The first project course in physics in North Rhine-Westphalia was designed and implemented in 2010 as a pilot project by the zdi Schools Laboratory at the University of Duisburg-Essen (UDE) in cooperation with a grammar school and with considerable input from the Ministry for Schools and Education and the local government.

Laboratory Truck: Mobile Classroom in Lippstadt

There has been a zdi Schools Laboratory at Hamm-Lippstadt University of Applied Sciences since March 2010. Apart from an on-site programme, this still relatively young university also has a STEM Laboratory Truck as a mobile classroom, which is literally “learning on the go” and a suitable example for applications in the framework of the ongoing zdi ERDF programme:

Aiming High: Flying Group in Rösrath

In the second half of the 2012/2013 school year, the infectious enthusiasm of a flying instructor from Hangelar and their physics teacher spread to nineteen lower school pupils at the Freiherr vom Stein Grammar School in Rösrath, encouraging them to get to grips with the theory and practice of flying.

Capacity Building: Zambia Taskforce in Gladbeck

The IDG, a secondary school in Gladbeck, has been partners with a girls’ and a boys’ boarding school in Zambia since 1986. The highlight is the reciprocal four-week school exchange each year. Whilst around 20 years ago the slogan “Live together, learn together, stay together” meant a more general exchange, since 2004 it has had a very specific technical focus. “Illuminating Learning” is the title under which the topic of photovoltaics has played a central role since 2005 both in the voluntary Zambia Taskforce in the afternoon as well as in senior pupils’ technology lessons. The idea of bringing grid-independent power to the partner schools evolved during a visit by the Zambian delegation to Gladbeck.

Decentralised Study and Career Guidance: STEM Learning Stations in Borken

Borken is a large administrative district to the west of Münster. Its economic structure is characterised mainly by SMEs in a broad mix of sectors. It also has about 60 secondary schools. Shortage of skilled workers is a topic that is becoming increasingly important in rural regions too. That is why it quickly became clear to the zdi Network founded in 2011 that bringing together companies and young people had to be one of the Network’s key tasks. Because the geographical region covered is very large, the idea developed of presenting the wide diversity of career prospects in natural science and engineering subjects to pupils in the framework of STEM Learning Stations.

Courses for Girls in Duisburg

On behalf of the zdi Central Office, in 2013 the Technology-Diversity-Equality Centre of Competence developed two concepts for courses on car mechanics and maintenance as well as web
design that are exclusively for girls. Practical advice on how to prepare and implement further education and career guidance measures include detailed descriptions of course modules, handouts on gender-equitable approaches, templates and career information. One of the course concepts was implemented for the first time by the zdi Network in Duisburg, which ran the two-day course entitled “Build your own website” as a pilot project with ten girls at the end of the 2014 summer vacation.
Overarching activities

STEM Hands-on Day in Gütersloh

In September 2010, the zdi Network (pro MINT GT Kreis Gütersloh) together with the Carl Miele Technology and Engineering College staged the STEM Hands-on Day for the first time. Due to the tremendous response, the event was repeated in November 2011. Around 1,000 pupils as well as teachers, parents and other interested parties took advantage of the opportunity to find out more about the wide spectrum of STEM activities taking place in the region. About 40 stakeholders presented a large number of STEM initiatives and topics in the framework of an exhibition and a stage programme. Both the visitor numbers as well as the stakeholders’ dedication underline the event’s success. It should be noted that the event takes place on a Saturday, so it is not compulsory for school groups.

Project Day in Rheinbach

Since 2009, the zdi Network (Bildungsregion Rheinbach) has organised a zdi Project Day each school half-year in which a large number of education and training institutions take part. Children from daycare centres and schools conduct research experiments together on a specific theme. The projects are developed by nursery school and other teachers, older pupils and external lecturers. This has led to many new partnerships over the last years, including joint projects between daycare centres and primary schools, between secondary schools and primary schools, and between different types of secondary schools (general, comprehensive, grammar) as well as daycare centres or primary schools amongst themselves. In addition, different learning formats encourage independent thinking and acting as well as social skills.

Pupils’ Competition in Duisburg

The zdi Network (DU.MINT Duisburg Niederrhein) has launched a competition on STEM topics each year since 2011. The competition targets pupils of different ages and is always based on the same philosophy: Boys and girls should be encouraged to ask supposedly stupid questions. After all, the starting point for an innovation is always a question. Making STEM fun and entertaining is at the heart of all activities. Having taken place three times and enjoyed a tremendous response from schools, the competition has already established itself as a key element of the zdi Network’s activities.
Teachers

STEM Events in Marl

With its "MINT.Macher" series of STEM events for movers and shakers, in 2008 the zdi Network (MINT.Marl) introduced an instrument that focuses on the role of schools in the development and diffusion of further education and career guidance measures in cooperation with other partners. By involving dedicated teachers from all STEM subjects and taking into consideration their skills as educators, the Network is able to develop and implement suitable activities outside school and throughout the region that have a major impact. The initiative addresses teaching staff from different types of schools in almost all ten towns in the Recklinghausen area, which with over 600,000 citizens is Germany’s most densely populated administrative district. The zdi Network functions as meeting organiser and intermediary to the higher education and corporate partners as well as to other organisations.

Partner search

STEM Fund in Gütersloh

How can as many partners as possible be brought together for zdi Networks and retained over the long term? The zdi Network (pro MINT GT Kreis Gütersloh) has found an answer. With the help of ERDF funding, it commissioned an agency with finding new ways of attracting partners. Services include analyses, the development of new goals with the zdi Network and external partners, chairing workshops and contacting new partners. A fundraising strategy for STEM education and training has also been jointly developed.

New Association with ERDF Grant

In January 2015, 16 companies and institutions in and around Unna set up an association in support of the local zdi Network (Perspektive Technik). The objective is to secure the zdi Network’s various activities over the long term, which to date have mostly been financed from subsidies, donations and funds from Unna Economic Development Agency as well as the Foundation for Further Education and Training. The new business model, which has been developed with ERDF funds, should also reduce the zdi Network’s dependence on public funding. This legal form was chosen because an association benefits - by contrast to a foundation - from regular membership fees and is thus able to plan better.