

SCIENCE MEETS SCHOOL

EXAMPLES FROM THE **SOUTH BALTIC** AREA



South Baltic
WebLab



Science Meets School
Examples from the South Baltic Area
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Photos:

Cover: large: NaturBornholm, small: clockwise from left above: Baltic Sea Project; Experyment; GeoCenter Møns Klint; Confident ApS; IOW; Kieler Forschungswerkstatt. Page 5 from top to bottom: Inger Ekström, Lund University; LUNE, Lund University; Bildungswerkstatt der Wirtschaft; Kieler Forschungswerkstatt; Christian Rödel, Ozeaneum; MARUM; NaturBornholm; GeoCenter Møns Klint. Page 7: all photos from Lund University. Page 8 - 10: all photos from Helena Bergqvist, Lund University. Page 11: all photos from Inger Ekström, Lund University. Page 12 - 13: all photos from Uppsala University. Page 15: all photos from NaturBornholm. Page 16 - 17: all photos from the Baltic Sea Project. Page 18 - 19: all photos from Dansk Skaldyrcenter. Page 20 - 21: all photos from GeoCenter Møns Klint except the aerial photo: Confident ApS. Page 22 - 23: all photos: SoBaTo. Page 24: large: campus of excellence; small - above: IOW; below: campus of excellence. Page 26: all photos from Johannes Maria Schlorke, Ozeaneum. Page 27: all photos from Rostock University. Page 28: all photos from Zoo Rostock. Page 29: all photos from MARUM. Page 30 - 31: all photos from Bildungswerkstatt der Wirtschaft. Page 32: all photos from GEO-MAR. Page 33: all photos from Kieler Forschungswerkstatt. Page 35 - 37: all photos from IOPAN. Page 38 - 39: all photos from Experyment. Page 40 - 41: all photos from SeaPark. Page 42 - 43: all photos from Lithuanian Sea Museum. Page 44 - 45: all photos from Klaipeda University. Page 46 - 47: IOW, Klaipeda University, IOPAN.

Maps: Werbeagentur Piehl, Rostock.



New knowledge created by scientists ought to find a direct and fast road to schools. But far too often schools and research institutions turn out to be separate universes light years apart while the challenges of an ever-changing global society call for action.

New tools have to be found, experiences need to be exchanged to let the next generation benefit from new insights as early as possible. This serves not only the purpose of accelerating the 'cycle of knowledge' it can also help recruit a new generation of scientists as is desirable, for example, in the South Baltic Area.

It is the aim of this booklet to inform teachers from all over the Baltic Sea area about some of these 'science-meets-school' offers in a concise way and to facilitate the access to these offers.

Last but not least, the booklet shall further encourage a cross-border exchange of ideas and experiences. It is exactly this exchange which has coined the Baltic Sea communities and made them what they are today. We need to go on with this fruitful tradition – with interested pupils, well-trained in natural sciences for the sake of a sustainable use of the Baltic Sea environment.



Barbara Hentzsch, project coordinator,
for the South Baltic WebLab consortium



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Sweden

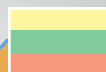
Uppsala



Nykøbing Mors

Denmark

Lund



Klaipeda

Lithuania

Sønderborg

Borre

Rønne
Aakirkeby

Kappeln

Kiel

Rostock

Stralsund

Wicko

Gdynia
Sopot

Bremen

Germany

Poland





LUND UNIVERSITY
Faculty of Science

The LUNE-project

Let us show you that science is both useful and fun – visit the LUNE-days at Lund University!

LUNE stands for the joint effort of Lund University and the National Encyclopaedia (NE) to raise interest in science.

During the LUNE-days, taking place one week in June and one week in August, 12-15 year old students are welcome at Lund University to watch our popular science shows on physics, chemistry and biology. This visit to Lund is combined with active

search for more knowledge on the websites of the National Encyclopaedia.

The LUNE days are organized twice per year. Please, ask the contact person for more details.



Target group: One week for 6-7th graders, one week for 8-9th graders, elementary school

Subject addressed: Physics, chemistry and biology

Restrictions in the number of visitors: Several school classes can visit each show



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Discovery Club and Researchers' Club



LUND UNIVERSITY
Faculty of Science

If you are 6 to 7 years old and curious about physics you are welcome at the Discovery Club of Lund University! Here you may – in a group of 15 kids – discover about physics while building and experimenting. What is pressure? How does a parachute work? What is electricity? These are just some of the questions we will think about. You will meet 10 times for sessions of 90min and have lots of fun!

If you are 9 years old, you may continue – or join us for the first time – in the Researchers' Club. Here you will also meet 10 times for sessions of 90 min. The experiments become a little more advanced. You will build your own burglar alarm and your own steam engine and lift your friend with the power of your lungs only.

The Discovery Club has been going since 1996, whereas the Researchers' Club started in 2000. Each semester, two groups can be supervised (maybe better: take part). The programme comprises 10 visits of 90 minutes each.



Target group: School students a) 6-7 years old; b) 9 years old

Subject addressed: Physics

Restrictions in the number of visitors: 15 persons

Contact: Johan Zetterberg

Department of Physics, Lund University

Sölvegatan 14 C

SE-223 62 Lund

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Mail: Johan.Zetterberg@forbrf.lth.se

URL a) : www.utbildning.fysik.lu.se/upptackarklubben

URL b): www.utbildning.fysik.lu.se/forskarklubben



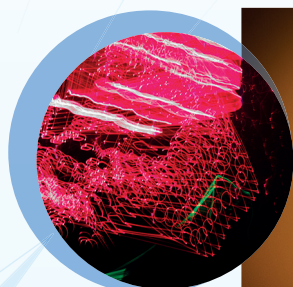


A magnificent show that introduces physics and science in a playful way! With impressive experiments, illustrating topics ranging from pressure and sound to light and fire, the audience is taken on a journey through physics. It all ends with a spectacular laser show with more than 1000 individual lasers in a smoke-filled, vibrating room.

'Physics & Lasershow' is a spectacular show, internationally renowned from e.g. The World Expo in Shanghai 2010, Festival

Nauke in Serbia and Melbourne, Australia. The show has been performed more than 1500 times for more than 300 000 people in 5 different countries. Don't miss this unique experience!

We give different versions for all different age and target groups. The show lasts approximately 60 minutes. In total, up to 120 shows are offered per year. Please, ask the contact person for the next appointments.



Target group: General public, from 4 to 99 years old

Subject addressed: Physics, chemistry, engineering (science in general)

Restrictions in the number of visitors: Several school classes per show

Contact: Johan Zetterberg

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Phone: +4646-222 77 28

Mail: Johan.Zetterberg@fysik.lu.se

URL: www.utbildning.fysik.lu.se/fysikolasershow

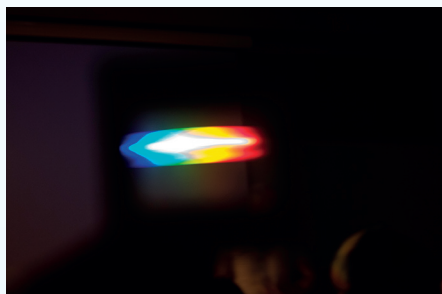
and <http://fysikochlasershow.blogspot.com/>





Meet researchers and listen to popular science stories about everything from Dark Materia, Evil Chemistry and Artificial Intelligence to the History of the Baltic Sea.

The NMT (Natural science, Medicine and Technology) project is a series of popular science lectures and demonstrations during one week in March, covering physics, chemistry, biology, astronomy, geology, natural geography, medicine and technology. For more detail, please refer to the contact person.



Target group: 14 to 19-year-old school students (14 to 19-year-old school students)

Subject addressed: Physics, chemistry, biology, geology, mathematics

Restrictions in the number of visitors:

One to several school classes can visit each lecture

Contact: Malin Olbe

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Lund University

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The Biology Show is a unique science experience for everyone – with or without previous knowledge in biology. You will not only experience exciting experiments including plants, animals and the audience, but you will also be taken on a journey to get to know the forces of evolution and the theories of Darwin. In short – a modern multimedia show with smoke, bubbles and many balls in the air.

Curious? If you are a student in elementary school you may watch this show during Lund University LUNE days, during the Lund Culture Night or at Vattenhallen. The duration of the show is one hour.



Target group: School students of all ages

Subject addressed: Biology

Restrictions in the number of visitors: Several school classes

Contact: Marie Dacke
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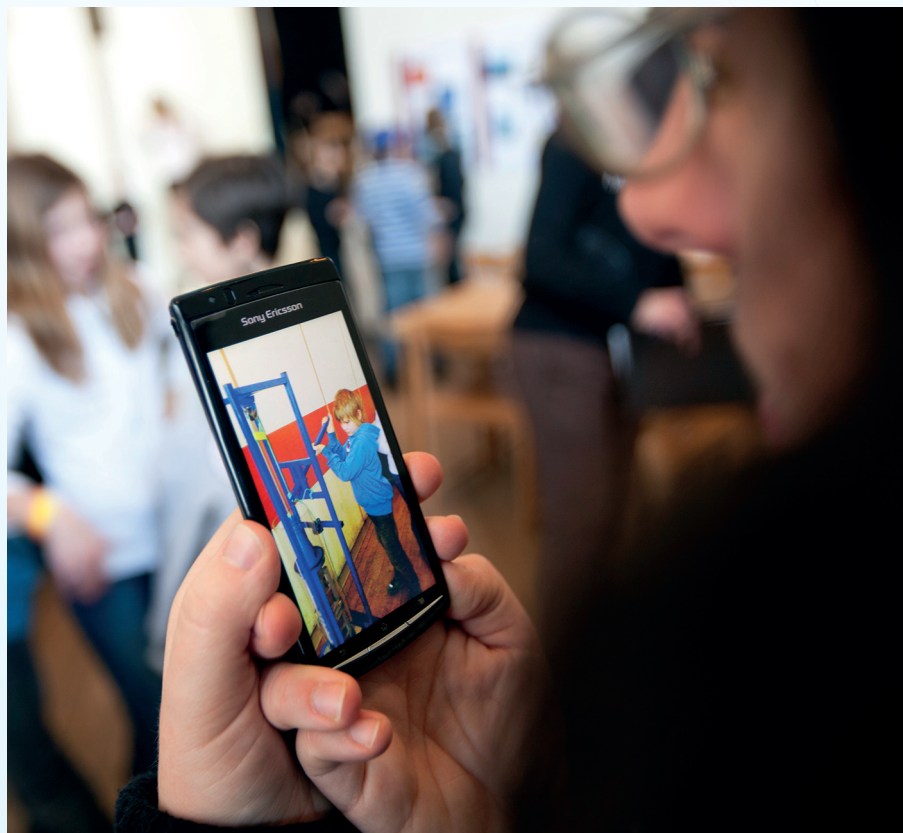
Experience science and technology through fascinating, interactive and funny workshops!

SciFest is a joint initiative of Uppsala University and other national and international institutions. It aims at increasing the interest for science and technology among pupils and the general public.

The core of SciFest consists of several 'hands-on' workshops where the visitors can experience subjects such as physics, biology, nanotechnology, engineering, energy, magnetism, evolution, mathematics, chemistry and even art. The exhi-

bitors are scientists, students, representatives from units such as e.g. the Uppsala municipality, museums and companies.

In addition to the workshops, there are lectures, shows and other possibilities offering visitors the chance to get in contact with and to interact with professionals from science and technology. There is a science café where researchers will answer questions. One part of SciFest is dedicated to schools only. Classes can book the work-





shops online and create their own schedule according to their wishes and current curriculum. The other part of SciFest is open for the general public. The workshops then will be opened for visitors to 'drop-in' and try out the different activities.

The Uppsala SciFest originates from the University of Joensuu, Finland, which is an active partner in the planning and organization of the SciFest. The collaboration involves e.g. the exchange of new ideas and the support with the online booking system and the workshops).

The SciFest is organized annually. Please, ask the contact person for more information about the next Festival.

The event is funded by: Uppsala University, Uppsala municipality, Uppsala county administrative board, the Swedish National Agency for Education, Uppsala Regional Council.

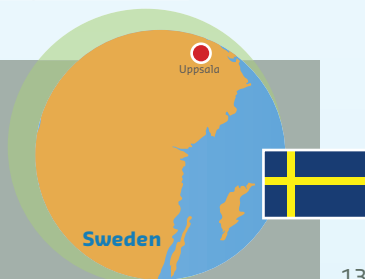


Target group: School students aged 10 to 19 years and general public

Subject addressed: Physics, technology, biology, chemistry, mathematics

Restrictions in the number of visitors: No restrictions

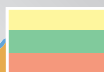
Contact: Johanna Lundmark,
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Denmark



Sweden



Lithuania

Poland



Germany

Nykøbing Mors

Denmark

Sønderborg

Borre

Lund

Rønne
Aakirkeby

Kappeln

Kiel

Rostock

Stralsund

Bremen

Klaipeda

Wicko

Gdynia
Sopot

Being the only rocky part in Denmark, the island of Bornholm and its geology offer great stories to be experienced. We will take the class on a trip to 'Klintebakken', a protected area of great natural value, located south of the Science Center NaturBornholm. Here, the circuit of rocks can be demonstrated in ideal way. We will look at bedrock minerals and will deal with the formation and decomposition of mountains. As a result of an ancient earthquake, traces of plate tectonics and mountain building can be investigated in close vicinity. Here, it is possible to bridge a time span of 1.2 billion years with just one small step. We will walk on a fossilized seabed formed 245 million years ago on the other side of the

globe. Furthermore, we will also see glacial striae and some boulders all left behind by the ice (of the last Ice Age) 20000 years ago.

After our geological outdoor trip we will visit the Naturbornholm Science Center. There are 3600 m² to be explored beginning with a time travel in our 4D cinema taking us back in time 1.7 billion years. Our interactive exhibits will allow students to witness geological processes and to meet long extinct animals and organisms like ancient crocodiles or dinosaurs. Last but not least, there is our Baltic Sea Aquarium ... and so much more.



Target group: 5-20 year old pupils and students

Subject addressed: Biology, geology, geography

Restrictions in the number of visitors: Courses are restricted to 28 participants.

Contact: Peter Haase

NaturBornholm

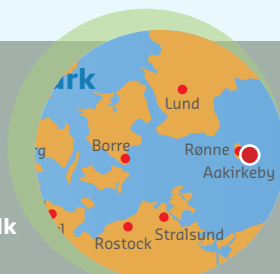
Grønningen 30

DK-3720 Aakirkeby

Phone: +45 56 94 04 00

Mail: peter.haase@naturbornholm.dk

URL: www.naturbornholm.dk



The Annual Science Camp



THE BALTIC SEA PROJECT

Organized by the Baltic Sea Project (BSP)

The Baltic Sea Project is organizing on a regular basis science camps with participants from all over the Baltic Sea region. To get an insight, learn more about our camp in 2013! Organizers are the BSP-Denmark in cooperation with the Klaus Harms Schule; The Kappeln Gymnasium (BSP-Germany) and the Leibniz Institute for Baltic Sea Research, Warnemünde.

The camp is designed for up to 100 participants, i.e. 1 teacher and 4-5 students from 20-30 schools from different countries all around the Baltic Sea. Participants sleep in their own tents, and must organize their transport to Kappeln (located on the Baltic Sea coast, near Flensburg in Germany) on their own. Students and teachers from pri-

mary and secondary schools may participate. There is a fee for food and participation being 40 Euro for each participant, (100 Euro for non BSP-schools). It is possible to apply for camp fee grants, but the transportation must be self-organized. Participants from all BSP-countries are invited to attend. The camp language is English. The daily programme consists of breakfast, morning workshops, lunch, afternoon workshops, dinner and shared, social evening activities. Groups of 20 students and 4 teachers always switch between the different workshops, so participants can try out all 6 different workshops. Participating teachers assist the groups and the workshop activities.



Examples of workshops:

- Water analyzes (salinity/density) and the correlation between measurements in the Baltic Sea and in the inflowing rivers; discussion of advantages and disadvantages of the different sampling and measurement procedures; determination of the zooplankton found in the water samples; sediment samples.
- Climate-related analyzes of marine fauna and flora, signs of climate changes.
- Water treatment: Comparison between runoff, purified water from cleaning plant in Kappeln, and water samples, which students can get from the surrounding habitats.
- Fishing methods: Attempt to catch fish with old methods (cod, herring, flounder); consequences for the marine environment.
- Practicing the newly developed South Baltic WEB-lab learning modules
- Research in school, sessions with relevant news from the researchers.

Target group: Students of 14-18 years



Contact: Baltic Sea Project, Denmark
Søren Levring
BSP national coordinator
Mail: slev@sonderborg.dk
URL: www.b-s-p.org

The Danish Shellfish Centre Learning Lab / Marine Biology

The dissemination facility at the Danish Shellfish Centre (DSC) of the Technical University of Denmark offers teaching and experiencing for children from kindergarten to high-school level. For the smallest kids, activities are focused on touching and sensing typical estuarine invertebrates with focus on shellfish and species related to DSC research activities.

The hands-on demonstrations introduce pupils to basic biological knowledge. For secondary school level pupils, educational courses are designed with a number of different topics like 'Invasive species', 'The

blue mussel' and 'Marine Waters'. The classes can be prepared in advance through an [e-learning platform](#) designed by DSC, followed by a hands-on experience at the research center. School classes can also come for general or specific guided lab tours and to the Limfjorden estuary. A similar concept is used for high-school pupils.

DSC has prepared courses with fixed topics like [eutrophication](#), [plankton](#), [mussel filtration](#), [benthic ecology](#) etc. related to the key research areas of the DSC. The courses match the high-school (15-19 yr old) biology curriculum and related interdisciplinary





Dansk Skaldyrcenter

Biologi i bølgehøjde



courses. Classes prepared in advance can either perform experiments in labs or take samples from boats and then prepare reports for their class. Larger assignments for small groups (2-5 students) can likewise be hosted at DSC for shorter periods where students use DSC lab facilities. Smaller courses are also offered to technical schools, e.g. the Fishery School.

The DSC Learning lab also encompasses a [school kitchen](#) where classes of all ages can learn how to prepare seafood. The kitchen can also be used for demonstration of [healthy food preparation](#), human nutrition classes, and general practice in kitchen routines and hygiene. No fixed courses have yet been designed but are under preparation.



Target group: Pupils 5-19 years old

Subject addressed: Biology, physics, chemistry, culinary lessons

Restrictions in the number of visitors: The course is designed for class groups with up to 24 students per class. The presence of the respective teacher is necessary except for high school groups working on special assignments.

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Mail: dt@skaldyrcenter.dk
URL: www.skaldyrcenter.dk



GeoCenter Møns Klint –

Educational sessions for schools visiting GeoCenter Møns Klint

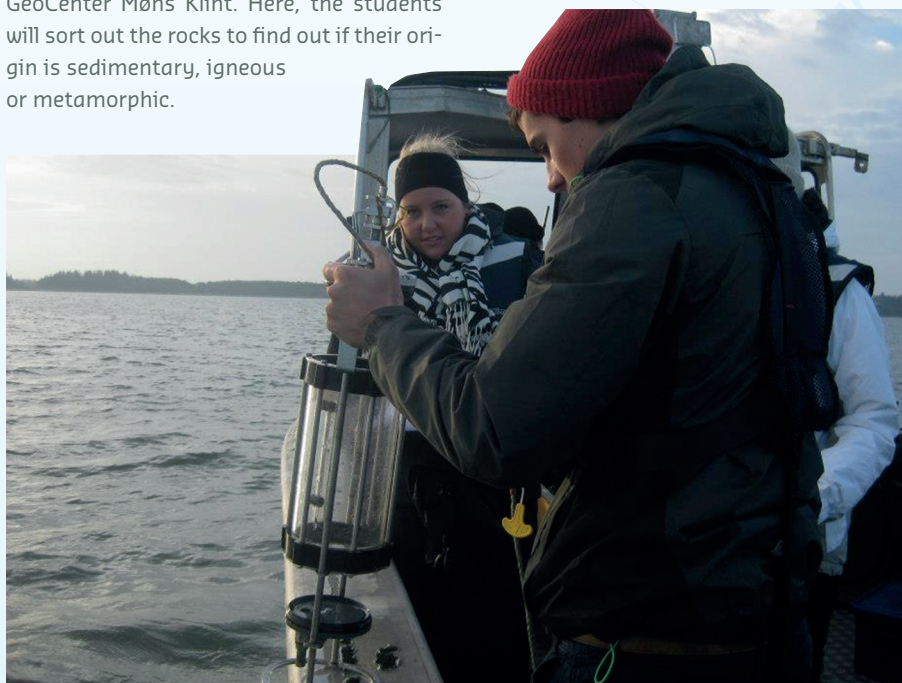
GeoCenter Møns Klint is offering educational sessions for school classes coming from all regions of Denmark. We have 13 exciting educational sessions related to geology, biology, and outdoor activities. Below you can find a description of some of our sessions:

Rocks:

The session starts with a trip to the white cliffs of Møn. Along the beachside a broad variety of stones can be found, but only one type of rock actually originates from this area – the flintstone, which was formed in the chalk layer on the bottom of the Cretaceous Sea. The students will collect different types of rocks to take them back to the GeoCenter Møns Klint. Here, the students will sort out the rocks to find out if their origin is sedimentary, igneous or metamorphic.

The catastrophic event in the Cretaceous Sea:

Along the coast of the white cliffs of Dover, students can find fossils from life in the Cretaceous Sea. Many of the animals that once have lived in the sea are now extinct due to an event that has happened 65 million years ago. In our school facilities, the students are reconstructing the food web of the animals which they have found out to have lived in the sea. Consequences of changes in the food web are discussed in relation to the meteor impact that blocked the sun light for months, and destroyed all life that depended on plants for food.



GPS-adventure:

This session combines an educational visit to the white cliffs of Møn with action and adventure. Using GPS-machines, the students are navigating their way to several spots located in the Klinteforest. In teams, the students there are working on different assignments dealing with the white cliffs of Møn, their geology, and the nature.



Evolution:

How was life in the Cretaceous Sea and why did it change?

The students will collect different fossils on the beach of the white cliffs of Møn. The fossils later on will be used to determine the biodiversity back then compared to today. Why did some species survive whereas others are extinct? Does adaptation ensure survival, or is mass extinction a part of life on Earth?

The GeoCenter Møns Klint is open from Easter to November 1st.

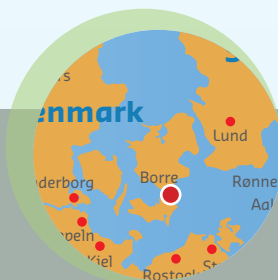
Target group: Rocks: 9-16 year old, The catastrophic event in the Cretaceous Sea: 9-12 year old
GPS-adventure: 6-18 year old, Evolution: 13-18 year old

Subject addressed: Geology, geography, biology, and science

Restrictions in the number of visitors: Up to 28 students per session.

The sessions are designated for school classes, the presence of the respective teacher is expected.

Contact: Frederikke Krabek
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Mail: frk@moensklint.dk
URL: www.moensklint.dk





Tech your future!

The SoBaTO or the Southern Baltic TechnOlympics is an event to arouse teenagers' interest in technics and innovation by doing a competition. The competition has a part of trivia or knowledge test and practical tasks - all together to be a different and fun way to arouse curiosity towards the technical working area and maybe a future career.

Since this concept has already been running for six years in North Germany in a very successful way, we think it is the time to make it international. It means that the SoBaTO will be held in Schwerin, Germany 2013 and in Gdansk, Poland as well as on Bornholm, Denmark 2014.

Each region has its different culture so at each SoBaTO teenagers are invited to participate in the other countries event – also to get a cross border network, to exchange and to compare competences.

The SoBaTO was born when small and medium sized enterprises (SME's) looked for a method to tell young people what they were doing and to match their skills with the requirements of the labour market. Even small less known companies work innovative. Do young people know that? Today, the companies are also active in finding practical tasks for the event. For example, what about:

'Make a light glow up by putting wires and small solar panels together in the right way!'





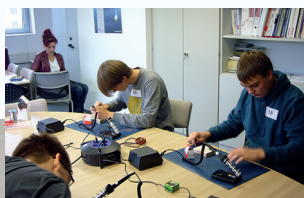
Project Events:

25-27th October 2013, Southern Baltic Technolympics, Schwerin, Germany

19th-21th of September 2014, Southern Baltic Technolympics, Bornholm, Denmark

14th-16th March 2014, Southern Baltic Technolympics, Gdansk, Poland

The project is part-financed by the European Union (European Regional Development Fund) 2010 – 2013.

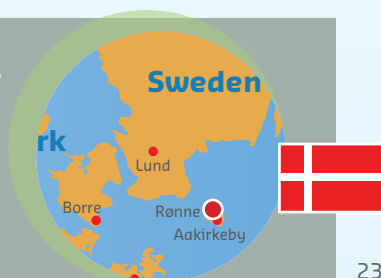


Target group: 14-19 year old

Subject addressed: Mathematics, natural sciences, innovation, information technologies

Restrictions in the number of visitors: Approx. 50-60 per event

Contact: Lone Reppien Thomsen
Bornholm's Maritime Udviklingscenter
Sydhavnsvej 12
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Phone: +45 56930539
Mail: lt@maritmecenter.dk
URL: www.sobato.eu
and www.technolympiade.de



Germany

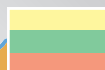
Uppsala



Sweden



Denmark



Klaipeda **Lithuania**

Lund

Sønderborg

Borre

Rønne
Aakirkeby

Kappeln

Kiel

Rostock

Stralsund

Wicko
Gdynia
Sopot

Bremen

Germany

Poland



Marischool – an oceanographic pupils' laboratory

Get out of school for a day and jump into science!

Move with your lessons to a research laboratory: The Pupils' Lab MariSchool offers experiments related to marine topics to high level courses in chemistry or biology. Besides, the participants can conduct interviews with marine scientists about current issues. The pupils are actively involved in carrying out the experiments and taking samples from the adjacent shoreline. They apply information learned during school lessons to current research questions and gain insights into vocational fields. The specific offers covering one or two days are oriented either to biological or chemical lessons, but they always contain interdisciplinary aspects. Currently, the lab offers courses on two different topics, the first dealing with the marine CO₂ cycle, in particular the impact of a rising CO₂ level in the atmosphere. The second deals with causes, processes, and consequences of eutrophication

in the Baltic Sea ecosystem. Both modules are connected to the educational curricula of the State Mecklenburg-Vorpommern, but additionally include scientific methods to address overarching problems relevant to society as a whole. The courses are mainly developed for students from 10th grade upwards. The maximum number of participants is 20. Courses can be arranged for a time span ranging from half a day (3-4 hours) to two days. Teachers can find all necessary background information on the project website, which includes a description of the covered topics and the pre-conditions for students to take part. The booking of courses needs to be done online. Teacher training courses can be arranged upon request.

MariSchool received funds from the State Ministry for Education, Mecklenburg-Vorpommern, and the Fond of the Chemical Industry.



Target group: 15-19 year-old school students

Subject addressed: Physics, chemistry, biology and geography

Restrictions in the number of visitors: 20 students per course. The course is designed for class groups; the presence of the respective teacher is necessary.

Contact: Dr. Sven Hille

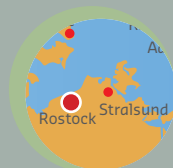
Leibniz Institute for Baltic Sea Research Warnemünde (IOW)
Seestr. 15

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Mail: sven.hille@io-warnemuende.de

URL: www.marischool.de



'The Baltic - the sea at our doorstep'

Kleine Themenwerkstatt 'Die Ostsee –
Das Meer vor unserer Haustür'



Pupils learn about the general characteristics of the Baltic Sea and work on topics such as brackish water and the structure of the Baltic's seabed. They learn how abiotic conditions influence the organisms living at or around the Baltic Sea. In this context, they learn about biodiversity in the Baltic. They understand the effects of salinity on the distribution and physiological performance of Baltic Sea species. Pupils work in three smaller groups on the following topics: (1) fish, (2) starfish and (3) shells. Finally, all groups present their results.

The course is connected to the educational curricula of the State Mecklenburg-Vorpommern and contains interdisciplinary aspects. The duration varies between 90 minutes and 180 minutes (within the course, the participants visit a part of the OZEANEUM. Additional time should be reserved for visiting the remaining exhibitions/aquariums.)



Target group: Pupils aged 14-16 (8th-10th grade)

Subject addressed: Biology, geography, physics, and chemistry

Restrictions in the number of visitors: The course is designed for class groups; the presence of the respective teacher is necessary. Maximum number of participants is 25. Booking in advance is required.

Contact: Nadine Pankow

OZEANEUM Stralsund

Hafenstr. 11

D-18439 Stralsund

Phone: +49 3831 2650 690

Mail: museumspaedagogik@ozeaneum.de

URL: www.ozeaneum.de www.kindermeer.de





Kick Me To Science

The project is established at the interface between school and university. By applying activity-oriented, function-oriented and inquiry based approaches it aims at attracting school students to study engineering at university. The focus here is set on electrical engineering, communication technology, and informatics.

Under the umbrella of KickMeToScience there are different offers which mostly have an interdisciplinary character. Special offers exist for female school students, student teachers and teachers. The Spurt-School lab offers also a mobile service including the loan of tools along with instructions and worksheets to run experiments to schools in the state of Mecklenburg-Vorpommern.

All offers are free of charge. An excerpt on various offers is given here:

- hands-on workshops (e.g. in robotics, basic techniques like soldering and wiring, bionics, programming) in connection with career planning
- summer schools
- internships

These activities are funded by the University of Rostock and the State Ministry for Education, Mecklenburg-Vorpommern. For more details please refer to the project website.

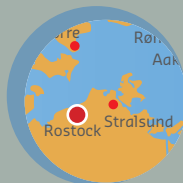


Target group: The target group are school students aged 14 +.

Subject addressed: Physics, computer science, informatics, engineering, interdisciplinary projects, career orientation instruction

Restrictions in the number of visitors: 28 school students per course

Contact: Dipl.-Ing. Birgit Krumpholz
University of Rostock, Institute of Applied
Microelectronics and CE
D-18051 Rostock
Phone: +49 381 498 7268/-51
Mail: birgit.krumpholz@uni-rostock.de
URL: www.kickmetoscience.de



A spectacular journey through evolution - the DARWINEUM



One billion years on 20,000 m².

History, people and animals – all are united under one roof in the DARWINEUM, which additionally provides a fitting new home to the apes of the Zoo Rostock. This 20,000 m² area both combines a breathtaking nature experience with a world of knowledge and invites you to discover, to learn and to marvel. Since 2012, visitors are able to find answers to the questions of how the wonder of 'humanity' developed out of a single-cell over a time period of millions of years.

The beginning of life itself is presented at the entrance of the exhibition – starting with the 'big bang'. An evolutionary educational overview then follows to illustrate the different developments. Roughly, 15 different kinds of animals can be found within the area, including mudskippers, leaf-cutting ants, horseshoe crabs, and echidnas that have innocuously survived over one billion years of evolution.

A second part of the exhibition resembles a research laboratory reflecting the unbelievable potential of modern research (stem cells) and our responsibility for the environment.

With terrariums and a bright foil roof with a suspension bridge, our 4,000 m² big tropical house provides an appropriate home for our apes. The gorillas and orangutans live here in a nature-oriented ecosystem, cohabiting among other animals with, pygmy marmosets, gibbons, guenons, and tortoises.



Target group: 6–18 year-old pupils

Subject addressed: Biology, geography, anthropology

Restrictions in the number of visitors: 20–25
participants per course

Contact: Frank Fuchs, Brunhilde Konradt

Zoological Garden Rostock

Rennbahnallee 21

D-18059 Rostock

Phone: +49 381 2082 104; +49 381 2082 121

Mail: f.fuchs@zoo-rostock.de; lehrer@zoo-rostock.de

URL: www.zoo-rostock.de



The UniSchoollab is an initiative of the MARUM – Center for Marine Environmental Science at the University of Bremen to build a bridge between school and science. For several hours school classes can get an insight into the basics and highlights of university research. The aim is to familiarize school-age children with the university and to advance their knowledge on natural sciences and studies. Thus, possible prejudices against university studies are already addressed to in school. The subjects are presented according to the educational level of the respective school classes. The main focus lies on illustrating complicated processes with practical exercises. All experiments and work are carried out by the

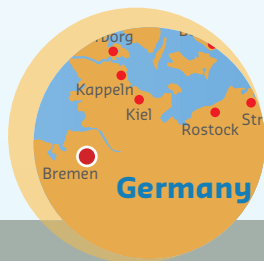
children themselves. In 2001, the school lab was initiated and since then has been accepted very positively. Within one year 1800 visitors use the free service of our 100 courses. Many classes have visited the MARUM UNISchoollab several times. Courses are offered five times a week.

These activities are funded by MARUM, center of marine environmental science, the University of Bremen and the senator responsible for education in Bremen.



Target group: Students from 7–18

Restrictions in the number of visitors: 26 per course



Contact: Dr. Martina Pätzold

MARUM, Center of marine environmental Science

Leobener Straße 2

D-28359 Bremen

Phone: +4942121865530

Mail: mpaetzold@marum.de

URL: www.unischullabor.de



NORDMETALL Erfindercamp / NORDMETALL Inventors' Camp

The NORDMETALL Erfindercamp ('Inventors'Camp') is the highlight of each school year. Teachers of participating schools can suggest their best and most dedicated students for attendance. Due to the limited capacity, CreateMV will choose up to two students from each school to spend 4 days at the Schlosshotel Hasenwinkel.

The NORDMETALL Erfindercamp is free of charge for the participating students. It covers 4 exciting days (excluding the day of arrival) including a field trip, experiments, constructions, and presentations. Starting on Thursday afternoon and ending on Monday afternoon, the students can get a leave of absence from school without missing too many courses.

The first full Erfindercamp-day comprises an extended tour through the production halls of a major metal and electronics company. For lunch, there is a BBQ planned at a high rope course. Mastering the high rope course demands a lot of teamwork, coordination, and discipline.

On the second day, we will stay at the Schlosshotel and work in groups at up to ten 'inventors' stations'. These stations include topics like: the NORDMETALL Infomobil, tethered flight, Lego find & shoot, electronics – jewellery with LED-lights, high-speed-camera, solar collector and others.

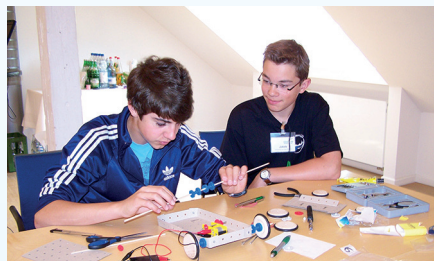


The third day is the competition day. The construction- competition is based on the TechCard system combined with other elements such as electric motors, variable gear kits, wheels, rods, line wheels, drive chains, rubber bands, gears, alligator clips, LED lights, and soldering tasks. The task is to match into teams of three students to build a creative-looking vehicle that can handle a given course as quick and elegant as possible. The prospect on the evaluation of each teams' work at the end of the day enhances the challenge. Besides exciting achievements a lot of fun is also granted. At the end of the day the announced winners can win small, but attractive prizes.

The students spend the morning of the last day preparing individual 10-minute-presentations on the inventors' stations that they have worked on. To effectively present their achievements, pictures and videos from that day will be provided. Also, advices

and suggestions of improvement will be given to guarantee a professional presentation in front of members of the Bildungswerk der Wirtschaft Mecklenburg-Vorpommern, NORDMETALL and of course teachers, parents and relatives. The camp ends in a get-together event to analyze the past days with parents and students.

The NORDMETALL Erfindercamp is organized once a year. It is funded by NORDMETALL Employers' Association of the Metal and Electrical Industries and the European Social Fund (ESF). For further information please turn to the contact person.

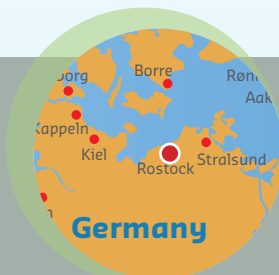


Target group: Students of 8th grade and older

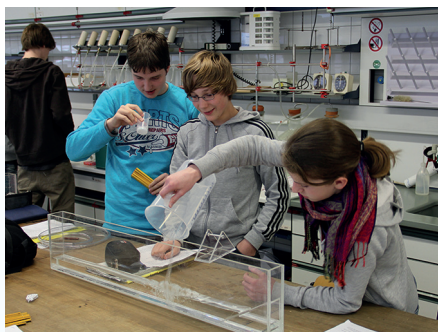
Subject addressed: Physics, chemistry, biology, mathematics, computer science, technology and engineering

Restrictions in the number of visitors: 24–30 students. Only students from participating schools with a CreateMV-student-project can attend the camp.

Contact: Anne Köpcke
Bildungswerk der Wirtschaft
Mecklenburg-Vorpommern e.V.
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D-18069 Rostock
Phone: +49 381 444 35 20
Mail: koepcke@bwmv.de
URL: www.bildungswerk-wirtschaft.de/createMV



GEOMAR's school cooperation focusses on joint project work between teachers, pupils and researchers, based on genuine science topics of the research centre. Depending on age, group size, available time frame and opportunity, individual projects are planned and then carried out at schools or at the research centre, in the field or at sea. The emphasis is on introducing pupils to the scientific approach and methods, to foster their interest in natural sciences, and to give them the opportunity to encounter marine research through personal experience. Disciplines cover marine and atmospheric sciences (marine biology, chemistry, and physics) as well as geology. Activities range from class projects as part of the school curriculum, projects or theses by individual students or courses in summer schools. Teacher training events complement the programme by allowing teachers to refresh their background knowledge on various scientific disciplines. Materials for teachers and pupils are created and made available on the web. A new component is the production of video clips by pupils on various aspects of marine sciences.



Target group: Pupils ranging from 12–18 years old

Subject addressed: Physics, chemistry, biology, geography

Restrictions in the number of visitors: 10–30 pupils per course

Contact: Dr. Joachim Dengg
GEOMAR Helmholtz Centre for Ocean Research Kiel
Wischhofstr. 1-3
D-24148 Kiel
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Mail: jdengg@geomar.de
URL: <http://www.geomar.de/entdecken/schule/>
<https://sfb-outreach.geomar.de/de/>



Kieler Forschungswerkstatt / School Science Lab Kiel

Research in Kiel, how is that related to us?

What do researchers do, and who are these people?



The School Science Lab Kiel (in German KiFo: Kieler Forschungswerkstatt) aims at building a bridge between research, education and outreach in Schleswig-Holstein. Students get insights into outstanding research areas in Schleswig-Holstein. They can deepen their own understanding and explore areas of interest. (Future) teachers experience different approaches of student learning with the results being presented to the public in different forms.

The programme is driven by four different goals:

- Insights into science and getting to know scientists for a broader group of students;
- Extra offers for interested students;
- Connection between student offers, research and teacher education and
- Public outreach.

Students and teachers are welcome to visit the different KiFo-labs, e.g. the ocean:lab, the energy:lab, the klick!:lab or the

zoom:lab. Explore the secrets of the oceans and the organisms living there, discuss alternative sources and processes of energy supply, find out how chemical switches work and zoom into the world of microorganisms and smallest structures in nanotechnology!!

For primary school students, the Forschungsexpress, a bus full of experiments comes to the schools nationwide!

These activities are funded by different partners: IPN, CAU, Cluster of Excellence 'The Future Ocean', Cluster of Excellence 'Inflammation at Interfaces', Stadtwerke Kiel, City of Kiel, Chamber of Commerce and Industry Kiel, Ministry of Education of Schleswig-Holstein, Forschungsforum Schleswig-Holstein, Friends Association MNF, Bayer Foundation (Forschungsexpress).



Target group: All age groups from primary to tertiary

Restrictions in the number of visitors: 5-30



Contact: Kieler Forschungswerkstatt
Leibniz Institute for Science and Mathematics Education /
Kiel University
Am Botanischen Garten 14
D-24118 Kiel
Phone: +49431/880-5911, -5916, -5910
Mail: info@forschungs-werkstatt.de
URL: <http://www.forschungs-werkstatt.de/>



Poland

Uppsala



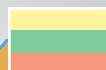
Sweden



Denmark

Nykøbing Mors

Lund



Klaipeda

Lithuania

Sønderborg

Borre

Rønne
Aakirkeby

Kappeln

Kiel

Rostock

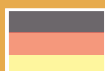
Stralsund

Wicko

Gdynia
Sopot

Bremen

Germany



Poland





Sopot Science Picnic. A weekend with science!

The Sopot Science Picnic is part of the annual Baltic Festival of Science. It offers experiments and demonstrations related to marine topics. The pupils are actively involved in carrying out experiments and taking samples from the adjacent shoreline. They gain insights into marine processes with the help of chemistry, geology and physics. Interdisciplinary aspects of marine sciences are highlighted. The participants can also chat with marine scientists about interesting issues. At various exhibition stands the visitors can learn all about the Baltic Sea animals. There are presentations of the SatBaltic project showing how the Baltic ecology is controlled by satellites. Scientists demonstrate how difficult it is to conduct experiments in the cold Arctic climate. The automatic measuring station at Sopot pier is introduced, which allows the assessment of the eutrophication process. Our stands present physiology and genetics of marine animals as well as causes, processes, and consequences of

the eutrophication in the Baltic Sea ecosystem. Young paleontologists also lead fossils seeking expeditions at the sandy beach of Sopot.

Additionally, a specific offer covers a trip to nearby cliffs and a visit of the oceanographic research vessels k/h 'Oceanograf II' and s/y 'Oceanida'.

Courses are run all day. Teachers can find all necessary background information on the project website, including a description of the covered topics.

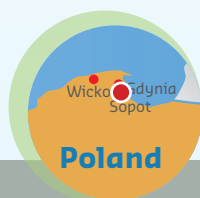
Courses do not need to be booked in advance. The Science Picnic is jointly funded by the Institute of Oceanology of the Polish Academy of Sciences, the City of Sopot, and the University of Gdansk. For the schedule of the next Sopot Science Picnic please turn to the contact person!



Target group: Pupils of all ages

Subject addressed: Physics, chemistry, biology and geography

Restrictions in the number of visitors: No restrictions



Contact: Tymon Zieliński

Institute of Oceanology Polish Academy of Sciences

Powstańców Warszawy 55

PL-81-712 Sopot

Phone: +48 58 7311910

Mail: tymon@iopan.gda.pl

<http://www.festiwal.gda.pl>



The aim of this outdoor workshop is to introduce the ecological and geological aspects of the Southern Baltic Sea area to primary/high school students. The workshop is divided into three parts.

The first part is a 3-hour walk along the shore of Gdansk Bay. A scientist explains the geological processes that led to the creation of the Baltic Sea as well as the recent accumulation/abrasion processes and methods of coastline protection. This walk goes across Kępa Redłowska Nature Reserve which has been founded in 1938 and is located on the moraine plateau cliffs. It was created specifically to protect the habitat of the Swedish Rowan, which is a relic of the Ice Age, but there are also pines, larches, maples, lindens, or spruces to be found. In addition, the reserve is a place with a dis-

tinctive coastal landscape. The natural appearance of the reserve has been violated, when, even before World War II, the cliff quay was occupied by the army. There are preserved artillery guns, rolls of mesh fencing, and concrete and metal structures. At the feet of the cliffs the students can also search for igneous/sedimentary/metamorphic rocks and faunal fossils.

The second part takes place in the Gdynia Aquarium. The renewed building unveils the secrets of the underwater life. The collection contains both, the species common at the Baltic Sea as well as colourful organisms from the tropic seas.



The last part is a cruise on board of the M/Y HESTIA. The students have the unique possibility to obtain their own sediment samples with a grab sampler and to learn how to use the marine stocks/resources in a sustainable way. The project is funded by FRUG (Fundacja Rozwoju Uniwersytetu Gdańskiego).



These workshops are offered daily from May to June. For further information please turn to the contact person!



Target group: 10-18 year old pupils
Subject addressed: Geography, biology
Restrictions in the number of visitors:
20 / 25 participants



Contact: Magdalena Łacka
Institute of Oceanology Polish Academy of Science
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Phone: +48605194143
Mail: młacka@iopan.gda.pl



– one of the first of such ventures in Poland – is a modern scientific and educational playground for amateur explorers and followers of the 'learning through fun' philosophy of all ages.

User-friendly interactive exhibits grouped into five sections (environment, humans, optics, sounds and physics) together form an innovative setting for an interesting school trip or lesson, as well as for a first rate leisure activity for the whole family. Each exhibit offers a unique opportunity to experience and understand everyday phenomena by conducting simple, safe and amusing experiments all by yourself. Few examples of our hands-on exhibits:

Water consumption: Toilets with the photoelectric cell washbowls. There are also special information boards giving information about global water resources and how to save it.

Microscopes - biological and stereoscope - use them to observe the variety of bacteria and other things we get in contact with every day. All preparations are also visible on big tv screens.

Anatomical trunks (female and male) with inner organs that can be taken out, so it can be seen what they look like: kidneys, stomach, liver, heart, lungs, pancreas, small intestine, large intestine, duodenum diaphragm... Your task is to place all the organs back to the right place.

Pulley blocks: Simple machine presentation. A pulley block system enables you to pick up heavy weights without effort.

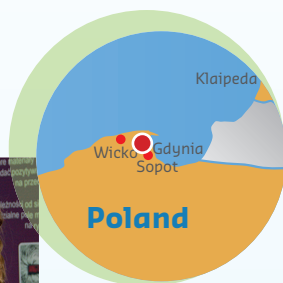




Vessels: Two aquariums with model vessels. Try to keep the vessel in balance by placing the correct containers on it or by pouring water into the tanks.

Being part of the Pomeranian Science and Technology Park, our **EXPERYMENT Science Centre** is changing again and again. The exhibition area will be increased steadily. Our visitors have the possibility to enjoy several thematic exhibitions with many new interactive exhibits and many interesting experiments to be carried out.

The project is partly financed by the European Regional Development Fund (ERDF) as part of the Lithuania, Poland and Kaliningrad Region of Russian Federation Neighbourhood Programme, the Voivodeship Fund of Environment Protection and Water Management in Gdańsk, and the National Fund of Environment Protection and Water Management.



Target group: 6-19 year-old school students

Subject addressed: Physics, environmental subjects, biology

Restrictions in the number of visitors: No restrictions

Contact: Natalia Grzywacz - Leszkowska
EXPERYMENT Science Centre, Gdynia Innovation Centre
Al. Zwycięstwa 96/98
PL-81-451 Gdynia
Phone: +48 58 735 11 37
Mail: experyment@gci.gdynia.pl
URL: www.experyment.gdynia.pl



Sea Park - Education through Fun and Entertainment!

Our Sea Park has a wide range of entertaining and educational attractions which are thematically related to the seas and oceans. They all are of a very high standard and surely will be fun for each and every visitor. **SEALS AQUARIUM:** The first seals' aquarium in Poland, where you can observe grey seals and have a close look on the fur seals from the Atlantic Ocean. In the Sea Park you can also observe the daily training of these beautiful animals.

PREHISTORIC OCEANARIUM 3D: Our prehistoric Oceanarium will offer you a wonderful 3D-perspective of the Ocean – a view you usually only get deep down in coral reefs. You will discover the sea's richness

and some enormous reptiles, which used to live under water millions of years ago.

SEA ANIMALS REPLICAS PARK: The main objective of Sea Animals Park is to educate children and adults. Faithful replicas reflect the natural size and appearance of various creatures. A walk through the park full of unusual and unknown animals living in our oceans and seas will illustrate the conditions of their lives and offer loads of information to all our visitors.

MARITIME MUSEUM: The largest collection of maritime handicrafts in Poland. Sarbsk is nowadays the most important center of marine handicrafts in Pomerania. This is

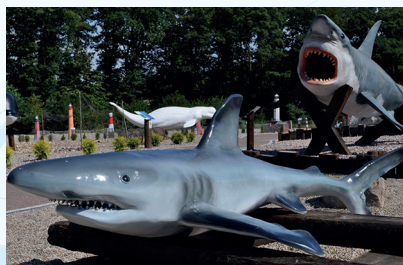




guaranteed by committed maritime enthusiasts, artisans, craftsmen, modelers, sculptors, and painters all working for the Museum of Modern Pomeranian Maritime Handicraft.

LIGHTHOUSE PARK: You can admire models of Polish and foreign lighthouses in miniature.

The park is open from May to October.



Target group: 6-19 year-old school students

Subject addressed: Biology, geography, environmental subjects

Restrictions in the number of visitors: No restrictions



Contact: Andrzej Myśliński

Sea Park – Recreation and Educational theme park

Sarbsk 39

PL-84-352 Wicko

Phone: +48 502 083 170

Mail: biuro@seapark.pl

URL: <http://www.seapark.pl>



Lithuania

Uppsala



Sweden



Klaipeda **Lithuania**

Denmark

Nykøbing Mors

Lund

Sønderborg

Borre

Rønne
Aakirkeby

Kappeln

Kiel

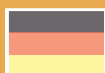
Rostock

Stralsund

Bremen

Poland

Wicko
Gdynia
Sopot



Germany



Lithuanian Sea Museum has a series of educational programs addressing students, families and tourists. Supervised by museum experts the visitors learn about marine environment, and how to enjoy and protect the sea. Opening hours are: Tuesday-Friday from 10.30 till 15.00. Current offers consist of:

Biology lessons: Baltic Sea ecology; predators and dangerous marine animals; who lives in the Baltic Sea; the mysterious mammal's world; seals - Baltic Sea hosts; penguins - flightless birds and so on.

Historical lessons: Secrets of Kopgalis fortress; the port of Klaipėda; why ships don't sink; sailor's ABC, and others

Educational events: Full day educational activities at school 'My Sea - distant and close'; full day educational camp at the Museum 'Let's meet at the Baltic Sea'.

Educational tours: In the museum; on board of the ship Dubingiai; sailing on Dane River with small ship; sailing on the Curonian Lagoon with historical boat.

Additionally, creative workshops are offered.



Target group: From preschool to school children

Subject addressed: Ethics, history, biology, ecology

Restrictions in the number of visitors: < 30 pupils



Contact: Renata Būdvytienė
Lithuanian Sea Museum
Smiltynės street 3
LT - 93100 Klaipėda
Phone: + 370 46 49 22 50
Mail: ljm@muziejus.lt; r.budvytiene@muziejus.lt
URL: www.muziejus.lt
<http://jurumuziejus.blogas.lt/>





School for Young Researchers

Klaipėda University offers pupils attending the high school/gymnasium the opportunity to take part in the School for Young Researchers. The offered lectures are designed to introduce students to particular science/study areas of our university and to prepare them for their future career. The pupils advance their knowledge on the latest achievements in science and technology. They develop cognitive and practical abilities by gaining insights into the daily activities of scientists and they learn how to work in labs with modern research equipment. This also will improve the knowledge needed for the different final exams at schools (or for state exams).

The following courses are provided:

- Informatics and programming: algorithms, evaluation, programming and data structures, Web Design and Network programming, object-oriented programming.
- Robotics, computer engineering and mechatronics: robot controller programming and construction, human-computer interaction: the human emotions controller programming and construction, industrial systems, layout and computer modeling.
- Digital graphics and photography: artistic and technical digital photography, virtual reality, computer graphics and movie programming.



- Medical technology and biophysics section: 'man as a signal source'.
- Marine biology, ecology and environment: introduction to the Baltic Sea, the biology and ecology of the coastal region, also marine ecology research methods. Sections and classes are held both in classrooms, laboratories and in nature: tours, excursions (Botanical Garden, the Maritime Museum, Vente bird station).
- Linguistics: integrated Lithuanian language and comparative Baltic and other Indo-European Studies.
- Art Therapy
- School of Psychology: psychology lectures, workshops for communication skills in group.

Classes are offered on Saturdays from September to May (each year). For more details turn to the contact person.



Target group: School students aged 15-17 years

Subject addressed: Biology, informatics, economics, art, languages

Restrictions in the number of visitors: No restrictions

Contact: Prof. Dr. Vitalij Denisov
Klaipėda University
H. Manto 84
LT-92294 Klaipėda
Phone: +370 46 398820, - 398821
Mail: jmm@ku.lt
URL: www.ku.lt/jmm/



The SouthBaltic WebLab – a virtual oceanographic laboratory

Our project aims at attracting young people between 15 and 19 to marine science, focussing on the Southern Baltic Sea. In five web-based learning modules the methods of marine science can be tested.

The programme covers biological as well as chemical, geological and physical aspects of modern oceanography.

Each module provides basic information, interactive elements as well as quizzes and crossword puzzles. The material is offered in Danish, English, German, Polish, Lithuanian and Swedish.

<http://www.balticweblab.eu/modules-408.html>

Module 1

The History of the Baltic Sea: Secret Messages in the Mud Decipher the sediments' message and uncover the past

Module 2

Coastal Dynamics: Slipped off Understand coastal dynamics and deduce adequate protection measures

Module 3

Water Exchange Processes: Fresh Air for Dead Zones Track the traces of North Sea water in the Baltic Sea and analyze the impact

Module 4

Ecology of Baltic Sea Lagoons: Change of Scenery Study the ecology of South Baltic lagoons

Module 5

Biogeochemical and Physical Processes in the Open Baltic Sea: Casting Light on Darkness Learn about the effects of excess nutrient input



**The virtual laboratory was jointly
built by the SouthBaltic WebLab
consortium, i. e.:**

Institute of Oceanology PAN

Sopot,
Regina Terlecka,
+48 587311718, www.iopan.gda.pl/



Klaipeda University

Coastal Research and Planning Institute,
Arturas Razinkovas,
+370 46398844, www.corpi.ku.lt/



**Leibniz Institute for
Baltic Sea Research Warnemünde**

Sven Hille,
+49 38151973413, www.io-warnemuende.de



Lund University

Dept. of Earth and Ecosystem Sciences,
Division of Geology, Pia Romare,
+46 462227186, www.geol.lu.se/



LUND UNIVERSITY

Szczecin University

Institute of Marine Sciences, Geology and
Paleogeography Unit, Artur Skowronek,
+48 914442463, www.us.szc.pl/main.php/wnoz



Technical University of Denmark

Risø, National Laboratory for Sustainable
Energy, Per Roos,
+45 46775319, www.risoe.dtu.dk/



University of Rostock

Institute of Computer Science,
Peter Forbrig / Martina Weicht,
+49 3814987653, www.uni-rostock.de/





Science meets School
EXAMPLES FROM THE SOUTH BALTIC AREA
2013