

Opening address

Ten years Young Scientists – an event to celebrate and to be proud of!

The young scientists are - some of them - the scientists of tomorrow, and so they hold a share in the future! The project is rooted in the curricular area of science. Educationally it is designed for first year high school students to be introduced to the world of natural science.

As a Danish-German science project it was born out of a long-standing exchange programme for students between Frederikshavn Gymnasium & HF-kursus and Carl von Ossietzky Oberstufe mainly focusing on getting to know one another across borders and learning about cultural traditions in a foreign country.

Private accommodation was an intrinsic part of that process.

These objectives are still valid. Ten years ago, however, in a close partnership not only with the CvO, but also with the Geschwister Scholl Schule focus was shifted towards interdisciplinary collaboration in the field of natural science to familiarize the students with the methodology and experimental approach of natural science in an international context. In mixed working groups the Danish-German students carry out experiments together, communicate in English as their working language, work out reports and present their results to their fellow students. The outcome has been absolutely rewarding; each year students rose to the occasion, faced courageously the demanding tasks and the challenges of having to get by far away from home; learned how to get on in the world, thereby acquiring useful competences for more advanced studies later.





Amazing, though, for an international project like this one to endure for so many years and still be alive and kicking. The secret as I see it is a strong school partnership supported by visionary school leaders; a partnership based on mutual trust, openness and transparency in the preparatory process and the process of decision making.

Further the insisting on learning, progress and accomplishment – never to fall back on routine procedure! Last, but not least the involvement of skilled and highly committed subject teachers, able and willing to inspire and motivate the students to learn and believe in themselves.

Since the start 10 years ago more than a thousand students have participated in the Young Scientists project. In an enriching learning process this project has contributed not only to scientific knowledge from year one in high school, but also - in the social process of living and working together - to opening the students' eyes to the world, to making their world bigger and to developing an awareness of understanding and tolerance towards otherness and cultural diversity.

The following pages will give you just a small impression of how young scientists work and what it's all about.

Hans Ulrik Vadmann

Initiator and International Coordinator

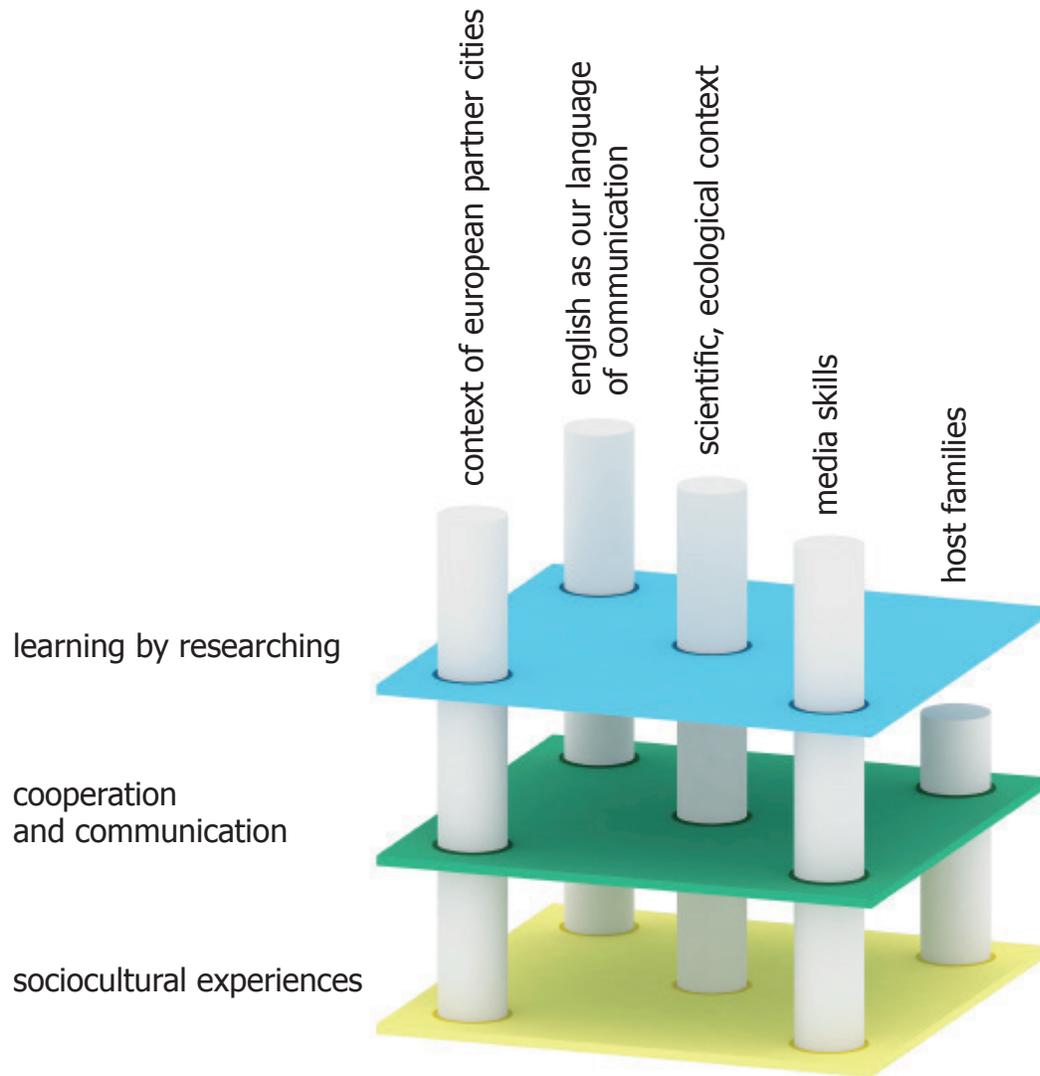
Frederikshavn Gymnasium & HF-kursus





The concept

Operating levels and pillars:





10 årige fødselsdag YS

Kære danske venner,

jeg er meget glad over, hvordan venskabet mellem Frederikshavn og Bremerhaven har udviklet sig, efter hånden nu i mange år de mange år af venskabet mellem Frederikshavn og Bremerhaven.

At vi husker vores historie, den anden verdenskrig og den tyske besættelse af Danmark, er grundlaget til et en gensidig respekt, som forbinder vore to byer. Og samtidig er denne erindring et stærkt fundament til hele den europæiske familie. Derfor er jeg meget stolt over de mange unge studerende fra Frederikshavn og Bremerhaven, der har deltaget i flere projekter, som for eksempel møder og udveksling, i de sidste år.

I og jeres tyske venner arbejder sammen om fremtiden. Som venskabsbyer er vi blevet, hvad på Engelsk kaldes „twin cities“ – havnebyer med de samme udfordringer. Den globale klimaændring er et problem for os og hele verden. Det er umuligt, at løse det alene, men jeg tror, vi har en chance, hvis vi virker sammen som i projektet „Young scientists“, der holder 10 årige fødselsdag i år. Jeg siger tusind tak til alle, som har bidraget til successen af projektet, og jeg håber, at vi kan fortsætte den i fremtiden.

I er altid velkommen i Bremerhaven!

Med hjertelige hilsener,

Michael Frost

Byråd for skoler og kultur



Gute Freundschaften

Bremerhavens Partnerstadt, die Gemeinde Frederikshavn, ist sich darüber bewusst, dass wir die Welt brauchen.

Es ist meine Überzeugung, dass wir alles über nationale Grenzen hinweg gemeinsam entwickeln müssen.

Die Zusammenarbeit der „Young Scientist“ aus Frederikshavn und Bremerhaven ist eine Bereicherung für die jungen Menschen.

Die Studenten verbinden gute Freundschaften und deutsch-dänische Beziehungen, die weit in die Zukunft reichen werden. Ich bin sicher, dass der Austausch möglich ist, weil wir eine sehr gute und starke Zusammengehörigkeit mit Bremerhaven haben. Sie ist das Ergebnis einer langen und innigen Partnerschaft.

Die Bremerhavener sind immer herzlich willkommen bei uns in der Gemeinde Frederikshavn.

Birgit S. Hansen

Bürgermeisterin

FREDERIKSHAVN KOMMUNE





SEESTADT
BREMERHAVEN

Excellent Partnership

The project "Young Scientists" represents a perfect example for the successful partnership launched years ago by the port cities of Frederikshavn and Bremerhaven.

Throughout the past ten years almost 1.000 young students – girls and boys – have dealt with global and future-oriented topics in the framework of this Danish – German cooperation. Many discussions on alternative forms of energy under the aspect of joint responsibility for the future have doubtlessly been of utmost importance here.

Daily encounters with the families, at school and during leisure time, experienced by the young people will remain for them long-lasting memories. I would like to extend my sincere thanks to all those who have been enabling again and again the remarkable students exchange program every year. My cordial thanks particularly go to the host families for their absolutely exemplary commitment.

Let me wish the "Young Scientists" the best of success for the decades to come.

Melf Grantz

Lord Mayor



International competences

10 years Young Scientists - 10 years cooperation Bremerhaven - Frederikshavn

They have been exciting years with lots of international experience for students and teachers. An excellent opportunity for all involved to develop scientific insight in a cultural and linguistic, challenging environment.

Both students and teachers gain international competences they would not have achieved otherwise.

Inge Carlé

Rektor

Frederikshavn Gymnasium og HF kursus





Trustful and amicable collaboration

In 1988, Mr Hans Ulrik Vadmann (Gymnasium Frederikshavn) initiated a student exchange of the Gymnasium Frederikshavn and Schulzentrum Carl-von-Ossietzky GyO Bremerhaven (CvO-GyO). This building block in a sister-city arrangement evolved into a trustful and amicable collaboration.

I am very glad that Hans Ulrik Vadmann, who has contributed crucial impulses that developed this exchange, is still part of this venture representing the Danish head of the project. It was a very nice experience that the chemistry was right from the day we met, not only when it comes to our concept of how to work with students.

In the school year of 2007/2008 this partnership became the current student exchange "Young Scientists" based on two major modifications:

- The school Schulzentrum Geschwister-Scholl GyO joined the project.
- The collaboration was based on contents beyond the framework of the successfully proceeded student exchange it had been.

These contents are based on questions to raise the student's awareness of the topic 'Global and Local Climate Change'. Moreover, our project aims to learn and apply English as the first foreign language initiated by dealing with natural scientific leading questions and issues. With this in mind Young Scientists provides an appropriate platform for integrated learning.

Also, we believe intercultural exchange is important to enable the students to gain insights into different ways of social life and work ethics at school. Therefore it is helpful, if not necessary, to accommodate the students in host families to have the opportunity to immerse themselves in another culture.

This year we can celebrate the 10th anniversary of Young Scientists. We are proud to say that this project has not only been kept alive for such a long time but is still progressing to higher standards. To maintain this course we need dedicated colleagues, the support of the principals, school administrations and politics. Fortunately, these conditions are complied in Bremerhaven and Frederikshavn and the colleagues of all three schools succeed in arranging a program and in getting the students interested in our project.

Thank you very much for that!

Last year I have acceded to the principal of CvO-GyO and thus have acceded to the area of responsibility. In an instant I felt what it means to everybody involved to get to know to the other culture and combining work with fun. Many made friends across borders.

Gerth Schmidt had taken care for this project and passed it on to me. I hope I can carry on this function with the same enthusiasm.

Finally, I can only wish for another 10 years of success and moving episodes of Young Scientists.

Ingo Beck,

Principal,

Schulzentrum Carl von Ossietzky, GyO





Science-oriented work

Being the new principal of the school 'Geschwister Scholl GyO', I am very happy that I am entitled to carry on a successful student exchange program that is Young Scientists.

Nine times out of ten, extracurricular student projects are unique occurrences when it is based on a highly ambitious form of work in terms of content including many individuals.

What is the recipe for success of the Young Scientists project so that it can celebrate its tenth anniversary? It certainly is a special connection of transnational encounters of students in combination with a clearly defined science-oriented work schedule.

The experiences acquired by all participants are regarded as a personal gain – especially for students of two countries and three schools, but also for the guiding and advising teachers: Carrying out research collaboratively as well as meeting privately in the host families, students get to know each other, and themselves, in a better way.

This can be exhausting, but also much fun. Students know that and both are the reason why there are more interested students than there are available spots in the program.

An important building block of the program is the teacher's diligent prearrangement in both cities with 'Haven' being the suffix of the sister cities' names. Those are the ones we have to give thanks for their engagement and their ideas. Also, in the name of Geschwister Scholl GyO I want to thank the initiators, some of whom are retired, as well as the younger colleagues who have already started to carry on the spirit.

York Grüninger,

Principal,

Schulzentrum Geschwister Scholl, GyO

Hot and cold air

Short description of an exchange:

In the fall of 2015 students from Carl von Ossietzky Oberschule and Frederikshavn Gymnasium worked together within the fields of climate, hot air balloons and space travel.

In Frederikshavn the students performed experiments on hot and cold air currents as well as hot air balloons. In addition to constructing hot air balloons the students also measured temperature, pressure, weight, volume and burn time for the fuel and showed the theoretical foundations for the balloon's operation.

Comments from teachers:

The students have worked together in mixed groups of both Danish and German students to understand the scientific problems involved. Communication in a foreign language (English) adds a challenge to the exchange in addition to the fact that the students come from different school systems.

Line Ørtoft Endelt, 2015

Anders Birk Sørensen, 2015





Focus on the ocean

Frederikshavn and Bremerhaven are harbour cities and have always been connected to the ocean. Therefore, the exchange between Schulzentrum Geschwister Scholl and Frederikshavn Gymnasium in 2016 will focus on the ocean. As in the years before, the participants will perform research and experiments related to different sub-topics before presenting their findings to the other students and teachers in Bremerhaven.

In earlier exchanges between Schulzentrum Geschwister Scholl and Frederikshavn Gymnasium the students have examined different means of energy production and their environmental impact. In the year of 2015, however, the overall topic was broadened to cover Sustainability in more areas.

Within the frame of this topic the German and Danish students cooperated to come up with solutions to some important challenges that we must solve to make society more sustainable, such as transportation, energy production, food production and housing.

Anders Birk Sørensen, 2015

Søren Rasmussen Mølgaard Lunde, 2015



A trip to the dunes

Today on Wednesday, 3rd November 2015, we with our Danish hosts went on a trip to the dunes in Råbjerg Mile together. We took the bus from Frederikshavn. When we got to the dunes, we were thrilled and amazed about how huge the sand dunes were. It looked like a desert.

We were guided by Willi, a ranger, who told us a lot about the dunes. The migratory dune has been a nature reserve since 1900 and that's why you can easily walk through it with some friends, family or completely alone. You can see sand dimensions with sizes of 40 meters out spread on an area of 120 hectares. Every year the dune covers about 15 meters. Råbjerg Mile is expected to be disappearing into the Baltic Sea in 2160. The direction the sand gets blown into depends on the wind.

It was quite exhausting and difficult climbing the dunes because the sand was always pulling you back down. Moreover, the powerful wind made the ascending a lot more difficult. The Danes and we took a lot of nice and funny pictures. Not a single shoe remained clean and free of sand. When we were done and took off our shoes, we emptied half of the sandpit. This day in the dune at Råbjerg Mile was great and one of the best days in Denmark.

Svea - Marie, 2015



Dunes in Råbjerg Mile



The Bowling evening

On our school exchange experience with the Danish people, the Danish people thought it would be a nice idea to go for bowl all together. And it was really a nice idea.

After we finished our work in school at 3pm most of us were going into the city, because our bowling alleys were reserved from 6pm to 7pm and it wouldn't make sense for most of us, go home for an hour and back again. So we spend our time with talking and walking down the streets of Frederikshavn with our exchange students. Here and there we bought some snacks for lunch and been very busy trying to find a toilet. Most of our conversation topics during our walk were to find differences between Germany and Denmark. What is better and what is worse? And we all came to the result that Denmark has the better schools and Germany the better beer. These conversations with our Danish students were very interesting.

It was getting colder outside and we had almost seen everything from the pedestrian area, so decided to go into the bowling centre already, but we had to wait there until our alleys are free. Thanks to free Wi-Fi and a comfortable sitting area the time was over faster than we thought. We've build groups and spread to our own alley. Not all of us were that successful with bowling, but we all had fun together and that's what counts. After one hour of bowling our alleys were blocked and our time was over - but the day wasn't over. We went upstairs and there was a buffet ready for us to be killed. We had dinner together and after everybody has finished we leave the bowling centre. Before everybody went home we decided to go into a shisha-bar, to relax a little bit. Many of us were getting tired and one after another left the bar to catch their train back home and prepare them for a new exiting day. The whole day was well planed and we had a lot of fun.

Eike und Thees, 2015



Having fun by playing the drums

I play drums for almost ten years now and every time I sit down to practice I discover new rhythms to have fun with.

First, there are twelve different kinds to make a sound on my drum set, so that allows me to be creative.

Second, it's very cool to watch other people playing the drums and learn from them to combine you're own and their rhythms together.

Finally it is a pleasure to play with other musicians so you have the feeling of harmony.

As long as you know the basics of drumming you have the power and possibilities to keep your creativity going, by learning and jamming with other people.

The drummer, 2015





Student's voices from the project

The part in Frederikshavn where we did a lot of experiments, and had to communicate in English were challenging but fun. It was interesting to live with a family in Bremerhavn, and experience, how a "normal day" is in another family in a different country.

Nanna, 2015

The projects were exciting and the places we visited were awesome. All teachers were nice and [everybody's] English was easy to understand.

Felina, 2015

The Denmark project was for me personally a very good experience. The host families were very nice and obliging. That counts for teachers too. Speaking with the Danish exchange students worked out well. You can gather a lot of experiences and you can have lots of fun.

Tim, 2015

The exchange was undoubtedly a great experience. It was, indeed, academically rewarding, but most of all I actually think that the exchange promoted increased unity and solidarity in the class, while making it possible to get acquainted with a different culture that may not be terribly strange, but does differ from Danish culture, after all. Furthermore it was very instructive – and at times rather challenging – to make communication with the German students work, which added an extra dimension to the whole exchange programme.

Mads, 2013

You meet many nice people who are very interested in the well organized projects and like to work on it. Additionally, you are in a very nice city with many unexpected sights.

Kolja, 2014

I take part in this project, because I like to see new things and like to communicate with students from other countries and maybe make new contacts.

Steffen, 2016



The benefits of cooperating with other people from other countries is that you get to use your language skills more. Besides getting to use your language skills more, you get a glimpse of how the culture is, compared to what you know. You also get a sense of how others' view is on different things such as school, family, friends and the future. [...]

I would like to finish by saying that the trip to Bremerhaven plus the time we spent in Frederikshavn has taught me a lot and has been filled with special experiences. [...]

Christian, 2015

I liked the project very much, because I got to meet many new people. We did many exciting things, experienced a lot, also in English. Almost everybody can speak good English, you know, that worked out pretty good. I would love to go to Denmark again, not only because the country is beautiful. Well, I can only recommend that project.

Katja, 2015

I am so looking forward to this exchange and hope being able to gather a lot of new experiences and at the same time extending my English language skills and natural scientific knowledge. I would like to get to know new cultures as well as building new friendships.

Nemanja, 2016

The days of experiments during the exchange were an incredibly exciting and enlightening experience – but still a challenging and difficult task, because it was new people that you should cooperate with – and even in English. I did not believe that I would be able to do well, just because of the shared language – but I definitely think it went unpredictably and unexpectedly well – that is for sure.

Magnus, 2015



Climate change:

An overlapping natural scientific topic for the students' exchange program „Young Scientists“

Can the current climate change be considered a pure academic problem? By no means, for it will change human life on earth fundamentally - unfortunately not in a positive way.

Countermeasures will not only depend on immense amounts of investment, but most likely also on a distinct change of people's beloved behavior and habits. In order to deal with these problems mankind has to face the threatening reality. Although cause and effect of climate change are undisputed among scientific communities worldwide, the public is still skeptical about this topic (or ignores it), which at least hinders consistent political actions against this threat.

Therefore, it is urgently required to communicate this hard-won knowledge into society, because we are experiencing the era of impacts of the climate change at this very moment.

Our possible corrective actions will only have a slow influence on the environment, which makes it even more important to take immediate action contemplating a healthier world for the young and future generations. In the course of this, essential inferences about climate change are drawn from various measurements and fundamental understanding of physics.



Our project "Young Scientists" approaches this topic by first getting a solid overview followed by a closer examination of specific aspects, e.g. ...

... the history of the earth's climate to differentiate between natural climate fluctuation and human-caused climate change

... the general greenhouse effect and its concentration of greenhouse gases in the atmosphere

... the increase of temperature and its causes as well as climate sensitivity of the earth

... the consequences of climate change and possible solutions

In this field of possible solutions and its scenarios renewable energy will retrieve, so that we can build a smart transition to wind power in Bremerhaven and Frederikshavn.

Volker Wenhold, 2016





Impressum

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