

Gemeente **Duiven**

**International
Junior Science
Olympiad Duiven**

**4 December
2017**

CANDEA
COLLEGE

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in beeld

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Profielschets bedrijven

Introduction

Mayor Rik de Lange

Dear IISO competitors,

This year's theme is 'water and sustainability'. No other country can better embody this theme as the Netherlands can! Here, 35% of the country lies below 0 meters NAP (Normal Amsterdam Level). Consequently, without our efforts (for example by creating dykes and organised water pumping) 35% of the country would lie under water. Our local community is surrounded by two main rivers and protected by strong dykes. As such we know the significance of working together with nature.

We cannot ignore the effects of our industrialised world any longer. Therefore, the need to create a sustainable economy is something we thrive for as the municipality of Duiven. I am really looking forward to seeing and hearing how you, as our future generation, perceive this year's theme in connection to our global problems and challenges.

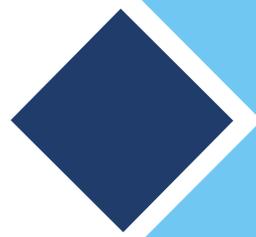
In addition to the two Dutch teams, you have travelled to The Netherlands from all over the world. I wish you a warm welcome here in our beautiful country and specifically my beautiful community. We are proud of having you here. Furthermore, I wish you a very pleasant and instructive stay. Take the time to relax, make new friends and enjoy the challenging, but fair competition.

Best of luck to you all and may the best team win!

Kind regards,

Rik de Lange
Mayor of Duiven





Programme for today

When?	What?	Where?
2.00 pm	Welcome by mayor Rik de Lange	OGtent
2.30 pm	Presentation about climate change and delta programme	OGtent
3.30 pm	Company visits: Alliander, Rijkswaterstaat, AVR, Waterschap, Deltares	Company locations
5.30 pm	Time for a Dutch snack	Candea
6.00 pm	Hope XXL and musical Candea	Candea
7.00 pm	Dinner	Candea

Notes

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Introduction Duiven

Welcome to Duiven, a town with a rich history and background. In 2013 Duiven celebrated its 200th birthday. Even though the town already existed long before 1813, it was then that it became part of the Kingdom of the Netherlands. Today Duiven is a proud member of the Liemers region.

Duiven's landscape is characterized by the various avulsions and large basin areas. The avulsions are river branches from the Rijn and the IJssel. For ages the Rijn has searched for the easiest way towards the North Sea from the higher situated Germany. Creating the avulsions and river branches we know today. Duiven is not just known for its rivers and landscape. Duiven is very popular among various companies. The highway A12 (connecting Duiven to the Port of Rotterdam) and short distance to the German border make Duiven an ideal place to start or expand your business.

Duiven is a big supporter of sustainability, corporate social responsibility (CSR) and the Circular Economy programme.



From the desire to create a sustainable world arose the idea for Synergy Park InnoFase. Here cradle to cradle production (the output from one company is the input for the other company) and the generation of sustainable energy are the key elements. By creating a beneficial business climate for companies that fit into the InnoFase concept Duiven stimulates the Circular Economy programme.

Gemeente **Duiven**

Candea College

Your School, your future

Candea College is a comprehensive school for secondary education. That means that Candea offers almost all types of education, from basic vocational education to Atheneum and Gymnasium, which prepare students for university. We also offer the possibility to attend our Technasium, where students interested in science do an extra "research and design class" for 6 hours a week.

Candea College is situated in Duiven, near the city of Arnhem, but has students mainly from the surrounding region. Our school has more than 2000 students from the age of 12 to 18 years old and employs around 270 staff members, working at three different locations.

As we are convinced that education should move into the 21st century, we say to our students:
Learning is personal. You have your own way of learning. You know what you find difficult, or easy. Every day, you experience the levels you meet and the rate at which you learn. We call this

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"personal learning". At Candea both teachers and staff want to get better at personalizing the way you learn. Everybody has got talents, things you are good at. You will get the best out of yourself if you can develop in the direction that suits you. Together with you, we want to discover this. What are your challenges at school and in your future studies and professions?
Your learning will be better if you know the learning goals. What are you asked for? What will you learn in which lessons? You have to know what you need to focus on. You can also test what learning goals you've already achieved and where you need to spend extra time.



As you learn, you always follow your own way. That's different for everyone. If the whole class follows the same route, that route applies to some students, but never to all. At Candea we find that you must be able to make your own choices. In this way you will achieve more, we believe.
When you are in a particular school type in the Netherlands, you do all subjects at that same level. We find that strange. Why couldn't you do subjects that you are good at at a higher level? Or faster? Everybody is not the same? Attaining higher levels or going faster is always possible for any student.

You go to school to be happy and successful in your adult life. School prepares for life. You can't learn everything from classes only. You need the real world to learn. We ensure that you regularly learn outside of the school building, in our city, in the Netherlands, abroad, in companies and in schools for higher education.
We are always there to help you. You can develop yourself in your own way. You have your own talents and points of interest, your own strengths and weaknesses, your own pace. And we can help you. Your mentor is at your side every day to help and encourage you to get the most out of yourself.



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Alliander

Alliander is a major Dutch grid operator supplying millions of customers with electricity and gas each day.

"Now and in the future"

This point of view is what we're working on each day. We have been in business for the past century, so you could regard us as experts in the development, maintenance and management of energy grids. We use the latest technology and IT to monitor energy flows across our networks and to help our customers convert to renewable forms of energy.

"We ensure an energy supply that gives everyone access to reliable, affordable and renewable energy under equal conditions".

The know how

Alliander employs people who; are committed to meeting the needs of our customers, actively make contact with them, understand their needs and help them to meet their goals. Our

professionals tackle projects with due care in a complex and dynamic environment. We exercise our profession with passion and dedication each day. Together we are constantly working at the search for new ideas and innovative solutions to further improve the service we deliver.

Working at Alliander

At Alliander you choose your own challenge. You can:

- Help firms with the use of smart energy
- Do a feasibility study on the distribution of more energy with fewer cables
- Or examine whether a location like the Amsterdam Zuidas district (in the future) could generate more energy than it consumes.

Because the energy landscape is in full development, your options are endless. Whether you opt for a technical, financial, IT or management traineeship, Alliander will always challenge you to come up with innovative ideas.

If you'd like to help us achieve our goals, want to work in an inspiring environment with high levels of personal attention and scope to develop your ideas, Alliander is the place to let out all your energy. Go to www.werkenbijalliander.com and discover what lies ahead.

alliander



Rijkswaterstaat

Rijkswaterstaat is part of the Dutch Ministry of Infrastructure and the Environment and responsible for the design, construction, management and maintenance of the main infrastructure facilities in the Netherlands. This includes the main road network, the main waterway network and watersystems.

The Dutch mobility policy serves 2 goals: reliable journey times and better accessibility. By 2020, motorists travelling in the rush hour must be able to arrive punctually 95% of the time, despite increased mobility and unexpected congestion. The Dutch economy relies heavily on transport and logistics, the main economic centers must remain accessible.

Smooth and safe transport by water are other ways of using water. The Dutch waterway network is the densest in Europe. About 6000 kilometers of rivers and canals, many of the latter serving drainage as well as navigation, form a complex system serving all parts of the country.

The main commercial waterways, with a total length of 2200 kilometer, account for about 40% of international freight movements

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in the Netherlands and 20% of domestic freight. The main network is state-owned and operated by Rijkswaterstaat. Smaller waterways are managed by many different provincial authorities or drainage boards.

Dry feet, sufficient clean water and reliable and useful information. That is what integrated water management means to Rijkswaterstaat. All measures are planned around the users, nature and the landscape and are carried out in close cooperation with water boards, other public authorities, NGOs and private parties.

Integrated water management

The goal of the cooperation is to achieve the most efficient and flexible construction, management and maintenance of the main water systems in the Netherlands: the major rivers, the coast, the Wadden Sea, the Southwest Delta, the IJsselmeer region and the North Sea.

Dry feet

The Dutch coast protects us from the sea. That is why it is so important to maintain it properly. Rijkswaterstaat is responsible for this. It is our task to maintain the Dutch coastline at 1990 levels: the basic coastline. By means of beach nourishment, we replenish the sand along the entire coastline, both on the beaches and underwater. On average, we add 12 million m³ of sand every year.

Sufficient clean water

Clean and healthy water is a matter of life and death for people,

animals and nature. But the water in the Netherlands is not of the same high quality everywhere in the country. The European Water Framework Directive (WFD) sets goals to be met by 2027 for the ecological and chemical condition of surface water and ground water. Rijkswaterstaat is taking 3 types of measure to improve water quality:

- Make Way for Fish will ensure that fish can swim freely from one water to another.
- Clean Water will provide clean and clear water.
- Habitat Recovery comprises a series of measures to develop plant and animal habitats as naturally as possible.

Improving water quality is not only a matter for Rijkswaterstaat. It also involves water boards, provinces and municipalities



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AVR

From worthless to valuable

AVR is specialised in the processing of various types of residual waste, which we convert into energy and raw materials for households and companies.

Do you know what happens to the waste that you produce? Have you ever had the experience that your waste was not collected and treated? Then you will certainly know why it's essential to burn waste.

Incineration allows us to remove waste from sight. We keep the streets and cities clean and can process waste properly. As an expert in all kinds of residual waste, AVR can efficiently and safely process even those waste flows that are contaminated and not suitable for recycling or storage.

Incineration is a solution to waste streams that are left and is a positive process, because it avoids the need for large scale landfilling, in which value is lost.

AVR is an ambitious company that likes to push the boundaries:



we aim to contribute to clean streets and cities, and we also wish to help put a stop to the world's squandering. We do this by restoring value to what is worthless and by striving for a neutral carbon footprint in our activities. This is the reason why we are here and what motivates us: creating a clean world in which nothing is wasted.

Through various disciplines and at different levels in our company we are working on appropriate new solutions to return value to new and often very complex waste flows. Also, AVR will continue to adapt to changing waste flows, an ability we demonstrate day after day.

'Don't just think it, do it!'
That's our motto.

As a pragmatic company, we search for solutions that are truly effective and turn these into reality. We are not alone in our endeavours as we work hand in hand with all the partners, organisations and authorities who wish to generate awareness and strive for positive change: the government, the recycling industry, cities and producers. In short: the entire community. From our research in 2015 we know that we can harness CO₂ and use this as a high quality product for glass construction and in horticulture. This is a real win-win situation. For AVR this means we can become a carbon neutral operation over time, and for the glass construction industry and horticulture that the CO₂ required no longer needs to be taken from fossil fuels. We are currently investigating the possibility to store residual heat under the ground in the summer in order to utilise this heat later during the winter months.

For us innovation is crucial, as new technology makes it possible to extract even more value from residual waste. Together with national and international partners, including universities, we are looking to see how we can be more efficient in actively recuperating previous metals such as aluminium, copper, zinc or antimony from the ashes collected in our dust filters.

AVR. 

Waterschap Rijn en IJssel

Waterschap Rijn en IJssel manages both ground and surface water. It sees to it that the inhabitants can safely do business, live, and participate in leisure activities. Secure, clean, and neither too dry nor too wet. We achieve this by regulating the (ground) water table, purifying sewage, water in the east of the province of Gelderland, the south of the province of Overijssel, and the south-east of the Veluwe region and keeping the water in streams, ditches and rivers clean.

The Netherlands are a delta

Without dykes, ditches, flood gates and pumping stations, most of our country would be uninhabitable. Water boards were therefore established as early as the Middle Ages, to prevent frequent flooding and to ensure a controlled discharge of water towards the sea. Such water management requires constant maintenance.

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To work together towards a sustainable future

Together with other administrative bodies, businesses and knowledge institutions, we work on our future. Together, we try to cope with the increasingly more extreme weather conditions we anticipate, and to make good use of them when possible. In addition, we are now able to extract energy and raw materials from waste water. Thus, we are also building a more sustainable future.

Collaboration AVR

During the IJSO, AVR and Waterschap Rijn en IJssel are offering you an opportunity to participate in an excursion. Together with Duiven Municipality and AVR, Waterschap Rijn en IJssel is a partner in Synergiepark InnoFase. This stimulates collaboration between the companies established in the park. At the same time, active searches are ongoing for opportunities for collaboration with external parties and organizations in the field of circular economy.

Opportunities for youngsters

Have you ever thought about working for a water board? Waterschap Rijn en IJssel has much to offer you, including an excellent benefit programme. We boast a pleasant and informal atmosphere and varied and socially relevant work.

Mijke Bongers, senior enforcement officer: "The water board provides ample room for people to learn and to grow. There is a pleasant work atmosphere, with nice colleagues. I'm proud of the fact that I'm working for the water board."

Merel Lammertink, employee water quality and monitoring: "A pleasant and ambitious employer with a sharp eye for innovation and room for personal development."

Ysbrand Graafsma, senior planning policy advisor: "Working for the water board actually leads to something. After many consultations and reports, we are also the ones who make it happen in the field."

Check out our website (www.wrij.nl) for more info!



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Deltares

Deltares is an independent research institute. We cherish our independence. It allows us to sit down at the right tables throughout the world to talk to organisations and decision-makers who matter and who can make the difference. Knowledge is what opens up these doors for us. Everything we do is dominated by applied knowledge of water and the subsurface. Our organisation brings together these two fields. And we supply our knowledge to the whole of 'Netherlands pic': where possible, we work on an 'open source' basis. Deltares stands out due to the combination we provide of freely available software, experimental facilities and staff with a high knowledge profile. In our way, we deliver new solutions and insights that allow us to put the challenges facing society onto the agenda. Deltares is a non-profit organisation. We stand out because of the quality of our work. We collaborate with others on solutions for planetary challenges relating to food, health, energy and physical infrastructure. That involves looking for ways of teaming up with other research institutes and business. Deltares carries out hundreds of projects annually in over 80 countries, employs over 800 people and is based in Delft and Utrecht.

Our mission

Our mission is Enabling Delta Life. Therefore Deltares develops transfers and applies knowledge of top-level expertise.

Knowledge is our core business

All contracts and projects, whether financed privately or from strategic research budgets, contribute to the consolidation of our knowledge base. Furthermore, we believe in openness and transparency, as is evident from the free availability of our software and models. Open source works, is our firm conviction.

An internship or working at Deltares

An internship at Deltares will give you the opportunity to be involved with the day-to-day activities of a leading company in her field. As an intern you will get exposure to real-life projects and challenges in an innovative knowledge-driven environment and gain real world experience. You have the opportunity to work with leading specialists in their field. You will be a full member of the team. Together with the team you will tackle issues raised by one of our national or international clients. Projects at Deltares are always a combination of theory and practical application with an entrepreneurial mind-set.

Deltares has a broad selection of specialisms such as water, subsurface and infrastructure. You are a Master student or you have an scientific education in one of the following fields:

- civil engineering
- maritime engineering
- ecology
- environmental sciences
- geotechnical engineering
- physics
- (technical) physics
- mathematics
- chemistry
- (technical) business studies
- (technical) public administration theory
- (technical) information technology
- (technical) earth sciences

- More information www.deltares.nl/en/careers/
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