VATTENHALLEN
SCIENCE CENTER

SCHOOL VISIT

VATTENHALLEN - AN EXPERIENCE FILLED WITH SCIENCE

BOOK A SCHOOL VISIT IN VATTENHALLEN

From preschool to upper secondary school - everyone is welcome. A school visit can be ordered based on our themes or choose an inspirational visit where our staff compose an interesting visit for you. We always adapt the visits by age and students at Lund University guide the visit.
www.vattenhallen.lth.se/english/school/schoolvisits/

School visits a part of the activity at Vattenhallen

In Vattenhallen, everyone can experience technical and scientific phenomena with direct links to research, society and business. The experiences are combined with theoretical knowledge adapted from preschool to upper secondary level, according to the curriculum. We work based on scientific working methods and during a school visit, students can train and develop skills such as problem solving, analysis and comprehension skills.

ASTRONOMY

- Grade F - Upper secondary school | 1,5-2 hours

A space-inspired experimental visit combined with a show in the planetarium. For pupils from upper secondary school, there is the opportunity to order a lecture* on, for example, Star Development, Exoplanets or Cosmology, we can arrange actual astronomical observations via a remote-controlled telescope (please note that this is a weather-dependent activity that can only be carried out in the mornings). It is also possible to order only a show in the planetarium.

CHEMICAL REACTIONS

- Grade F - 6 | 1,5-2 hours

We mix raw materials from the larder and carry out simple chemical experiments. The exercise provides an understanding that different substances can give rise to new substances. We observe and put a name to the experiences and what happens during the different stages.

CONSTRUCTION & MATHEMATICS

- Grade F - 6 | 1,5-2 hours

The pupils take part in a climate expedition in the exhibition, Earth and the Climate through the Ages, to see how the climate has changed through the ages. During the expedition we find out more about the history of the Earth, explosions of life, mass extinctions, the connection between the atmosphere's carbon dioxide level and temperature, and more about the carbon cycle, Agenda 2030 and the Global Goals. The pupils carry out laboratory sessions and exercises using Escape experiences and VR (Virtual Reality) games. The exercises make the pupils aware of how humankind is affected by water shortage and agriculture. In addition, they gain an insight into how researchers create models to predict the future climate.

EARTH AND GEOLOGY

- Grade 7 - Upper secondary school | 2 hours

In the exhibition, Earth and the Climate through the Ages, the pupils take part in a climate expedition to see how the climate has changed through the ages. During the expedition we find out more about the carbon cycle, Agenda 2030 and the Global Goals. We carry out laboratory sessions with air and water, fossils and impressions, simulate earthquakes, examine the effects of the Gulf Stream and simulate mine operation and investigate its impact on water, soil and the climate.

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ENERGY & SUSTAINABILITY

- Grade 7 - Upper secondary school | 2 hours

The visit includes station exercises and a guided tour through our energy experiments. The climate chamber measures carbon dioxide, temperature and humidity, we investigate the effects on the human body and discuss metabolism and connections to photosynthesis.

Building a wind turbine tests the effects of the number, shape and angle of the blades, and on the stationary bikes the pupils can make calculations about everything from chemical energy conversion to electrical energy. The pupils can also take measurements using a thermal imaging camera. At our experiment station for water, the pupils can, for example, calculate energy conversions, experience the Archimedes principle and follow water through a purification plant. Terms such as static and kinetic energy, chemical precipitation and biodegradation are discussed and the pupils get the opportunity to take measurements, analyse results and think about solutions for various water purification processes and water energy systems.

EXPERIMENTS WITH WATER

- Preschool - grade 6 | 1,5-2 hours

The pupils try out and experience our water stations. At the hydroelectric station, they dam up water to create energy. Furthermore, they do a treatment plants and together they create giant bubbles. We insert concepts like density, energy and turbines and we talk about different relationships such as heavy-light, float-flag, etc.

MEDICAL TECHNOLOGY & AI

- Grade 4 - 6 | 2 hours

Through our experiment stations, the students get to experience the tomograph and the digestive system, what our bodies look like inside. We talk about how artificial intelligence can be used in medical technology today, through,

**With reservations for the researchers to have time.*

for example, image recognition and neural networks and what benefits and risks there are.

LIFE SCIENCE

- Grade 7 - Upper secondary school | 2 hours

The pupils are given an introduction and guidance through exhibitions about ESS & MAX IV, AI and the Digestive System. In the exhibition about ESS & MAX IV, the pupils can get a feeling for, and an insight into, the research that is, and will be, carried out at two of the world's most advanced materials research facilities. We want to inspire the pupils to see how to use the latest technology and AI to maintain good health, prevent and cure diseases. At our experimental stations, they get to experience what our bodies look like inside by testing ultrasound, tomography and testing image recognition, neural networks and examining emotions with the human robot EPI. The Digestive System is an interactive exhibition in the form of a journey following the digestive process. This journey helps to develop an understanding of the most common nutrients' functions, which of the body's organs are involved in the digestive system and how the body and health are affected by what we eat.

PROGRAMMING FOR ALL

- Grade F - 6 | 1,5 - 2 hours | No prior knowledge is required

With the help of a small robot, Bee-Bot, pupils learn basics in programming. We also use programming exercises in the Scala computer language, in Kojo programming environment. Exercises are developed to enable pupils to quickly and easily control a turtle that moves on the screen. They work individually or in pairs, with a student guide.

ROBOT PROGRAMMING

- Grade 7 - Upper secondary school | 2 hours

The pupils receive an introduction to, and guidance in, our various programming exercises Arduino, Lego Mindstorms, Kojo, Micro:bit, Python and Edison. The exercises are designed so that everyone can understand the programming according to their own level. They get the chance to develop abilities such as solving problems, grasping concepts, and analysis. The pupils work individually or in pairs under the supervision of a knowledgeable student.

TEAMBUILDING WITH A PENTATHLON

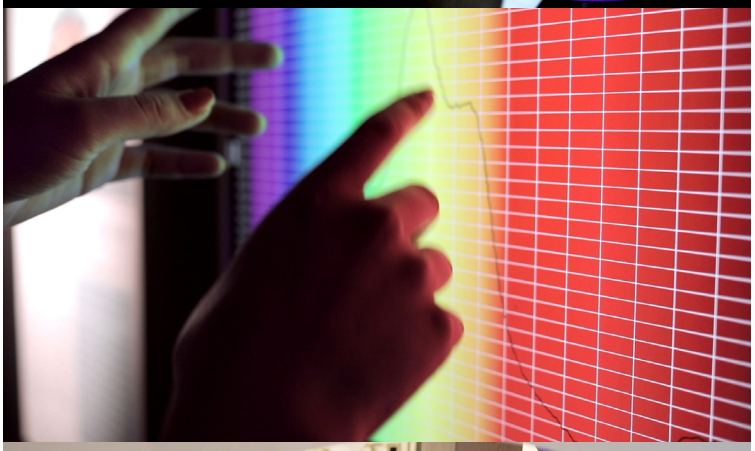
- Grade 7 - Upper secondary school | 2 hours

During a pentathlon, visitors experience our experiments involving, for example, energy, water, MAX IV, the digestive system, medical technology, mathematics or the Global Goals.

TECHNOLOGY PROJECTS

- Grade 8 - Upper secondary school

A technology projects last for approximately 3 weeks. The project begins with a meeting between teachers in school and staff from Vattenhallen. Week 1 - introduction to the pupils and choice of subjects. Week 2 - a half a day at Vattenhallen to learn an experiment.Week 3 - the pupils arrange a technology fair in Vattenhallen whereby they demonstrate/present for invited guests.



IT HAPPENS IN VATTENHALLEN

JANUARY

The secret of Alfred Nobels suitcase - an interactive journey and theater, for grade F-3. Developed by The Nobel Center in Stockhom.

FEBRUARY

Research academy for young scientists (Rays) - information about research schools during summer, for the next generations researchers. For upper secondary school.

MARCH

NMT-days (Nature, Medicin & Technic), Lund University
The exhibition Young Scientists - upper secondary school projects are presented and judged by a jury.
World Water Day we pay attention.

APRIL

Applicatioin to Technology Summer School/Workshop opens online.

MAY

LUNE-days - science shows - grade 6-7.
Enlightening Imagination - 4DFrame competition in construction for grade 7-8.

JUNE - AUGUST

Technology Summer School/Workshop - 6 weeks for interested kids and youths, age 7-13 and 14-19 years.
SommarLund - we participate with experiments.

AUGUST

Malmö festival - we participate with experiments.
LUNE-days - science shows - grade 8-9.

SEPTEMBER

Researchers' Friday - researchers from the university presents their research for the public and pupils from upper secondary school.
Spänningssökarna - a competition in cooperation with Kraftringen.
Astronomy Day and Night
Night of Culture in Lund - open house in Vattenhallen.

OCTOBER

A day of chemistry - for grade 4-6
Technology camp - pupils from grade 4 are invited to a day about technology. In cooperations with Swedish Association of Graduate Engineers.

NOVEMBER - DECEMBER

The secret of Alfred Nobels suitcase

A DAY AT VATTENHALLEN

Since autumn 2015, pupils have the opportunity to experience a science day at the Vattenhallen Science Center. Sparbanken Skåne, in cooperation with its foundations, invites to a day, free of charge. The day are aimed at pupils from Eslöv, Hässleholm, Hörby, Höör, Kristianstad, Kävlinge, Lund, Osby, Simrishamn, Sjöbo, Staffanstorp, Svalöv, Tomelilla, Ystad och Östra Göinge. They are organized on topics: *Life Science, Robot Programming and Earth and the climate change.*

Photo: Vattenhallen Science Center, Sparbanken Skåne och Annika Nyberg

BOOKED SCHOOL VISITS

Vattenhallen Science Center is a meeting place for educational experiences in technology and natural sciences. We want to create positive attitudes to knowledge and learning to strengthen children's and young people's self-confidence and interest in continued higher education by offering an inspiring environment. Subject competences are combined with creative pedagogics and positive role models. We also support other activities such as Girls at Teknis (Flickor på Teknis), National schools development programmes (Lärarlyftet), Spänningssökarna (a competition for students in grade 9) and Young Scientists (Unga Forskare).

We offer inspiration through school visits, internships and practicals, technology projects and seminars. During the semesters we have workshops for children and adolescents. During the summer, children and adolescents can register and participate in our Technology Summer School or Workshop.

Vattenhallen is a venue for educational meetings, lectures, discussions and professional development courses in technology and natural sciences.

Welcome to book a school visit: **www.vattenhallen.lth.se/english/school/schoolvisits/**

LUND UNIVERSITY

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