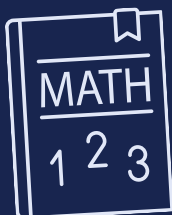
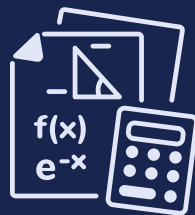


LUXEMBOURG SCIENCE CENTER

# GROUP OUTINGS



PRIMARY  
SCHOOL



HIGH  
SCHOOL



LEISURE  
GROUPS

# WHO ARE WE?

**The LSC - Luxembourg Science Center is a fun and entertaining discovery centre, located in Differdange and entirely dedicated to science and new technologies**



Since it opened in 2017, the LSC has proved to be a valuable asset and a key partner in Luxembourg's education system. It offers educators and teachers access to a collection of exceptional tools and experimental stations that make the subjects studied in class more accessible.

**It has also become a popular venue for visits by a wide range of groups: the general public, Maison Relais, youth centres, scouts, company groups, senior citizens, medical-educational institutes, etc.**

Today, the LSC welcomes almost 70,000 visitors a year.



**'Science and technology are often approached in an overly abstract or academic way.**

**That's why we put theory into practice with a fun, interactive approach that appeals to audiences of all ages.**

**The LSC offers the chance to 'grasp' science and technology by touching, playing and experimenting, while learning new things.'**



# WHY VISIT THE LSC?

## PRIMARY SCHOOL



The Luxembourg Science Center can not only provide teachers with the resources they need to cover science topics in an interactive and engaging way with their pupils, but it can also offer the opportunity to discover new subjects that are impossible to cover in a classroom or for which teachers do not have the materials or time.



## HIGH SCHOOL



The Luxembourg Science Center's offering is also optimised for secondary education, with a concentration of extraordinary investigation and demonstration tools that would be impossible to deploy in every secondary school in the country, and a selection of unique multilingual shows.

The shows are designed to complement each other and to fit in with the school curriculum. We show practical applications and associate concepts with emotions to facilitate understanding.

## LEISURE GROUPS



The Science Center offers a unique platform for visitors of all ages and profiles who want to discover science through all their senses...

Since its opening in 2017, the Luxembourg Science Center has proved to be a popular venue for group visits of all kinds:

Maison Relais, Youth centres, Scouts, Corporate groups, Groups of friends, Seniors, Medical-educational institutes...

# THE EXPLORATION ROOM

In our large exploration room, the scientific adventure comes to life through a hundred or so interactive stations, each more fascinating than the last. Each station invites young and old to experience, touch and understand the wonders of science and new technologies, in a fun and immersive way.

Whether you're with family, friends, a school or a company outing, this unique experience is designed to amaze, surprise and arouse the curiosity of everyone. Come and experience science like never before!



# THE SCIENCE SHOWS

In addition to our large exploration room, the Luxembourg Science Center offers a wide selection of exciting science shows, covering subjects as varied as electricity, astronomy, chemistry, physics and much more. What makes our shows unique?

They are hosted by passionate science mediators, who adapt the content to suit the audience. Whether you're a primary school, a secondary school group or simply curious about science, our experts will make every demonstration dynamic, accessible and rewarding.

# PRACTICAL INFORMATION

- The stations are equipped with touch screens offering descriptions in five languages.
- Our stations are height-adjustable, guaranteeing optimum accessibility for all.
- Access to shows only from age 6. Except "Kitchen Lab", from 8 years old and supplement 6,5€ per person.
- Lasting an average of 60 minutes, our shows are available in four languages



# HOW TO BOOK?



[www.science-center.lu](http://www.science-center.lu)

[reservations@science-center.lu](mailto:reservations@science-center.lu)



Please visit [www.science-center.lu](http://www.science-center.lu) → **BOOKINGS (Schools or Groups)** and fill out the booking form.

All bookings are subject to availability!

Otherwise, if you need assistance, please do not hesitate to contact us by email: [reservations@science-center.lu](mailto:reservations@science-center.lu) or at the following number: 00352 28 83 99 1



## PRICES - SCHOOL OR HIGH SCHOOL

**The LSC is FREE for school groups from Luxembourg's public education system!**

There's a fee for private and non-Luxembourg schools:

- Group leader: 1 free ticket per 25 students. (E.g.: 52 participants = 2 free tickets for accompanying adults)
- Group price: €6,5 per person
- 1 show per person included in the price (ages 6 and up)

## PRICES - LEISURE GROUPS

**Group rates only apply from 15 participants!**

- Group leader: 1 free ticket per 25 participants (E.g.: 52 participants = 2 free tickets for accompanying adults)
- Group price:  
€15,5 Adults  
8€ children  
FREE for children < 6 years old
- 1 show per person included in the price (ages 6 and up)

## ADDITIONAL CHARGES - APPLICABLE TO ALL

Including Luxembourg public schools

- KITCHEN LAB, ages 8 and up, €6,5 extra per person
- Additional show per participant = €4,5 supplement per person

# FREQUENTLY ASKED QUESTIONS

**Q What does a typical visit involve?**

Participants begin with a self-guided tour of our large exploration room (nearly 100 interactive stations). They then attend the Science Show of their choice (see list on the next page). A show lasts an average of one hour. The visit usually ends with a second exploration session.

**A**

**Q Do you have a picnic area?**

Yes, we have a dedicated space (capacity: 50 people). If you plan to use it, please check the box on the form. Please note that for more than 50 participants, we can always arrange for the group to rotate.

**A**

**Q What about billing?**

Upon receipt of the reservation form, we will send you a detailed offer. You can confirm your visit at that time. On the day of your visit, you can pay directly at the cash register or request an invoice, which will be sent to you in the days following your visit.

**A**



LUXEMBOURG  
SCIENCE CENTER

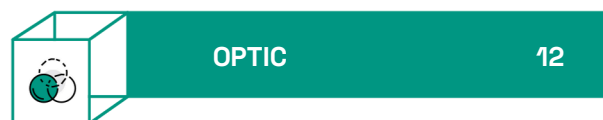
« AN EXCITING SERIES OF  
DISCOVERIES, DEDICATED TO SCIENCE  
AND NEW TECHNOLOGIES. »



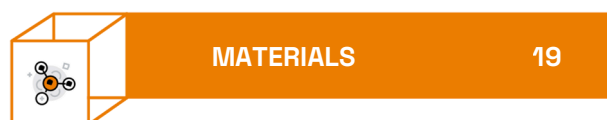
# SCIENCE SHOWS

 Duration: 1h

## CONTINUOUS OFFER



## SPECIAL OFFER



# OTHER ACTIVITIES





# FLUIDS



From 6 years old  
Max. 50 people  
Duration 1h



## MOLECULES IN MOTION

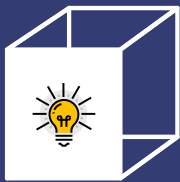
In the fluids laboratory, you will be working with substances at extremely low temperatures. This will familiarise you with molecular agitation and the basic principles of the thermodynamics of changes of state. Amazing experiments will enable you to separate and visualise the different components of air, all of which are colourless, odourless and tasteless...

- Cryogenics
- Liquid nitrogen
- Dry ice
- Fragilisation of materials by cold
- Leidenfrost effect
- Liquefaction of air
- Sublimation
- Changes of state
- Evaporation
- Absolute zero
- Supercritical fluid
- Triple point



Previously:  
**LOW TEMPERATURES**





# ELECTRICITY



From 6 years old  
Max. 70 people  
Duration 1h

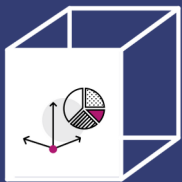


## HIGH VOLTAGES

From the static electricity of everyday life to the giant lightning bolts of thunderstorms, we'll be taking part in spectacular and instructive demonstrations. The various manifestations of electricity on our scale will be reduced to the fundamental interaction between electric charges. An ideal show to introduce electromagnetism, electronics and electrical engineering.

- Electricity by friction
- Electrical horripilation
- Spike and lightning rod effect
- High voltage generator
- Van de Graaff / Tesla generator
- Jacob's ladder
- Faraday cage
- Capacitor
- Influence load
- Tourniquet / Nollé chain
- Fluorescent tubes
- Giant plasma ball

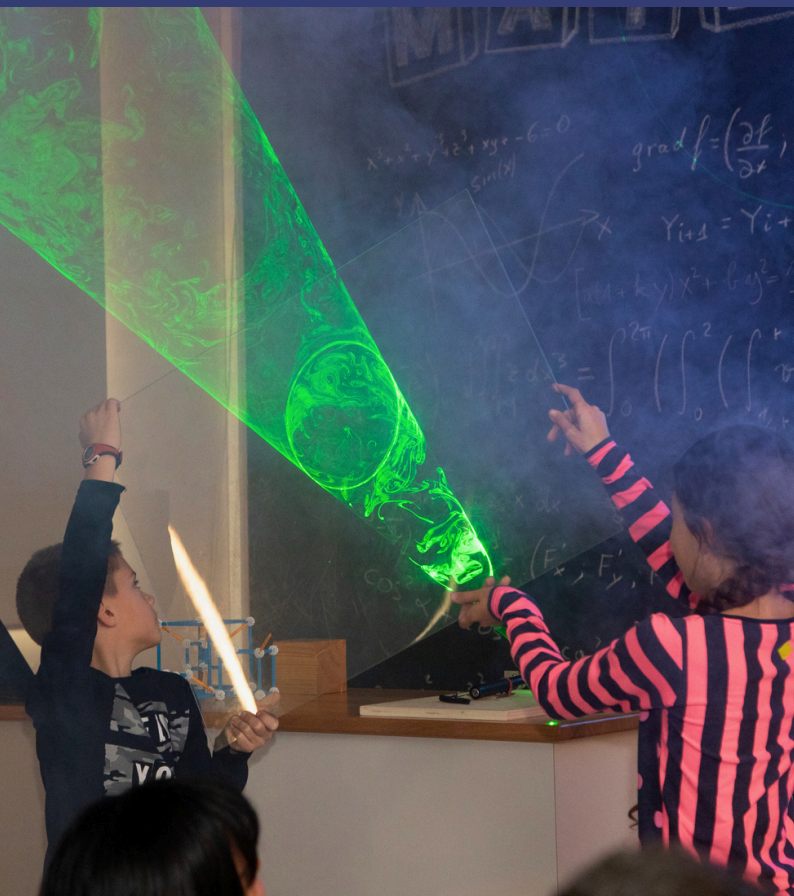




# MATHS



From 6 years old  
Max. 50 people  
Duration 1h



## HIDDEN DIMENSIONS

On the trail of hidden dimensions!  
Using lights and shadow effects, we'll reveal the secrets of geometry: from flatness in dimension 2 to twisted spaces in higher dimensions!

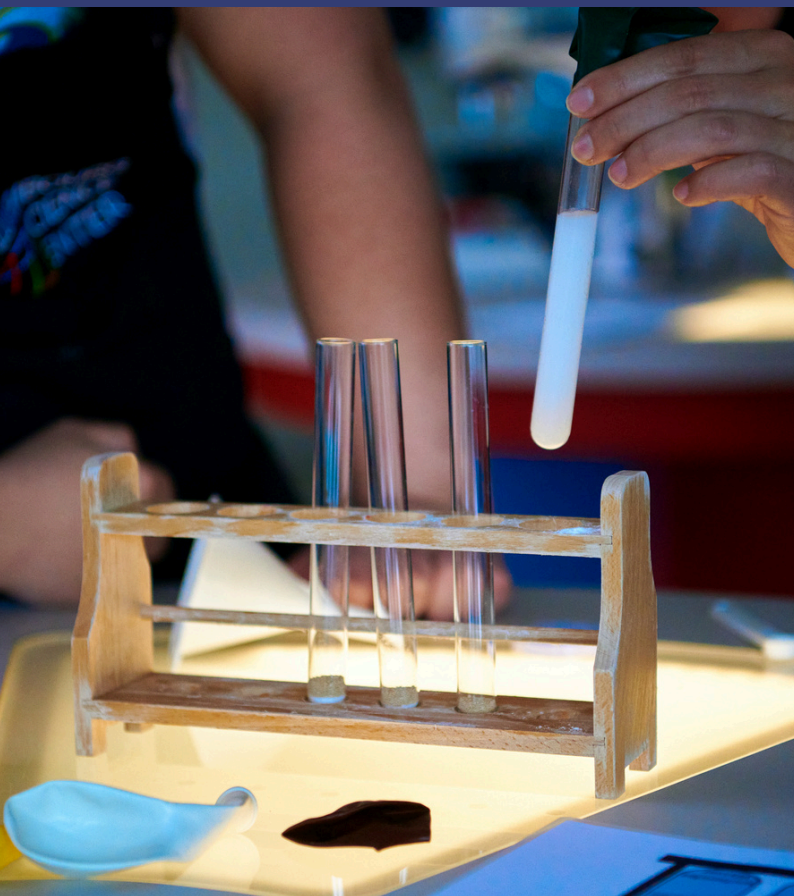
- Shadows and projections
- Geometry in space
- Hypercube and dimension 4
- Planetary motion and conics
- Art of Science

## TWISTED KNOTS AND KNOTTED HOLES

In this interactive show, we enter the wonderful world of topology. We'll take an in-depth look at shapes and see what similarities there are between them. We will also enter the fascinating science of knot theory.

- Topology
- Euler-Descartes formula
- Möbius loop
- Knot theory
- Tricolorability





## WORKSHOP: Sugar and Energy

In this workshop you will discover and taste several types of sugars and sweeteners. Get ready to get your hands dirty by experimenting with yeast... will you be able to demonstrate which sugar is the yeast's favourite? And don't forget, everyone will prepare and leave with their own smoothie made from natural ingredients. Enjoy!

- Sugar & sweeteners
- Yeast
- Sugar digestion
- Culinary biochemistry
- Metabolism
- Food additives (E codes)
- Microorganisms



# CHEMISTRY



From 6 years old  
Max. 50 people  
Duration 1h



## GIANT MOLECULES

Polymers are giant molecules that have invaded our everyday lives, and not just in the form of plastics. Where are they found? How are they synthesised? What are their chemical properties? Are all polymers plastics? All this will be revealed through fascinating and impressive experiments.

- Polymer structure
- Natural and synthetic polymers
- Synthesis of nylon
- Superabsorbent
- Tyres
- Disc
- Fire-resistant clothing



Previously:  
**POLYMERS**

## FIRE AND FLAME

What is luminous and can be rekindled or quenched with water? FIRE! Looking into the heart of the flames, a million questions arise: Where does the heat come from? Why are the flames shaped like that? Why are they yellow? Can you change their colour? On this journey through the history of candles and fireworks, we'll rekindle your love of chemistry! Forget dragons, come and see some real fire-eaters!

- Oxidation reaction
- Combustion: organic matter vs. metals
- Fire triangle
- Extinguishing various fires
- Fireworks
- Rockets



Previously:  
**FIREWORKS & CANDLES**

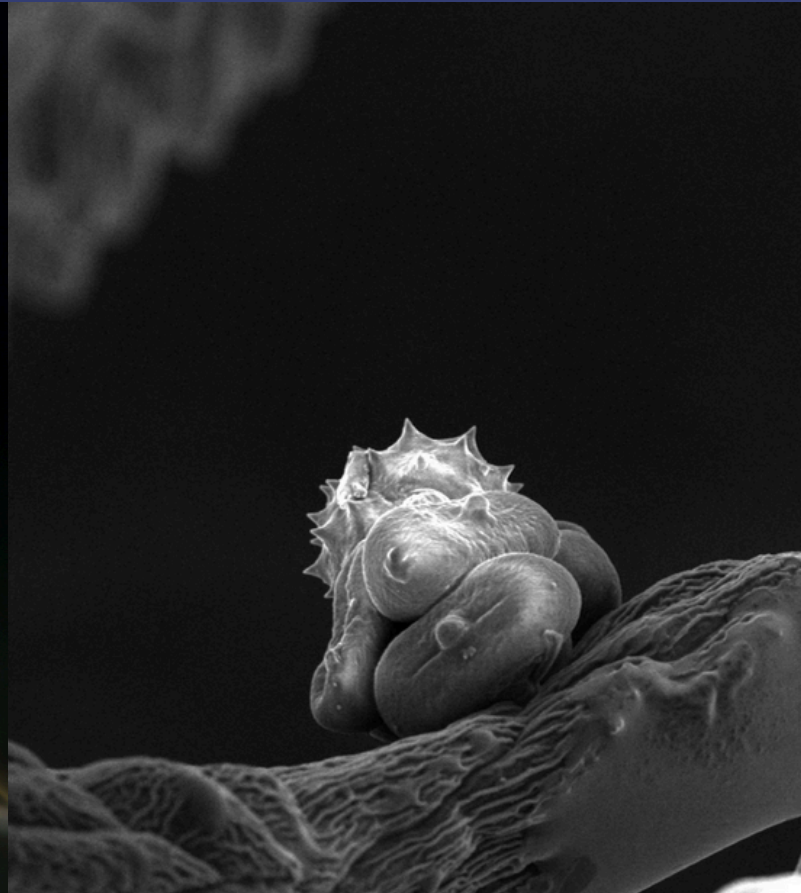




# OPTICS



From 6 years old  
Max. 44 people  
Duration 1h



## FROM LIGHT TO RAINBOW

How many colours are there in a rainbow? Why are all cats grey at night? What are the colours of the invisible? Following in the footsteps of Hooke, Newton, Young, Dalton and Maxwell, we will unveil some of the mysteries of light.

- Additive and subtractive colour synthesis
- Electromagnetic spectrum
- Prism
- Spectroscopy
- Invisible light (infrared, ultraviolet)
- Fluorescence/phosphorescence
- Colour vision
- Optical illusions
- Lasers

## THE HIDDEN LIFE OF LIGHT

The simple question “What is light?” has puzzled the world’s greatest scientists for centuries. The answer forces us to stretch the limits of our imagination, but it also rewards us with a deep understanding of matter.

What’s more, we will demonstrate our electron microscope, an invention closely linked to this subject and discover the fascinating world of the extremely small.

- Crookes tube
- Wave interference
- Photoelectric effect
- Wave-corpuscle duality
- Electromagnetic lens
- Electron microscopy



Previously:  
**COLORS**



# MAGNETISM



From 6 years old  
Max. 30 people  
Duration 1h



## THE INVISIBLE FORCE OF MAGNETS

An introduction to magnetism and classical electromagnetism will be presented using a collection of natural or synthetic magnets, and above all a giant electromagnet that operates at 500 Amps. This one-of-a-kind instrument will enable you to visualise a number of astonishing phenomena (levitation, damped pendulum, 2.5 tonne pole pieces, 1.6 Tesla field, etc.). A perfect show to grasp the basics of the interaction between currents, fields and movements.

- Helmholtz electromagnet
- Compass and terrestrial magnetism
- Spectrum and magnetic field
- Electricity generation by induction
- Tesla egg
- Electric motor
- Alternator
- Laplace rail
- Eddy currents
- Ferro-, para- and diamagnetism
- Ferrofluids
- Electric guitar



Previously:  
**HIGH INTENSITIES**





# ACOUSTIC



From 6 years old  
Max. 50 people  
Duration 1h



## SONOROUS VIBRATIONS

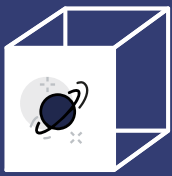
What is sound and where does it come from? Why can't anyone hear you screaming in space? Can you change the speed of sound? How does our hearing work, and how did Beethoven adapt to deafness? These are just some of the mysteries of sound and silence that we will be unveiling in our anechoic (echo-free!) acoustics room.

- Longitudinal and transverse waves
- Vacuum bell
- Tuning fork collection
- Spectral analysis
- Singing bowls
- Lissajous figure
- Giant ear
- Hearing with age
- Speed of sound
- Interference
- Musical instruments



Previously:  
**SOUND & SILENCE**





# PLANETARIUM



From 6 years old  
Max. 20 people  
Duration 1h



## SHOW : PLANETS AND CONSTELLATIONS

Under a 6-metre dome, a scientific mediator will show you the day's sky using a high-resolution projector. You'll explore celestial mechanics and the remarkable phenomena of the day, before taking an immersive journey into the Solar System. Would you prefer to fly over the moons of Jupiter, dive into the rings of Saturn or land on an extinct Martian volcano?

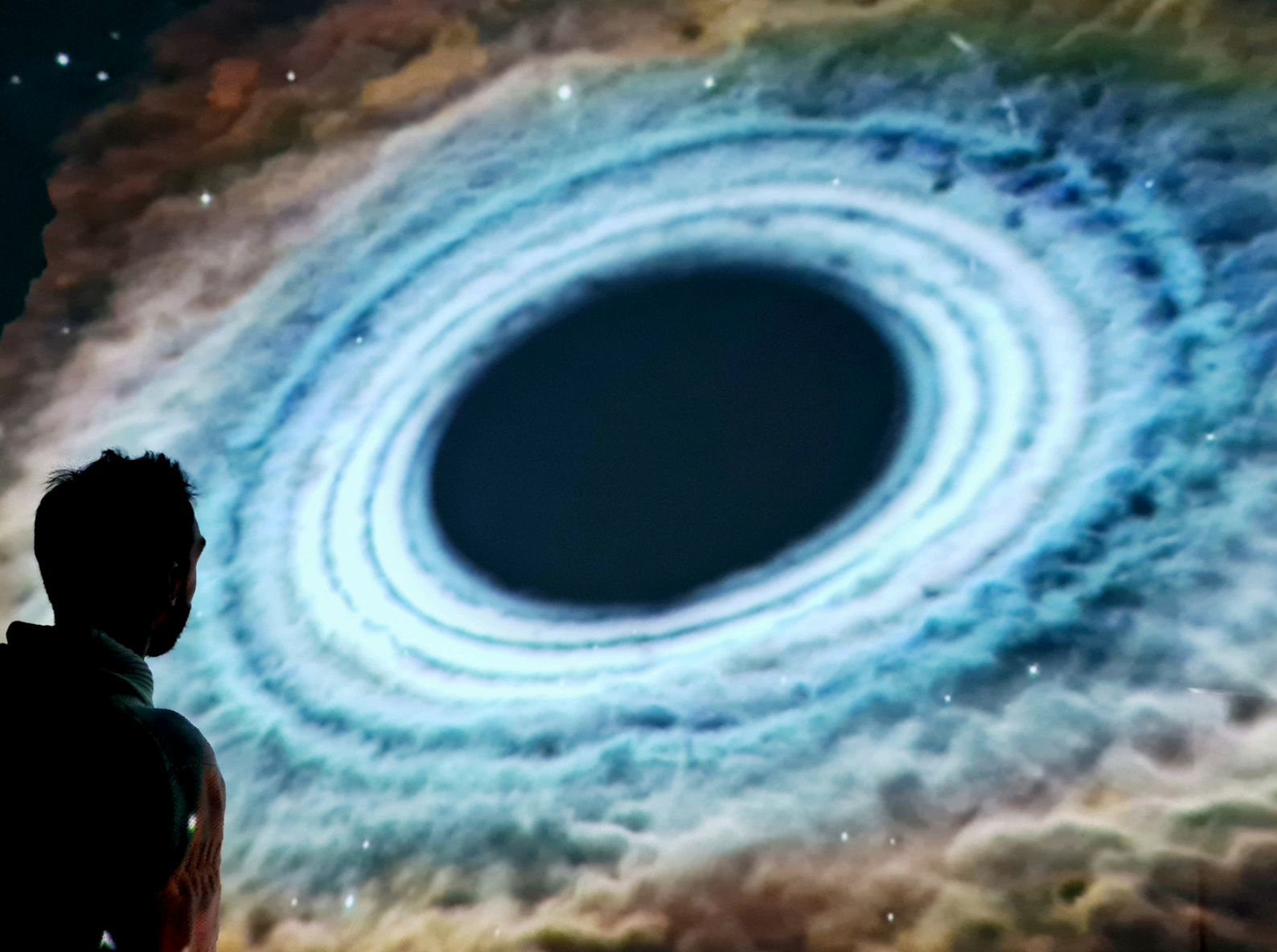
- Celestial mechanics
- Astronomy of position
- Constellations
- Zodiac
- Solar system
- Comparative planetology
- Telluric planets
- Gas giant planets

## SHOW : ASTEROIDS WITHIN REACH

Travel through the stars and discover all the secrets of asteroids and comets, the celestial fragments that bear witness to the formation of our solar system. The public will also have the unique opportunity to touch samples of stars from space!

- Shooting stars
- Meteors
- Meteorites
- Comets
- Real pieces of asteroid
- Piece of the moon
- Piece of Mars





### **FILM (30min) :** **THE HOT, ENERGETIC UNIVERSE**

Using immersive visualisations and real images, we present the achievements of modern astronomy, the most advanced terrestrial and orbital observatories, the basic principles of electromagnetic radiation and the natural phenomena associated with high-energy astrophysics.

### **FILM (30min) :** **THE UNIVERSE THROUGH THE TELESCOPE**

Original title 'Two Small Pieces of Glass - The Amazing Telescope'.

This film tells the story of the telescope, from Galileo's modifications of a child's telescope using two small pieces of glass, to the most recent astronomical observation instruments.

### **FILM (30min) :** **FROM THE EARTH TO THE UNIVERSE**

A fabulous journey through space and time presents, through a striking combination of images and sounds, the Universe as revealed by science.



# BIOLOGY



From 6 years old  
Max. 50 people  
Duration 1h



## KNOW YOUR BRAIN

How did the brain develop and do all living things have one? How does the brain work and how do neurons work together to control the whole body? Why do we have two cerebral hemispheres and why are they so extraordinarily structured? Our journey through neurobiology will answer many of these questions! What's more, we look inside your head and try to trick your brain.

- Evolution of the brain
- Anatomy of the brain
- Brain development
- Neurons and synapses
- Action potentials
- Brain waves
- Cerebral metabolism
- Shock trauma
- Electroencephalogram
- Mindball game
- Illusions

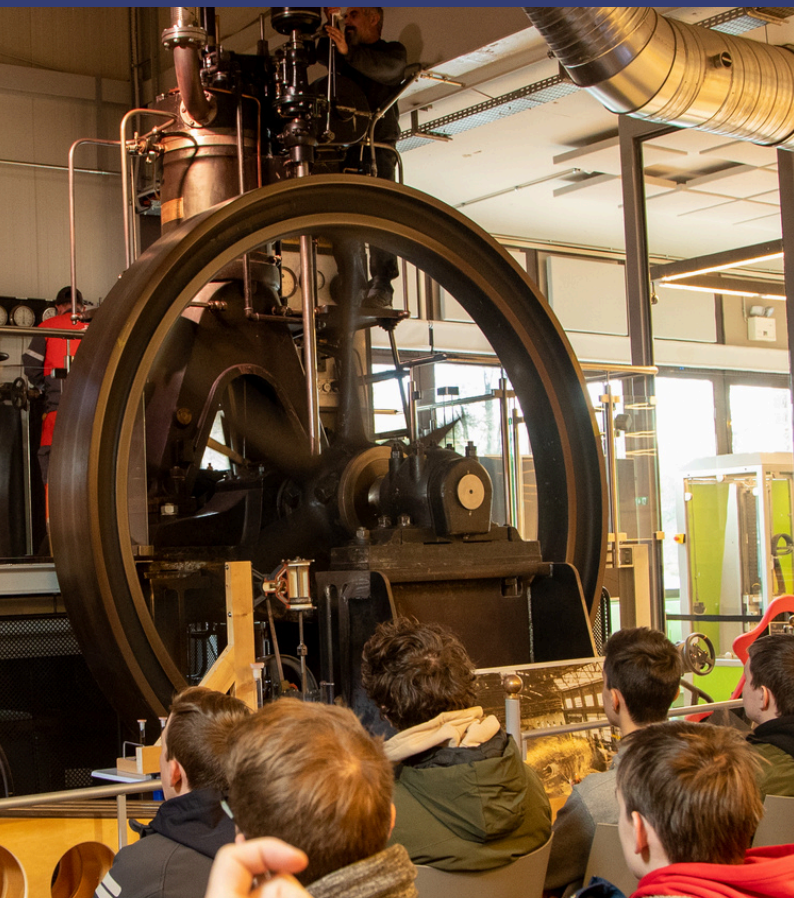




# MOTORS



From 6 years old  
Max. 40 people  
Duration 1h



## DIESEL

A number of demonstrations will give you an insight into the inner workings of the internal combustion engine, invented by Etienne Lenoir (1822-1900) of Luxembourg. In particular, you will witness the start-up of an 11-tonne 1907 diesel engine (DEUTZ), which has been completely renovated and once belonged to the Grand Duke. A unique heritage experience!

- Petrol vs Diesel
- Stationary engines
- 4-stroke cycle
- Transparent piston
- Connecting rod-crank system
- Flywheels
- Oil distillation
- Self-ignition
- Injection and fireball

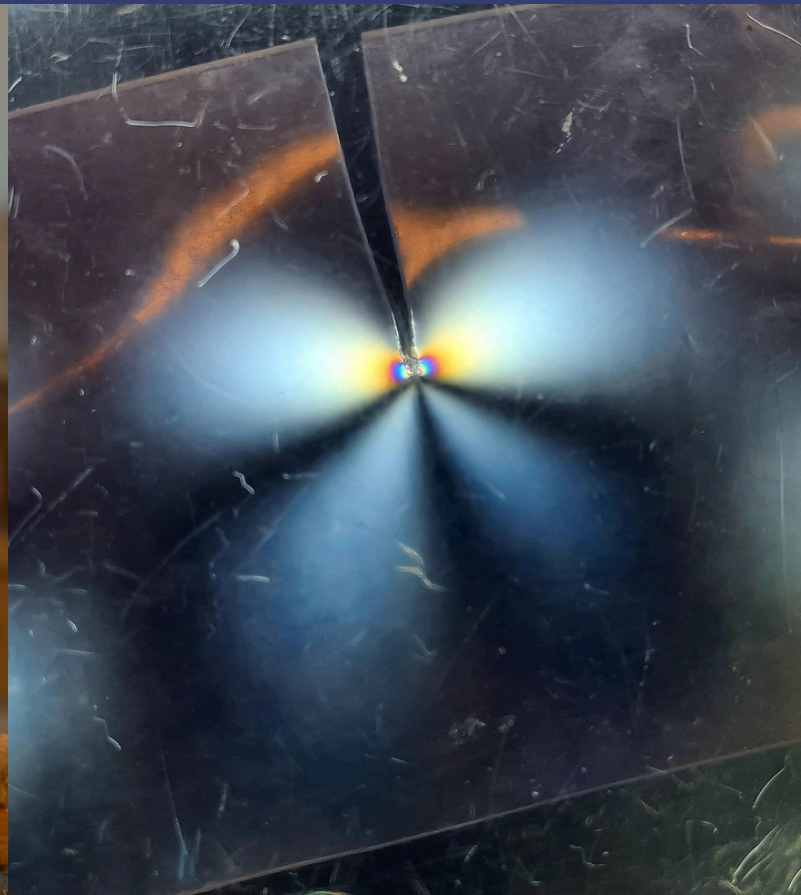




# MATERIALS



From 6 years old  
Max. 30 people  
Duration 1h



## IRON & STEEL

In a semi-professional workshop packed with machine tools, you'll discover the physical and chemical properties of the most stable atom in the universe: iron. An abundant, easily alloyed and recyclable metal, it has shaped the history of the Minett Region. You'll see what makes iron different from steel, from the medieval forge to the 3D metal printer: welcome to Differdange, the City of Iron...

- Induction forging
- Celtic metallurgy
- Combustion vs oxidation
- Corrosion
- Iron reduction (thermite)
- Tempering / annealing colours
- Hardening by quenching
- Leidenfrost effect
- Soft iron vs high carbon steel
- Ferrous meteorites
- Geology of the Minett region
- Ore, coal, slag
- Iron vs cast iron vs steel
- 3D metal printer
- Curie point

## THE SCIENCE OF DESTRUCTION

Every solid object will eventually break! The strength of materials is a branch of mechanics that allows us to understand why and how. In this show, we will place various materials under stress, until they break. The propagation of their cracks will lead us to discuss essential notions in solid state physics and materials chemistry. As many of the materials that will be manipulated are edible, this show includes a small 'destructive snack' for the participants...

- Traction-compression-shear
- Hardness
- Elasticity
- Plasticity
- Fragility
- Young's modulus
- Poisson's ratio
- Photoelasticimetry
- Ultra-fast camera

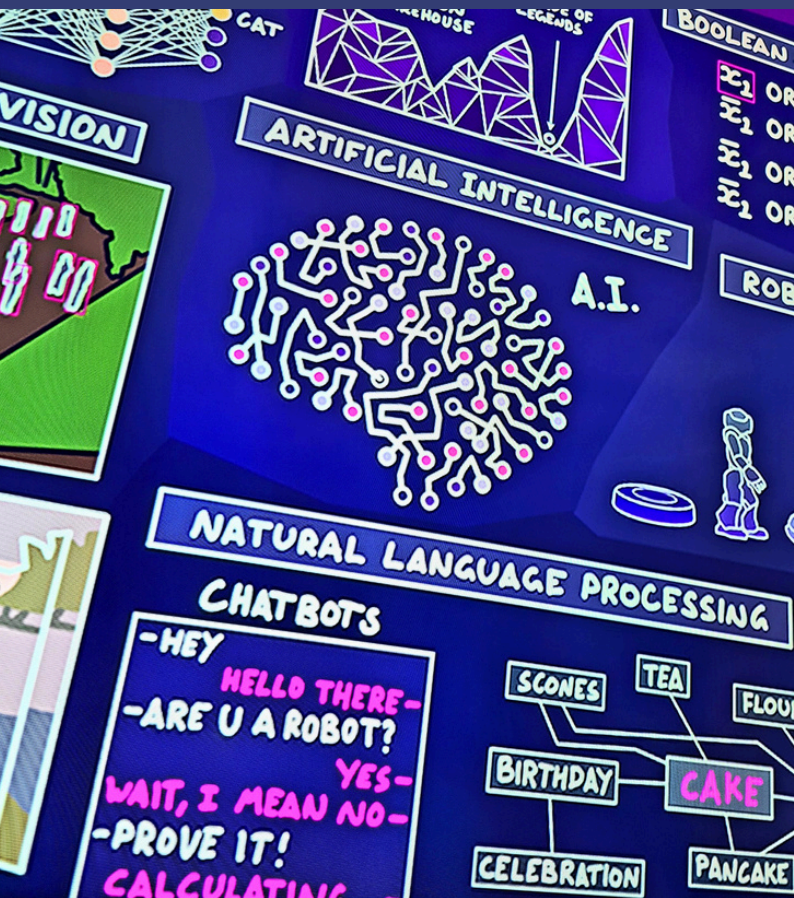




# COMPUTER SCIENCE



From 8 years old  
Max. 25 people  
Duration 1h



## ALGORITHMS AND ARTIFICIAL INTELLIGENCE

We are always surrounded by algorithms. How do they work? What can algorithms do? How can a computer learn? How can a computer recognise objects in images? What will our future look like with artificial intelligence? Discover the fascinating world of computing in a fun way!

- Card sorting
- Finding the shortest path
- Reinforced learning
- Neural network
- Take on an AI

# TEACHER TRAINING

## ESERO Luxembourg

### EDUCATION THROUGH SPACE

ESERO (European Space Education Resource Office), an educational network promoting the spatial context in primary and secondary school classes, supports Luxembourg teachers by providing them with...

- **teacher training**
- **school projects**
- **educational resources**



### ABOUT ESERO

By using space as a motivating learning context, ESERO helps students discover science and technology subjects. Space will no longer just be a source of inspiration and dreams for students, but a part of their everyday lives.

Hosted by the Luxembourg Science Center in Differdange, ESERO Luxembourg is co-financed by the European Space Agency, the Luxembourg Space Agency and the Ministry of Education, Children and Youth, in collaboration with the Institut de Formation de l'Éducation Nationale (IFEN).



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère de l'Éducation nationale,  
de l'Enfance et de la Jeunesse



[www.esero.lu](http://www.esero.lu)

[contact@esero.lu](mailto:contact@esero.lu)





# BIRTHDAY

## AN UNFORGETTABLE PARTY

Dive into a captivating scientific adventure to celebrate a birthday full of discoveries, experiments and fun at the Science Center!

Celebrate your birthday in a unique and exclusive setting in Luxembourg. The Science Center and its scientific mediators offer you an unforgettable birthday party!

- from 8 years old
- Tuesdays or Thursdays from 5 to 7 p.m.
- Saturdays from 2 to 4 p.m.



[www.science-center.lu](http://www.science-center.lu)



[reservations@science-center.lu](mailto:reservations@science-center.lu)

# CORPORATE EVENT

## TEAMBUILDINGS & BUSINESS EVENTS

Looking for an attractive and unique venue for your next business event?

Think outside the box and consider the Luxembourg Science Center for your next corporate event.

- From 15 people (Max. 120)
- Catering facilities (Max. 40)
- Possibility of privatizing rooms



[www.science-center.lu](http://www.science-center.lu)



[events@science-center.lu](mailto:events@science-center.lu)

## ACCESS

Luxembourg Science Center  
1, rue John Ernest Dolibois  
L-4573 Differdange

Suitable for visitors with reduced mobility



## INFOS & BOOKINGS

INFORMATIONS :

T +352 288 399-27

[reservations@science-center.lu](mailto:reservations@science-center.lu)

[www.science-center.lu](http://www.science-center.lu)

[facebook.com/LuScienceCenter](https://facebook.com/LuScienceCenter)

## OPENING HOURS

Monday to Friday: 9am - 5pm

Saturday, Sunday and public holidays:

10am - 6pm Annual closures: January 1 and

December 25 and 26

