OUR SCIENCE SHOWS

FLUIDS

From 6 years old
Max. 50 people

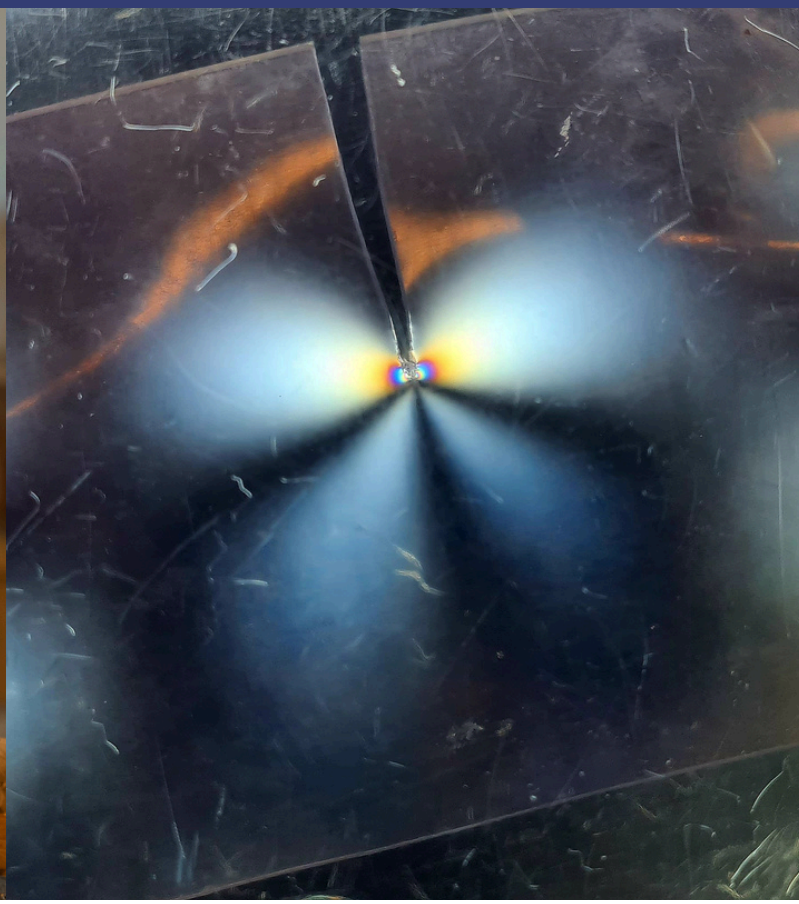
LOW TEMPERATURES

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

MATERIALS

From 6 years old
Max. 30 people



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

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

ELECTRICITY

From 6 years old
Max. 80 people

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 / Nollet chain
- Fluorescent tubes
- Giant plasma ball

MATHS

From 6 years old
Max. 50 people

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

KITCHEN LAB

From 8 years old
Max. 20 people
Suppl. 6€ p,p

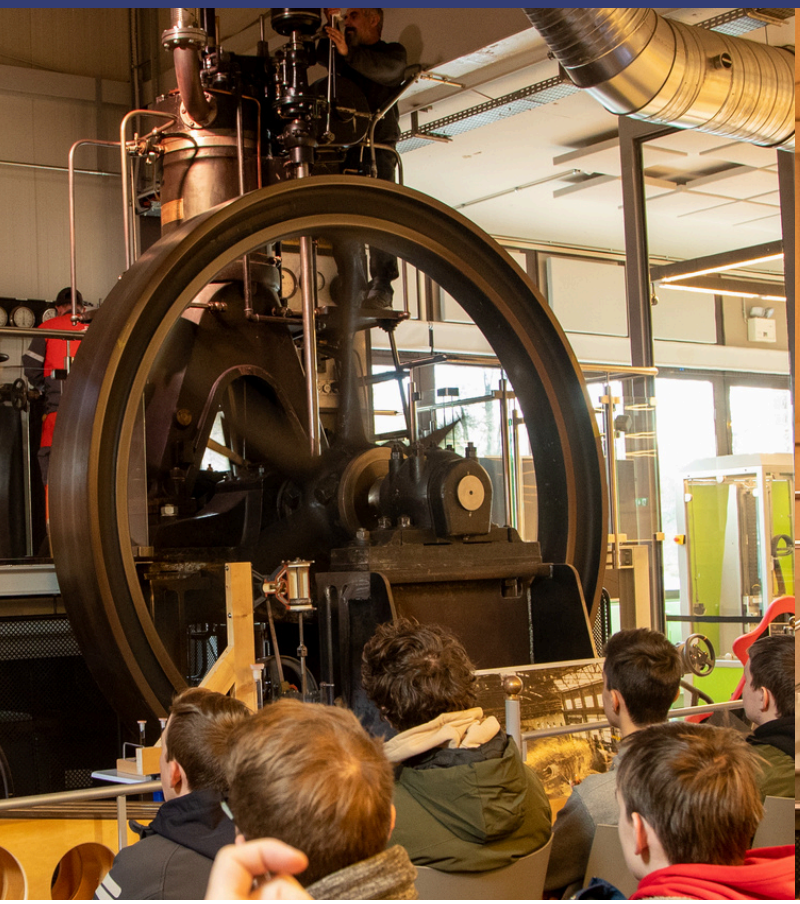
WORKSHOP: Sugar

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

MOTORS

From 6 years old
Max. 50 people



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

CHEMISTRY

From 6 years old
Max. 50 people

PLASTICS

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

FIREWORKS & CANDLES

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!

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

OPTICS

From 6 years old
Max. 45 people

COLORS

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

WAVES, PARTICLES AND MICROSCOPY

Set off on a journey into the world of the infinitely small. Using an electron microscope, we'll dive deep into matter and reveal ever finer details, up to magnifications of 100,000 times. To get there, we'll discover the strange physics of this tiny world.

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

MAGNETISM

From 6 years old
Max. 25 people

HIGH INTENSITIES

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

ACOUSTIC

From 6 years old
Max. 50 people

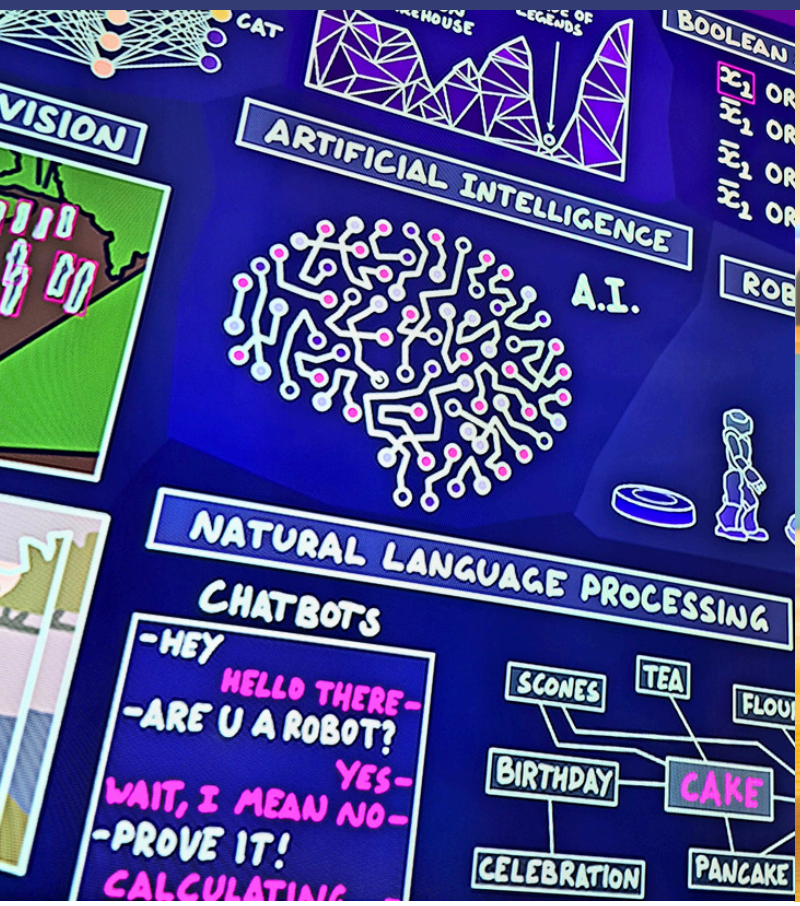
SOUND & SILENCE

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

IT

From 8 years old
Max. 25 people



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

BIOLOGY

From 6 years old
Max. 40 people

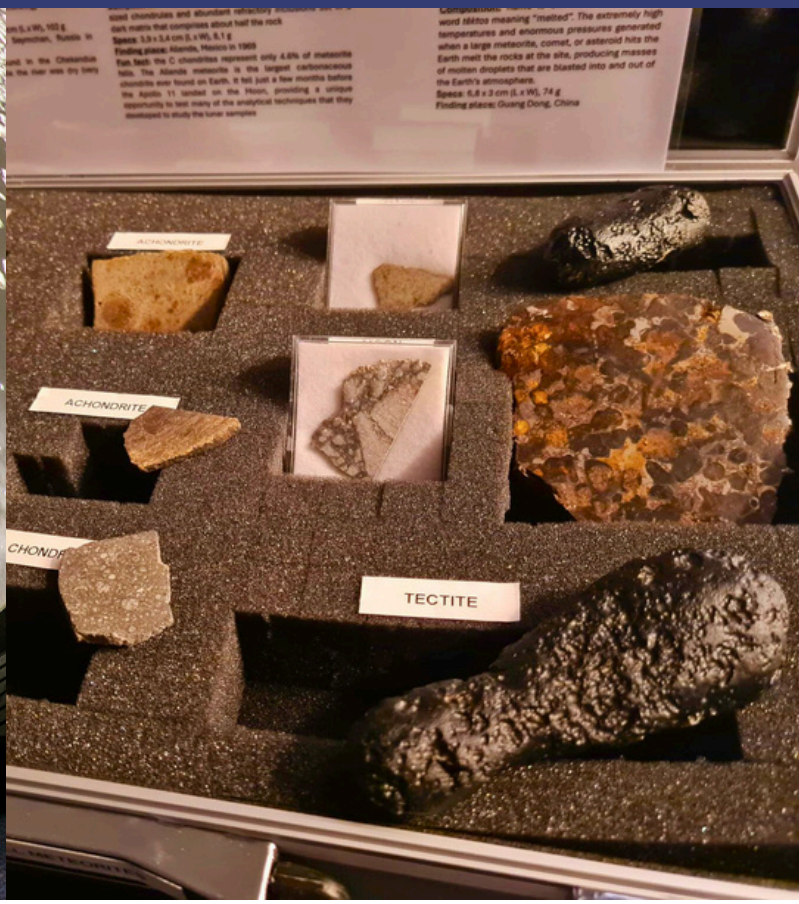
BRAIN

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

PLANETARIUM

From 6 years old
Max. 20 people



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 :

ASTEROIDES

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 E 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.

FILM (30min) :

EXPEDITION REEF - OCEANS

Get ready to dive into the vibrant and threatened world of coral reefs - one of the ocean's most colourful and endangered ecosystems. We look forward to welcoming you to this exciting underwater adventure.

Available until January 2026!