

14. How are emerging technologies connected to disarmament and peace?

Are you intrigued by the intersection of emerging technologies, disarmament, and peace? Are you eager to learn more about the impacts, both positive and negative, that emerging technologies can have on disarmament efforts? Come visit the United Nations Office for Disarmament Affairs' booth for an enlightening discussion with our team, explore our comprehensive learning resources and engage in our interactive "spin the wheel" activity to test your knowledge and gain insights into the rapidly evolving landscape of emerging technologies. Additionally, swing by our selfie corner, strike a pose, and share your views on the importance of disarmament initiatives with us!

15. Tracing nuclear test footprints: How does science lead the way?

Join us at the Long Night of Research to explore how the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) uses science to detect and prevent nuclear test explosions across the globe. Discover how our verification system not only detects nuclear tests but also identifies earthquakes, tsunamis, and volcanic eruptions - while contributing to research on climate change. Experience the exciting intersection of global security and scientific progress at our station at the Vienna International Centre!

16. How do plastics impact the Danube?

Dive into our booth, 'Swimming Out of a River of Plastics', to learn about the ICPDR's efforts to combat pollution. Our station showcases pollution inventories, interactive elements, and hands-on activities that will explain the journey of macroplastics to microplastics in our waters. We'll answer pressing questions like "Where does plastic in our rivers come from?", "How can we prevent plastic pollution?", "Can citizens contribute to cleaning our rivers from plastics?", "How much of the plastic waste dumped into our rivers can actually be recycled?", "Is stopping plastic pollution in freshwater bodies achievable?" Join us to learn practical steps to reduce plastic pollution and help navigate our waters toward a cleaner, healthier, and safer future!

17. How is technology shaping tomorrow's world? Exploring innovation at UNIDO

Embark on a journey of discovery with UNIDO, where we unveil the forefront of cutting-edge technology and its diverse applications across industries, research, and culture! Experience firsthand how the latest innovations in robotics and precision technology are reshaping tasks in agriculture and research, enhancing efficiency, and improving worker safety. Dive into a hands-on experience where you can pilot and interact with various types of robots, alongside testing mapping and data collection devices. Unlock UNIDO's wealth of data and insights on global development trends with just a tap. Enter our virtual reality experience, where technology meets art, allowing you to interact with 2D paintings in a unique 2.5D way.

18. How can data help us understand drugs and crime?

Through its global data collections, UNODC helps combat pressing criminal activities and drug challenges around the world. Try to spot illicit drug crops on satellite images and identify the routes along which wildlife species are trafficked. Learn how to scrape the web for clues about environmental crime and test your knowledge during quiz time to win a prize.

19. In search of clues: What tools does forensic science provide for investigations?

Join us for an electrifying journey through the world of forensic science at the Long Night of Research 2024! Uncover the secrets of investigation as we equip you with essential tools to unravel mysteries while ensuring safety from dangerous chemicals and potent drugs. Explore the realms of forensic science, from mastering Personal Protective Equipment (PPE) to delving into high-tech chemical identification methods, fingerprint analysis, and document examination. Immerse yourself in interactive demonstrations, where you'll don PPE like a seasoned frontline officer, operate handheld Raman devices, and take fingerprints! Explore security documents under different lighting conditions, revealing hidden truths (or frauds) at every turn. Don't miss this exciting event where science meets suspense! Join us for a Long Night of Research and uncover the thrill of discovery with every clue you unearth.

LONG NIGHT OF RESEARCH

24.05.2024



Experience
science live in the VIC!

All ages welcome!

Doors open from 17:00–22:30
Visitors must bring photo-ID

#LNR24



langenachtderforschung.at



PUTTING AN
END TO NUCLEAR
EXPLOSIONS



STATIONS

1. Small and silent killers: How can nuclear science help us to control insect-borne diseases?

Insects such as Tsetse flies and mosquitoes cause over 700,000 deaths worldwide every year through the transmission of deadly illnesses. Others such as fruit flies are an obstacle to international fruit and vegetables trade, causing a negative economic impact. Nuclear techniques can help reduce insect populations and diagnose illnesses quickly, effectively minimizing the risks posed by insect pests. Explore insect pest control with live insects and pupae and learn about the Sterile Insect Technique – an environmentally-friendly method to control major insect pests.

2. Gathering data for information-based agriculture: How can nuclear science help to assess water and nutrient content of soils?

Reducing the amount of water and fertilizer used in agriculture can have a huge impact on how we grow food. As climate change is affecting ecosystems, including water availability, scientists can adopt nuclear techniques to better understand the synergy between soil, water and nutrients and provide farmers with tools to reduce water loss, increase soil health and improve crop yields. Learn how scientists help farmers improve the quality of the food that reaches our tables.

3. What are the unique flavours of water?

Spin our wheel at the Isotopic Odyssey station and uncover the reasons behind water's unique flavours. Sample precipitation, snow melt, and river water, while discovering the factors that shape each taste. Dive into the water cycle stages and explore variations in groundwater age as you unravel the mysteries of water isotopes.

4. What mysteries lie within everyday items?

Embark on a journey to unveil the mysteries hiding within your everyday items at our station! Use a handheld X-ray fluorescence device to delve into the elemental makeup of your jewelry or any small objects you bring along. Dive into the realm of radiation detectors revealing the natural radioactivity of salt, welding rods, and other intriguing materials. Plus, get an exclusive glimpse into the radioactive sources employed in experiments!

5. What secrets does radioactivity help us uncover?

Explore the secrets of environmental radioactivity in diverse samples. From intriguing reference materials like milk powder and human hair to the thrill of measuring radioactivity with cutting-edge instruments like the portable gamma-spectrometer – this experience promises to be an exciting adventure!

6. Can you hit the tumour? Help X-Ray-Boy and Beam Girl fight the cancer!

If a person gets cancer, unwanted tumour tissue can grow uncontrollably inside their body, harming healthy organs and making that person sick. Luckily, we can treat and even cure the patient with the help of physics! Did you know that ionizing radiation is like a superpower to eliminate tumour tissue? Using special accelerator machines, medical physicists target radiation precisely at the tumour, while minimizing the harm to the surrounding healthy tissue and organs. See for yourself how cancer patients are treated with radiotherapy and how physicists make sure they hit the tumour correctly.

7. How can nuclear science help to deepen our understanding of the ocean?

Despite its size, the ocean is extremely delicate. Small changes in temperature or chemistry can have devastating effects on wildlife. Too much carbon dioxide produced by human activities entering the ocean from the atmosphere can result in what is called ocean acidification, creating problems for fragile marine ecosystems and coastal communities. Learn how nuclear science can help track the impacts of ocean acidification on corals and shellfish, how it can help preserve the ocean and how it can support communities threatened by ocean acidification impacts.

8. Ionizing Radiation: Is it safe to work with it? Yes! Discover how IAEA experts stay protected.

You cannot see ionizing radiation, but since its discovery in the turn from the 19th to the 20th century, we have learned how to embrace its advantages in energy production as well as in medical, industrial and other applications, while protecting people and the environment from its harmful effects. Learn from IAEA radiation safety and monitoring experts what ionizing radiation is, how it can be detected in everyday life, and how the IAEA safely uses ionizing radiation sources in its work and activities. At the booth you can also see how the safety measures taken by IAEA experts are done when entering controlled environments like laboratories that deal with radioactive sources in areas such as research and development.

9. How does nuclear power work?

Have you ever wondered how nuclear power really works? Step inside a nuclear power plant! Participants can take a VR tour that shows how a nuclear power plant works and operates and take a closer look at small-scale nuclear power plant models. Today, over 400 operating nuclear power reactors worldwide produce ~10% of the world's electricity and ¼ of the world's low-carbon electricity. Almost 60 nuclear power reactors are under construction in 16 countries.

10. What about the waste?

All uses of nuclear technologies have one thing in common: they will generate radioactive waste. There are many different types of waste, and one example is from radioactive sources, which are used every day in fields such as medicine, industry and science. Once the radioactive sources can no longer provide the needed dose of radiation, they must be safely managed. IAEA scientists will hold an interactive demonstration session showing how this is done and visitors can have a try too!

11. Clean energy: Climate change and nuclear power

How much do you know about low-carbon nuclear power and climate change? How does a turbine work in a nuclear reactor? Put your knowledge to the test! Take an interactive quiz that includes questions comparing nuclear with other energy sources, and nuclear power's role in mitigating climate change (you can win a prize!) You can also make your very own turbine, just like the ones used in nuclear reactors to create electricity.

12. Can we spot what someone is trying to hide?

IAEA inspectors travel around the world to determine whether countries have provided correct and complete information about their nuclear material and activities, as they are obliged to. Our inspectors behave a bit like detectives! See how IAEA experts detect the invisible by wiping surfaces with swipes collecting traces of particles that reveal information, use surveillance cameras and seals on nuclear material and equipment, and collect and analyze satellite imagery. Come help an inspector find mock uranium particles, open and close our specialized cameras, and spot the clues from a satellite image!

13. What do you know about migration and displacement?

Migration is one of the most salient topics globally but also complex, which has made it prone to misinformation. Data, research, and analysis are vital in this context. The International Organization for Migration (IOM), with its 175 member states and a presence in 171 countries, plays a key role in analysing migration issues and emerging trends. Participants at the Long Night of Research will have the opportunity to engage directly with IOM experts specialized in a specific research topic and to interactively explore the journey of Ukrainian refugees in Europe and migrants along the Mediterranean routes. Afterwards they can check their knowledge with quiz cards.