

## 15. How do scientific innovations impact disarmament?

Have you ever wondered how science affects disarmament, the spread and impact of weapons and how different types of weapons are dealt with at the international level? Come discover our learning materials, interactive displays and games to familiarize you with the topic. Take a virtual journey through UNODA offices around the world while testing your knowledge. Share your reflections on risks and advantages of science for disarmament and learn how technology can help to advance peace and build confidence between States through the application and verification of disarmament measures. You can also chat with our UNODA team and go home with some memorabilia.

## 16. How does research in industrial development improve peoples' lives?

Have you ever wondered what a country needs to do to develop and improve people's lives? UNIDO is the specialized UN agency in supporting countries' sustainable industrial development. Come experience interactive tools with our experts to discover how industrial development reduces poverty and inequality around the world, creates employment and education opportunities, and contributes to the richness of human life!

## 17. How can we protect those who protect us?

When forensic officers carry out their duties, they face a variety of potential threats – including encountering unknown chemicals and substances. UNODC trains officers on how to properly use personal protective equipment (PPE) in such cases, as well as modern handheld devices which help with identifying unknown substances. Experts from the UNODC Laboratory and Scientific Service will demonstrate how officers deal with chemical seizures in a remote environment. You will also learn which PPE is required to keep our officers safe when handling or disposing of chemicals.

## 18. Can data help us prevent crime?

Through its huge data collection on various types of crime, UNODC helps police, detectives, and others to reduce crime around the world. Help us spot illicit crops on satellite images to fight the world drug problem or identify the most trafficked wildlife species by analysing the latest seizure data. You will also be able to attend a virtual tour of today's migrant smuggling routes and emerging hot spots.

## Information about arriving at the Vienna International Centre (UNO City)

From Vienna city centre, take the U1 in the direction Leopoldau. UNO City is at the stop Kaisermühlen/VIC. Unfortunately, it is currently not possible to disembark here due to construction work. Wiener Linien recommend continuing to Kagran station. There is an island platform that allows for a quick change of direction. You can easily change trains in the opposite direction, go back two stations and thus reach the UNO City. Exit at the back of the train and proceed to the UNO City main entrance (Gate 1) directly next to the station.

# #LNF22

LONG NIGHT  
of RESEARCH

20 May 2022

LANGE NACHT  
der FORSCHUNG

20. Mai 2022

## Experience science live in the VIC!

# All ages welcome!

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



[www.LangeNachtderForschung.at](http://www.LangeNachtderForschung.at)



# STATIONS

## 1. COVID-19, malaria & Co: How can nuclear science help control diseases and insect pests?

Diseases that originate from animals, such as COVID-19, and those that are transmitted by tsetse flies and mosquitoes can cause severe illness in humans. Learn how nuclear and related techniques can quickly diagnose such diseases and how birth control for insects can contain the pests.

## 2. Is my food safe? Is my olive oil and honey authentic?

Food is an essential part of our daily lives. We all want our food to be safe and we want to be able to trust that a jar contains what its label states. This is important not only to individual consumers, but also to global trade. Horse meat in beef lasagne and 15 tons of conventional grapes mislabelled as organic - these are only two recent examples of food fraud. See how new hand-held devices can be used to test food authenticity and learn more about contaminants and food safety.

## 3. How do gamma rays help ensure you get your banana and coffee?

Spontaneous mutations are key to evolution and to domestication of crops. Irradiating seeds imitates this natural process by inducing mutations in plants to develop new varieties, the first step in a process known as plant mutation breeding. See how this technique has led to better tomatoes and rice, healthier grapefruit - and learn how scientists are currently using it to rescue banana and coffee from new strains of deadly diseases that threaten global supplies.

## 4. Is your water from the dinosaur age? How long will it last?

Fingerprints of water molecules, the isotopes, help find the origin and the age of water. They also help ensure that the water you are drinking is safe. Find out how experts can quickly determine how water sources are replenished and how vulnerable they are to climate change, pollution and land use changes.

## 5. Lord of the Rings: Is that the real one?

See how radiation detectors work and how we can find practical information about various objects or samples! Using small equipment, determine the relative proportions of precious metals in jewellery, or natural radioactivity (dose rates) present in bananas.

## 6. Ionizing radiation: how can we understand and measure it, and use its unique features to safely search for radioactive hotspots?

How can we track radiological traces in our environment? Can you measure radiation? Take an up-close look at the drone experts use in their work and hover the gamma meter over a sandpit to discover the hidden radiological hotspot from the air! Learn about the different types of radiation and create a digital image of radiation tracks. Try measuring radiation and learn in which conditions it can affect your health!

## 7. Can you identify the security threat to a nuclear facility?

What potential threats for nuclear facilities are posed by "insiders"? What computer security measures are in place to avert cyber threats? A fascinating virtual reality experience and an exciting simulation (in cooperation with the Austrian Institute of Technology) will help you to find the answers to these questions!

## 8. How does a nuclear power plant work?

Have you ever wondered how a nuclear reactor works? This is your chance to find out! IAEA experts will guide participants as they operate a computer-simulated nuclear reactor. About 440 operating nuclear power reactors worldwide produce some 10% of the world's electricity and 1/4 of the world's low-carbon electricity. Over 50 nuclear power reactors are under construction in 17 countries.

## 9. What happens with old, unused, or unwanted radioactive sources?

Radioactive sources 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!

## 10. Can we spot what someone is trying to hide?

IAEA inspectors travel around the world to determine whether countries have given the Agency correct and complete information about their nuclear activities, as they are obliged to. They 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!

## 11. Migration Fact Check: What do you really know about migration?

Human 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. Drawing on its World Migration Report, IOM has developed a set of digital toolkits to enhance access to information. Participants can try these toolkits and can check their knowledge with quiz cards afterwards.

## 12. How do you take a scientific selfie of an international river?

Since 2001, the ICPDR has been conducting Joint Danube Surveys (JDS), with the latest and fourth survey kicking off in 2019 (JDS4). The most comprehensive investigative surface water monitoring effort in the world saw hundreds of scientists and labs throughout Europe join efforts to answer eye-catching questions, such as "How much caffeine is there in the Danube?" or "Is antibiotic resistance an issue in river waters?" Join us and find out what more secrets the Danube holds!

## 13. What do high school students have to say about nuclear science?

The IAEA is supporting innovative nuclear science and technology (NST) education and communication among secondary school students and teachers in the Asia-Pacific region. High school students from the region will show how the role of NST in food security and human health helps us to meet the SDGs. Innovative online teaching modules will also be presented.

## 14. How does science make things crystal (Nu)Clear?

The Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) uses science to detect and deter nuclear explosions by everyone, everywhere: on the Earth's surface, in the atmosphere, underwater and underground. Join us to find out how the same system that keeps the world safe from nuclear weapon test explosions can also be used for tracking radioactivity from nuclear accidents, earthquake monitoring, tsunami warning, as well as research into climate change and whale migration, which in the long-term can help us study the health of the marine ecosystem.

