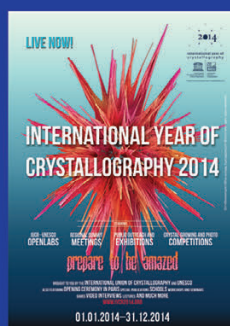
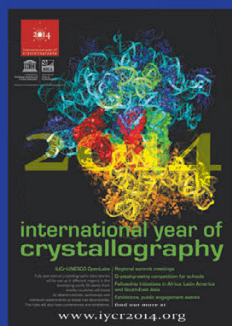


How you can take part in IYCr2014

- Please give a copy of this leaflet to your science teacher and ask them to help put crystallography on the school curriculum.
- Participate in the IYCr2014 worldwide crystal-growing competition for schoolchildren. For details, see www.iycr2014.org/participate/crystal-growing-competition. Also, visit this page to see if there's a crystal-growing competition in your country. We keep adding contests so please check back regularly.
- Print out copies of the posters at www.iycr2014.org/about/promotional-materials and put them up at home, at school, anywhere you can think of (with permission of course!). By the way, this isn't a trick photograph. Some of these selenite crystals are over 11 m long. And it's hot in this northern Mexican cave, 50 °C with nearly 100% humidity, so visitors must wear special cooling suits and a backpack respirator if they want to stay longer than 15 min. Even then, 45 min is the limit if you want to avoid being cooked!



- Take part in the Royal Society of Chemistry–International Union of Crystallography Global Experiment 2014: The Art of Crystallisation. Find out more at rsc.li/ge2014.
- Keep an eye on www.iycr2014.org/events for any events coming up near you such as science fairs and hands-on exhibitions.
- Ask your parent or guardian to order an IYCr2014 T shirt for you at www.iycr2014.org/about/merchandise.
- If you're over 13, like us on Facebook at www.fb.com/iycr2014.org for all the latest news.
- Above all, enjoy learning about crystallography and how it can make the world a better place.

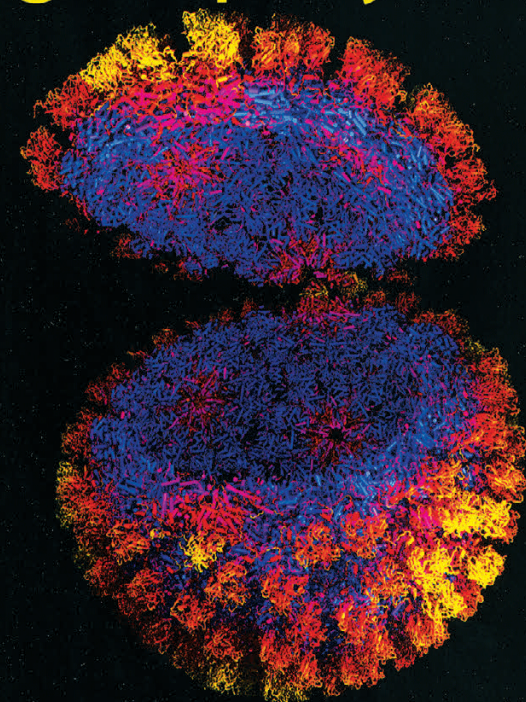


For more information, contact iycr2014@iucr.org.

Front cover - Naica cave: Javier Trueba, Madrid Scientific Films; blue-tongue virus capsid: IUCr.
Inside pages - snowflake: SnowCrystals.com (visit this site for lots of great activities for kids).

2014

international year of crystallography



a guide for schoolchildren

www.iycr2014.org



United Nations
Educational, Scientific and
Cultural Organization



International
Union of
Crystallography

Partners for the International Year of Crystallography 2014

"Prepare to be amazed" is the slogan for the International Year of Crystallography 2014 (IYCr2014), and do you know what? We think you will be!

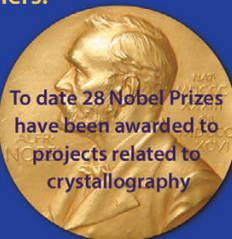
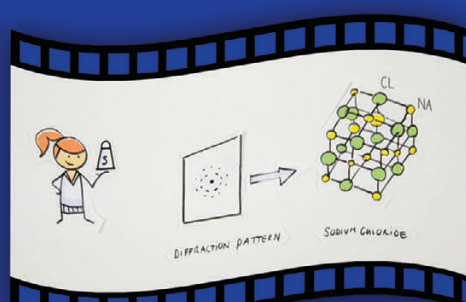
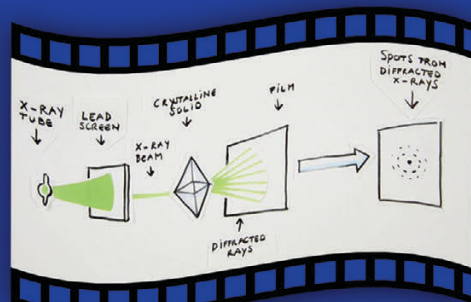
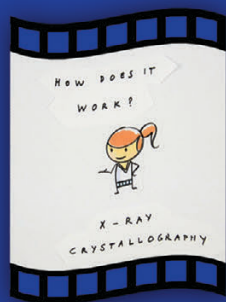


You will already be familiar with crystals that appear in nature, such as sugar, salt, snowflakes and gemstones but did you know that chocolate contains small crystals of cocoa butter? To get the right gloss, crisp "snap" and smooth melt-in-the-mouth texture that makes chocolate so delicious, you have to force the cocoa butter to crystallize in only one of six possible forms. The other five wouldn't look or taste nearly as nice. And who worked that out? Crystallographers of course!



People have been fascinated by the beauty and mystery of crystals for thousands of years. However, it was mathematician and astronomer Johannes Kepler who first observed the symmetrical form of ice crystals. He was walking along Charles Bridge in Prague one winter's day in 1611 and noticed that the snowflakes falling on his coat, while all different, all had six corners.

But how can you see inside a crystal? Well, around 100 years ago it was discovered that the structure of a crystal – the regular 3D arrangement of its atoms – could be deciphered by exposing it to X-rays (see the diagram below). And so, X-ray crystallography was born. The first structure to be solved was that of table salt but by the mid-20th century, the structures of more complex molecules such as penicillin, DNA and insulin were being determined.



To date 28 Nobel Prizes have been awarded to projects related to crystallography

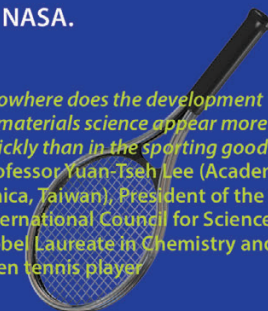
The United Nations has declared 2014 to be the International Year of Crystallography. We are celebrating IYCr2014 with exciting exhibitions; summit meetings in Brazil, Pakistan and South Africa; special publications and stamps; photo and crystal-growing competitions; and much more. The aim is to make governments and the public aware of crystallography and how important it is to technological advancement, and to inspire worldwide collaboration, education and research.



The Curiosity rover used X-ray crystallography in October 2012 to analyse soil samples on the planet Mars. NASA had equipped the rover with a diffractometer. The results suggested that the Martian soil sample was similar to the soils of Hawaiian volcanoes. Photo: NASA.

Crystallography has an enormous impact on our daily lives. It can be used to study disease and develop new medicines, help combat environmental pollution and climate change, develop new materials and new technologies and give us green energy. To find out what crystallography can do for you, now and in the future, watch www.iycr2014.org/about/video.

"Nowhere does the development of materials science appear more quickly than in the sporting goods" — Professor Yuan-Tseh Lee (Academia Sinica, Taiwan), President of the International Council for Science, Nobel Laureate in Chemistry and keen tennis player



Discover more about the fascinating world of crystallography by joining Johanna in her animated adventure at www.iycr2014.org/home/news/learn-crystallography-with-johanna.

Schoolchildren in Italy, Japan, Russia and Spain learning about crystallography in events leading up to IYCr2014.