

Exhibition uses art to show beauty of maths

Artists in Paris, including film-maker David Lynch, have been being inspired by a group of top mathematicians. Maths and art may have a surprising amount in common.



MATHS
ART & DESIGN



'O Paraiso' by Beatriz Milhazes, one of the works on display at the Cartier Foundation in Paris.

Hosted by the prestigious Cartier Foundation, a new exhibition is causing a buzz of artistic excitement in Paris and around the world. Produced and created by a mixed group of artists and professional mathematicians, it uses art to show the beauty of the world's purest science.

The most famous artist working on the show is film-maker David Lynch, who has contributed to several of the exhibits. A display of small worm-like robots with creepy, abstract faces is proof of Lynch's notorious talent for the disturbing. In another work, *Library of the Mysteries*, projected numbers burn and spark in the flames of an animated fireplace, while a growing globe represents the size of our expanding universe.

Lynch and the others who worked on the show are hardly the first to have blurred the boundaries between maths and art. M. C. Escher created amazing images using impossible geometry and intricate

repeated patterns (called tessellation). Salvador Dali mixed the traditional image of the crucifixion with a mathematical map of a four dimensional hypercube.

Going back further, to the Renaissance, artists like Leonardo da Vinci were fascinated by the artistic and aesthetic properties of geometrical proportions. Painters arranged their works to achieve the best possible harmony of mathematical figures, and divided canvases according to the mysterious 'golden ratio', thought to be a source of particular beauty.

Even more mathematical are those artists who create artworks using the self-referential equations called 'fractals'. When these equations are used to generate lines, the resulting images can be captivating in their delicacy and complexity.

But while many artists have been inspired by maths, this latest exhibition, called *Mathematics: A Beautiful Elsewhere*, is unusual in its ambition to use art to convey the beauty of maths to a non-

mathematical audience. The exhibition, say organisers, is 'a geometric, algebraic, artistic and cinematographic mosaic that gives everyone a chance to experience fragments of mathematical beauty.'

BEAUTIFUL NUMBERS

This idea may sound odd to those who see maths as an essentially practical subject. Many who study it at school or college do so because it's useful – vitally important to disciplines like finance or engineering, crucial to all sorts of later careers.

But many mathematicians say their subject is not about what you can use numbers and equations for, but about the abstract beauty of mathematical principles themselves. As Bertrand Russell wrote: 'Mathematics, rightly viewed, possesses not only truth, but supreme beauty – a beauty cold and austere... yet sublimely pure, and capable of a stern perfection such as only the greatest art can show.'

Q & A

Q Why would you call maths 'the purest science'?

A Sciences generally split between 'applied', meaning practical and focused on the real world, and 'pure', meaning theoretical and abstract. You can even argue that some

sciences are just applied versions of other sciences.

Q What? How?

A Well, chemists sometimes say that biology is just chemistry applied to living beings. Physicists say that chemistry is just physics applied to molecules. Mathematicians are at the top of this pyramid: they can say that other sciences are just maths

applied to anything. Maths deals with the underlying principles of language, logic and knowledge itself.

SOME PEOPLE SAY...

'Maths is too logical to be beautiful.'

WHAT DO YOU THINK?