

# physics and physicists

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## 1001 Inventions

This news article highlights the inventions and discovery from the Muslim world that has affected the rest of the world. It is based on the exhibit "1001 Inventions" that is currently running at the London's Science Museum. It includes several items that are relevant to mathematics and physics, and even the world of learning.

### 3. Flying machine

"Abbas ibn Firnas was the first person to make a real attempt to construct a flying machine and fly," said Hassani. In the 9th century he designed a winged apparatus, roughly resembling a bird costume. In his most famous trial near Cordoba in Spain, Firnas flew upward for a few moments, before falling to the ground and partially breaking his back. His designs would undoubtedly have been an inspiration for famed Italian artist and inventor Leonardo da Vinci's hundreds of years later, said Hassani.

### 4. University

In 859 a young princess named Fatima al-Firhi founded the first degree-granting university in Fez, Morocco. Her sister Miriam founded an adjacent mosque and together the complex became the al-Qarawiyyin Mosque and University. Still operating almost 1,200 years later, Hassani says he hopes the center will remind people that learning is at the core of the Islamic tradition and that the story of the al-Firhi sisters will inspire young Muslim women around the world today.

### 5. Algebra

The word algebra comes from the title of a Persian mathematician's famous 9th century treatise "Kitab al-Jabr Wa l-Mugabala" which translates roughly as "The Book of Reasoning and Balancing." Built on the roots of Greek and Hindu systems, the new algebraic order was a unifying system for rational numbers, irrational numbers and geometrical magnitudes. The same mathematician, Al-Khwarizmi, was also the first to introduce the concept of raising a number to a power.

### 6. Optics

"Many of the most important advances in the study of optics come from the Muslim world," says Hassani. Around the year 1000 Ibn al-Haitham proved that humans see objects by light reflecting off of them and entering the eye, dismissing Euclid and Ptolemy's theories that light was emitted from the eye itself. This great Muslim physicist also discovered the camera obscura phenomenon, which explains how the eye sees images upright due to the connection between the optic nerve and the brain.

If anyone reading this has visited the exhibit, I would appreciate some feedback.