MATHEMATICAL IMAGERY

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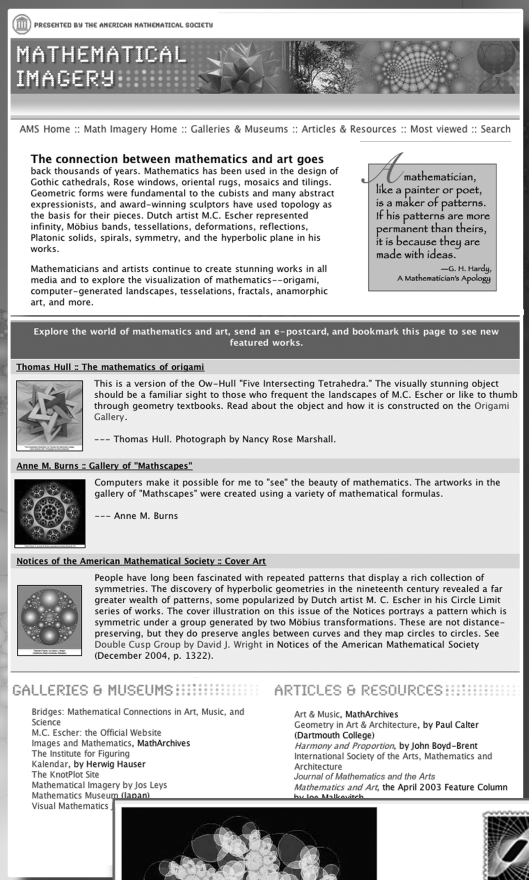

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MATHEMATICAL IMAGERY

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The connection between mathematics and art goes back thousands of years. Mathematics has been used in the design of Gothic cathedrals, Rose windows, oriental rugs, mosaics and tilings. Geometric forms were fundamental to the cubists and many abstract expressionists, and award-winning sculptors have used topology as the basis for their pieces. Dutch artist M.C. Escher represented infinity, Möbius bands, tessellations, deformations, reflections, Platonic solids, spirals, symmetry, and the hyperbolic plane in his works.

Mathematicians and artists continue to create stunning works in all media and to explore the visualization of mathematics--origami, computer-generated landscapes, tesselations, fractals, anamorphic art, and more.

A mathematician, like a painter or poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas.
—G. H. Hardy, A Mathematician's Apology

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Thomas Hull :: The mathematics of origami

This is a version of the Ow-Hull "Five Intersecting Tetrahedra." The visually stunning object should be a familiar sight to those who frequent the landscapes of M.C. Escher or like to thumb through geometry textbooks. Read about the object and how it is constructed on the Origami Gallery.

--- Thomas Hull. Photograph by Nancy Rose Marshall.

Anne M. Burns :: Gallery of "Mathscapes"

Computers make it possible for me to "see" the beauty of mathematics. The artworks in the gallery of "Mathscapes" were created using a variety of mathematical formulas.

--- Anne M. Burns

Notices of the American Mathematical Society :: Cover Art

People have long been fascinated with repeated patterns that display a rich collection of symmetries. The discovery of hyperbolic geometries in the nineteenth century revealed a far greater wealth of patterns, some popularized by Dutch artist M. C. Escher in his Circle Limit series of works. The cover illustration on this issue of the Notices portrays a pattern which is symmetric under a group generated by two Möbius transformations. These are not distance-preserving, but they do preserve angles between curves and they map circles to circles. See Double Cusp Group by David J. Wright in Notices of the American Mathematical Society (December 2004, p. 1322).

GALLERIES & MUSEUMS

Bridges: Mathematical Connections in Art, Music, and Science
M.C. Escher: the Official Website
Images and Mathematics, MathArchives
The Institute for Figuring
Kalendar, by Herwig Hauser
The KnotPlot Site
Mathematical Imagery by Jos Leys
Mathematics Museum (Japan)
Visual Mathematics

ARTICLES & RESOURCES

Art & Music, MathArchives
Geometry in Art & Architecture, by Paul Calter (Dartmouth College)
Harmony and Proportion, by John Boyd-Brent
International Society of the Arts, Mathematics and Architecture
Journal of Mathematics and the Arts
Mathematics and Art, the April 2003 Feature Column

"Circle Picture 10," by Anne M. Burns (Long Island University, Brookville, NY)

Dear Peter,

Here's one of the e-postcards from the site.

Nancy

www.ams.org/mathimagery