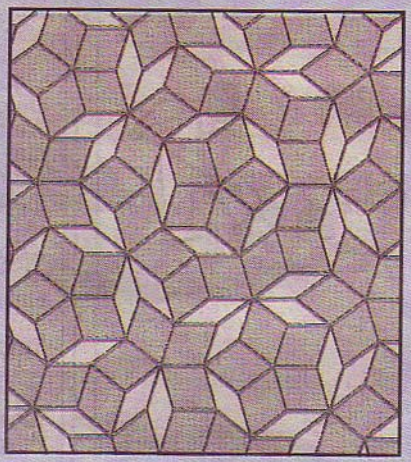
DR MATHS

WITH STEVE HUMBLE, HEAD OF MATHEMATICS, NEWCASTLE COLLEGE

Dear Dr Maths,
When I look around at building design, kitchen tiles and other man-made objects the geometry is always very symmetrical. Does geometry always have to be symmetrical?
John
Gosforth

Dear John,
It is often thought that geometry needs to be regular, symmetrical and ordered. This is mainly true but not always. You only have to look at Maurits Escher's artwork to see how beauty and irregularity can be combined to produce some wonderful images. Escher work can be found at many sites on the web such as www.worldofescher.com

I have heard it said that we find symmetrical faces more beautiful than non-symmetrical. Yet I find this hard to believe. Think about the old saying that 'beauty is in the eye of the beholder and imperfection has its own wonderment'.



Take a look at Roger Penrose's tiling. Here is a tessellation with a difference. If you look closely you can you see there is no symmetry, yet with this tiling it is possible to cover a vast area of floor space. Penrose tiling was discovered in 1974 and is called quasi-symmetry because remarkably the pattern never repeats.
It is nonperiodic, which means if you copied a section of it you would be unable to find another part of the pattern that was the same in every detail.
The Penrose tessellation is made up of a thin rhombus with internal angles and a fat rhombus with internal angles.
In my eyes Penrose tiling is beautiful. Take a look around you this week and see if you can see any maths. Send in your pictures that say maths to you.
Here is a puzzle for you to try:
What is the next number in this pattern 5, 7, 11, 13, 17, 19, 23, 29?
The first correct answer will win a copy of the book Mathematical Snacks by Jon Millington, published by Tarquin. The book is also available from the Discovery Museum shop.

■ **Do you have a maths question or problem? Write to Dr Maths, Evening Chronicle, Groat Market, Newcastle Upon Tyne, NE1 1ED or email: DRMaths@hotmail.co.uk**