



**DEAR Dr Maths**  
 I am reading a book called **Chanel: Collections and Creations**, by Danielle Bott, and on the inside cover of the book is a repeating pattern design of a camellia.  
 After reading your column about Alhambra Palace, Granada, in southern Spain, I thought it was interesting to see maths is used in fashion by Coco Chanel in her clothes design in a similar way.  
 Pat, Newcastle

"Fashion is not simply a matter of clothes," said Chanel. "Fashion is in the air, born upon the wind."  
 Chanel was a passionate woman who found the inspiration for her designs in the simplicities of everyday life. By looking around she saw pattern, symmetry and connections to her work.

Mathematical geometry has inspired many great artists over the ages. Some of the first links between maths and art can be seen in Greek statues which were built to the ratio of Phi or 1.618. This is called Divine Proportion, and was studied by the Greek sculptor Phidias who lived around 400BC.

If you measure the distance from the top of your head to the floor, and then divide the answer by the distance from your belly button to the floor, the answer should be close to 1.618.

The closer the ratio is to this number the more divine you are in the eyes of Phidias. For more on Phi, visit [www.summum.us/philosophy/phi.shtml](http://www.summum.us/philosophy/phi.shtml)

In 1494, Leonardo Da Vinci met up with Fra Luca Pacioli, who introduced him to Phi. Leonardo later illustrated Fra Luca Pacioli's book

"Divina Proportione" all about the way this number links to nature. Leonardo Da Vinci's work at this time has influenced a number of artists since then to use mathematics in their work.

It is said that Chanel also sought inspiration from the natural environment around her.

Throughout her career, Chanel made her home in The Ritz Hotel, Paris.

Her view overlooked the Place Vendôme, an hexagonal open area in the centre of Paris.

It was this shape that inspired many of Chanel's creations, including numerous watch faces as well as the stopper for the Chanel No 5 perfume bottle.

Chanel once said that "a fashion that does not reach the streets is not a fashion". Not only did Chanel bring her fashion to the streets, but she also used the natural geometrical environment around her to inspire her creations.

Here is a puzzle for you to try: Using the Coco Chanel logo as paths in a maze, how many routes can you find from the starting to finishing points? In each route you can only move along a path once. The first correct answer will win a copy of the book *Mathematical Snacks* published by Tarquin.

Do you have a maths question or problem? Write to Dr Maths, Evening Chronicle, Great Market, Newcastle, NE1 1ED or send an email to [DRMaths@hotmail.co.uk](mailto:DRMaths@hotmail.co.uk)

