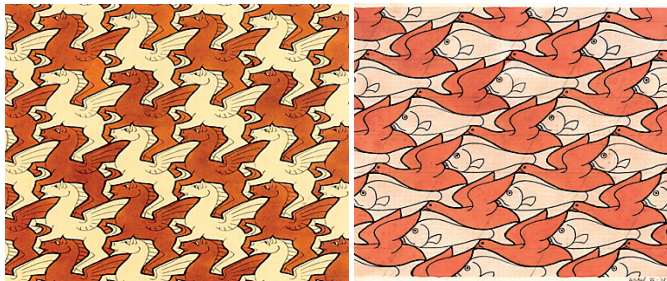
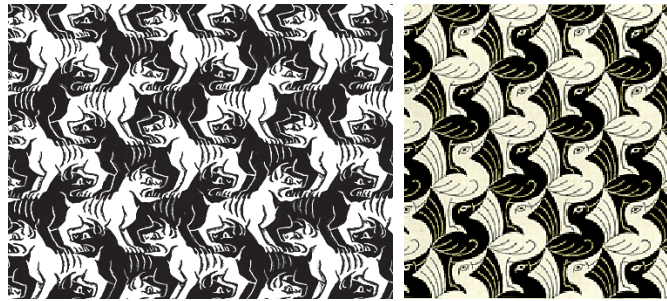


# Mathematics and Art

**Maths in Action 25**  
By R. N. A. de Silva

**M**athematics is described as an art motivated by beauty. One person who created unique and fascinating works of art that explore and exhibit a wide range of mathematical ideas is Maurits Cornelis Escher. He was a Dutch graphic artist who was born in 1898 and died in 1972. Most of his work centered on tessellations. They are arrangements of closed shapes that completely cover the plane without overlapping and without leaving gaps.



Mathematicians had shown that of all the regular polygons, only the triangle, square, and hexagon can be used for a tessellation.

Escher exploited these basic patterns in his tessellations, applying reflections, translations, and rotations to obtain a greater variety of patterns. He also elaborated these patterns by distorting the basic shapes to render them into animals, birds, and other figures. These distortions had to obey the symmetry of the underlying pattern in order to preserve the tessellation.



The effect can be both startling and beautiful. Some of his work is reproduced above.

M. C. Escher said “For me it remains an open question whether my drawings pertain to the realm of mathematics or to that of art”. In the next session, we will move into other areas that he combined mathematics and art.

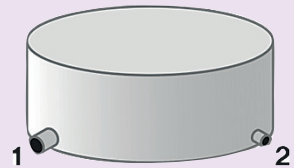
### Math Plot - 25

Try to find the solution to the puzzle below. You may send solutions with reasoning to [ndesilva@osc.lk](mailto:ndesilva@osc.lk) within the next three days. Please include your full name, date of birth, home address, contact details and school, along with the solution.

With pipe 2 closed, pipe 1 will empty the water tank in 1 hour.

With pipe 1 closed, pipe 2 will empty the water tank in 2 hours.

If both pipes are open, how long will it take for the water tank to empty?



### Math Plot 24 - Solution

The solution is  $106 + 19722 + 82524 = 102352$  (6 and 4 are interchangeable).

The winner is Samuel Joshua of St. Benedict's College, Ampitiya. Congratulations!

## Celebrating Ramadan

**L**ights blink on in homes as night falls on a community. The scent of food begins to waft into the evening air. It smells extra delicious to the people in the homes, who haven't eaten all day. They're observing Ramadan, a sacred month in the religion of Islam. And the darkened sky is a signal that it's time to feast!



Ramadan is the ninth month on the Islamic calendar, which marks important holidays and events for Muslims (people who practice Islam). During Ramadan people fast, or refrain from eating and drinking, while it's light out.

Once the sun sets, families meet for big meals that may include stew, rice, dates, lentils and more. People also have a morning meal before the sun rises.

For the hundreds of millions of Muslims around the world who observe Ramadan, the month is a time to focus on their faith and also perform generous acts. People raise money and donate



supplies to help others in need. And many fast to remind themselves about those in the world who don't have enough to eat.

After the last day of Ramadan, a three-day festival is held. Families and friends gather together to celebrate. They sometimes decorate homes with lights and exchange gifts. As for food, people eat all sorts of things including candies and pastries — and during this time, fasting is not allowed.

Text by Andrea Silen  
National Geographic