King Edward VI Camp Hill School for Girls

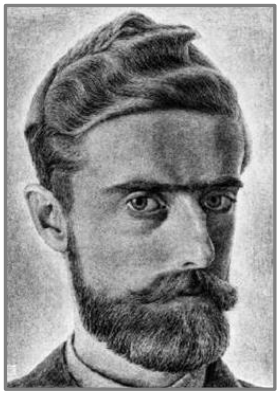
Maths Department Newsletter

12th June 2018

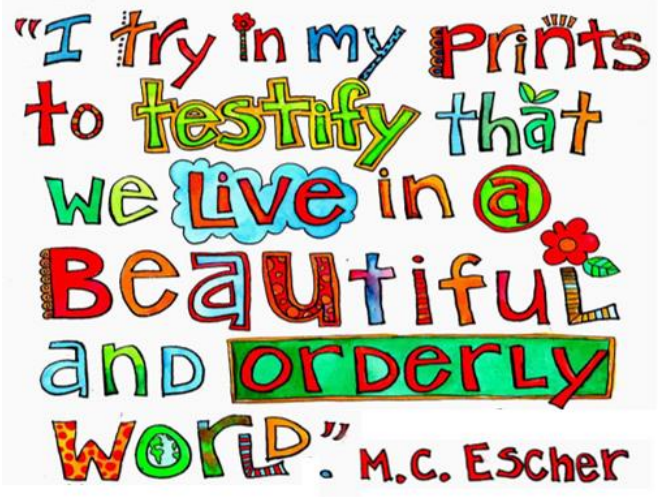
47 is the most frequently occurring random number[1]

News

So it's June and we're heading towards the summer holidays. The Junior Kangaroo and Olympiad are today, the Edge Hill round two posters have been sent off, and the UKMT Junior Team Maths Challenge students are going to London next Monday to compete in the national finals. On 17th June, it would also have been the 120th birthday of the famous twentieth century mathematical graphic artist, M.C. Escher. If you like clever artwork, such as pictures that contain impossible objects and ideas relating to infinity, then he's well worth finding out more about. Year 7 have recently been taking part in a competition to create a piece of original mathematical art. Hopefully, we'll be able to show you some of the winning entries in the next maths newsletter.

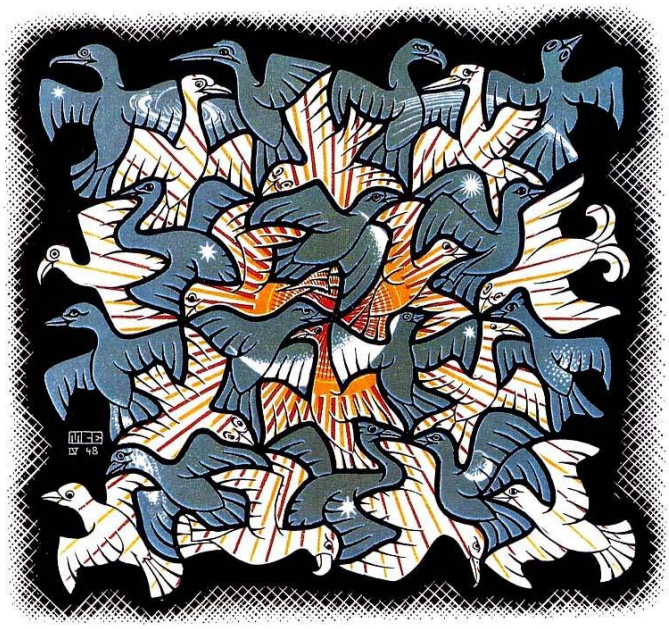


Maths Quote



Maths Word

To **tessellate** means cover a flat surface by the repeated use of a single shape, without gaps or overlapping. The word comes from the Latin *tessera*, meaning a small block of stone, tile or glass, used in the construction of Roman mosaics. Some simple regular polygons tessellate, like triangles, squares and hexagons, but lots of shapes do not tessellate. Here is a picture by M.C. Escher in which he plays with the idea of tessellation using lots of different birds. Do you think this really counts as a tessellation though?

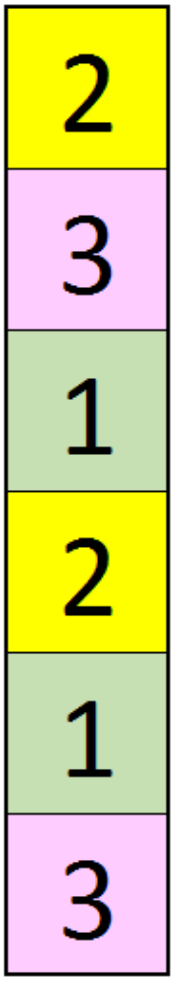


Joke

1. Apparently – as weird as it sounds, there is quite a bit on the internet about this.

Langford's Cubes

Mr Hamblett has started a competition in the maths department, based on the Langford's Cubes puzzle.[2] This is the puzzle where you arrange two sets of the numbers from 1 to n in such a way that between each pair of numbers that are the same, there will be that many other numbers. For example, if you look at the six numbers by the side of this text (which are 231213 if you can't be bothered to look to the side) you will notice that between the two 1s there is one number, between the two 2s there are two numbers, and between the two 3s there are three numbers.



Your challenge is to do this using the numbers from 1 to 8. Here is an example:

15146785423627 38

There are 150 ways of arranging two sets of the numbers from 1 to 8 in this way. If you find any of them, take them to Mr Hamblett and he will check to see if it's one we've already found. If we haven't, you can have a house point.[3]

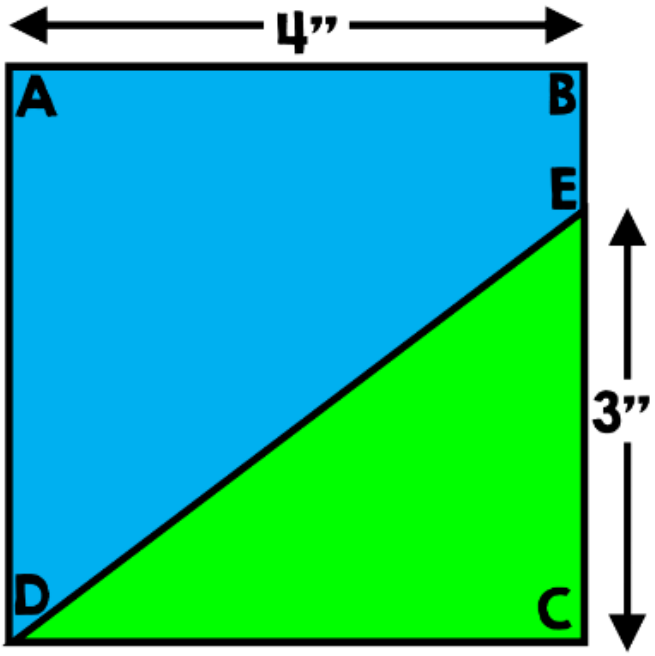
Name the Mathematician

Can you name this small German mathematician?[4] The first person to tell us who he is will win a prize.

Puzzle from the Past

Here's a question from an old O-Level Maths paper from 1952 (courtesy of Chris Smith @aap03102).

A triangle EDC is cut away from the square ABCD. Calculate the length of the remaining figure ABED.



Another Puzzle

Here is another puzzle that some people found difficult earlier this year. We're not sure why…

A man buys a horse for $60, then sells it for $70.
He buys the horse back for $80, and then sells the horse for $90. How much money did he make or lose?
Or did he just break even?

Tell your maths teacher
If you work it out.

2. You may have done the Langford's Cubes puzzle in year 7.
3. Don't forget, it's House Festival soon, and you'll need as many house points as you can get for that!
4. As in 'find out who he is' – it's not that he doesn't have a name, like those 'name the teddy' competitions.