BRAINTEASERS

SHORT ONES TO WARM UP:

1. What is three times one fifth of a third of 30?
2. One inch is 2.54 centimetres. Which is longer 10cm or 4 inches?
3. What is 4 multiplied by a half?
4. What is 4 divided by a half?
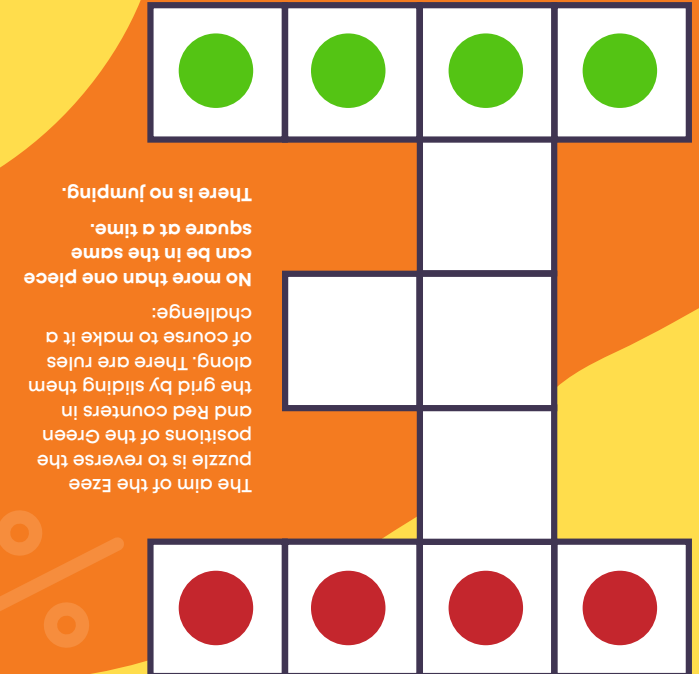5. What is 20% of 10?

A LITTLE HARDER:

6. You have 4 white socks and 3 black socks loose in a drawer. How many socks would you have to pull out to be certain of having a pair of the same colour?
7. I have €2.80 in my pocket in equal numbers of 5, 10 and 20 cent coins. How many of each coin do I have?
8. I saw a duck in front of two ducks, a duck between two ducks and duck behind two ducks. How many ducks did I see?
9. Anne, Bill, Ciara and Dave have a race. Bill finishes two places ahead of Dave, Anne finishes two places ahead of Ciara. Ciara finishes ahead of Dave. In what position did Bill finish?
10. Mary has twice as many brothers as sisters, while her brother John has twice as many sisters as brothers. How many children are there in their family?

A GOOD BIT HARDER:

11. 10 people are in a room and the average age is 20. A child comes in and lowers the average to 19. How old is the child?
12. I saw geese and sheep in a field. I counted 44 heads and 144 legs. How many sheep and geese did I see?
13. A bag contains money in 5, 10 and 20 euro notes. You would have to take 15 notes out of the bag to be certain of getting a €20. You would have to take 12 notes out to be certain of getting a €10 and you would have to take 17 out to be sure of getting a €5. How much money is in the bag?

COUNTING COUNTIES

Do you know all the counties of Ireland?

Our map of Ireland is a strange one. It doesn't represent the real shape and size of the counties, but shows how many other counties they border (with the connecting line).

Can you find all the counties on our map and fill in their names?

MAGIC SQUARE

A magic square is an arrangement of numbers in a grid, so that the numbers in each row, column and the two diagonals all add up to the same amount.

The 3x3 magic square uses the numbers from 1 to 9. Can you figure out where the missing numbers go?

		4
	3	9
8		9

Each column and row adds up to 34. But, this is a very special magic square. There are many more groups of four numbers that add up to 34.

How many can you find?

When do you think this picture was drawn?
(the clue is in the square)

This is a section from a picture by Albrecht Dürer (1471–1528) it shows a 4 x 4 magic square. To make it easier to read, it is presented below.

16	3	2	13
5	10	11	8
9	6	7	12
4	15	14	1

SHAPES

Which one of the following shapes, when folded along the lines shown will not form a closed cube?

1.
2.
3.

Is it possible to arrange the digits 1 2 3 4 5 6 7 8 9, one in each square of the cross, such that the sum along the vertical column equals the sum along the horizontal row?

AN EZEE PUZZLE

These moving coin puzzles were popularised by the great English puzzler Henry Dudeney (1857–1930). They can be played with coins or counters or any objects that make two distinct sets of four.
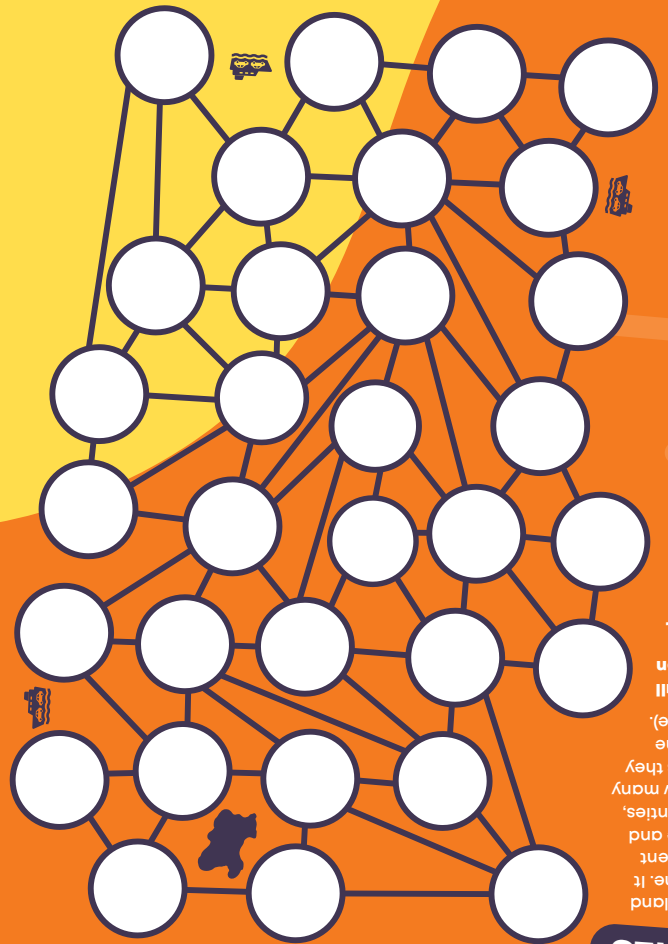
The aim of the Ezee puzzle is to reverse the positions of the Green and Red counters in the grid by sliding them along. There are rules of course to make it a challenge:

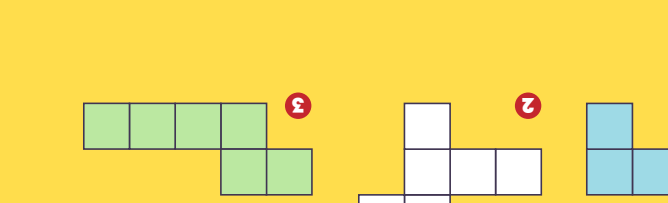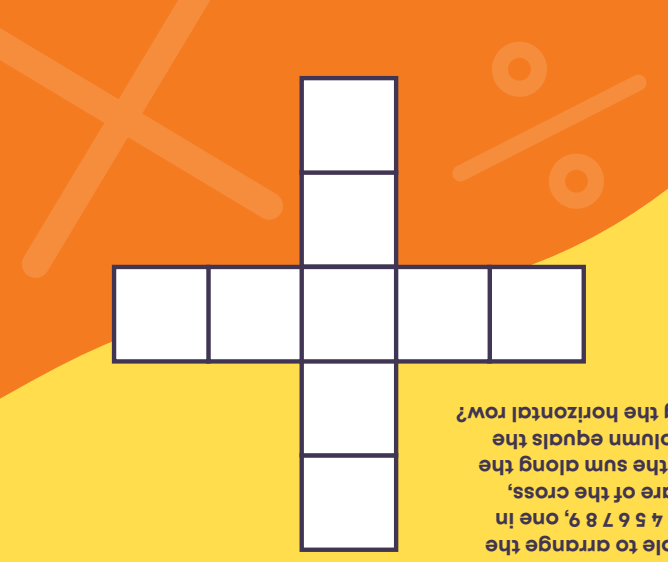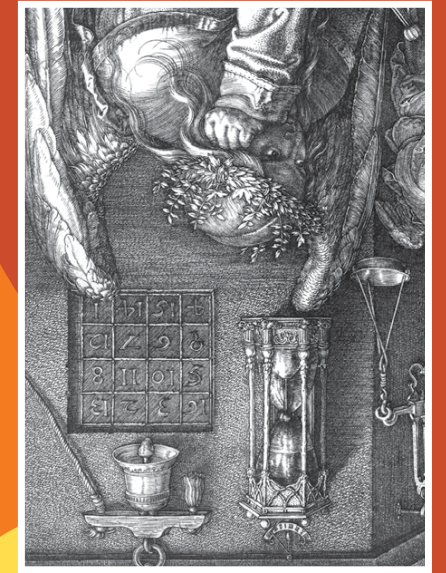No more than one piece can be in the same square at a time. There is no jumping.

MATHs WEEK

BRAIN WORKOUT

For more information see **www.mathsweek.ie**

Maths Week Ireland is an annual all-Island celebration of mathematical thinking.

A basic proficiency in maths is necessary in daily life. Basic maths is needed in most jobs and a higher level of maths opens the door to many rewarding careers. Mathematics is particularly useful in describing behaviour of the natural world and helps us understand and predict impacts of such things as the climate emergency and pandemics.

Over **400,000 people** are taking part this week in activities in school, events at universities and other venues across the island, and online. Public and family events include a Celebration of Mind at the **National Botanic Gardens Dublin** this **Sunday, 23rd October.**

Maths Week was founded by Calmast, the STEM Engagement Centre at South East Technological University.