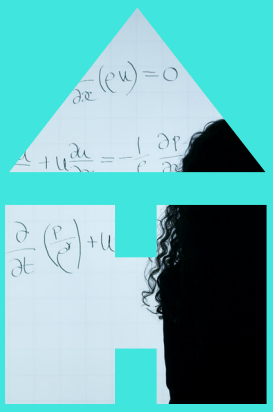
RTÉ Home School Hub

Friday 12th March



3rd & 4th Class
Maths

Multiplication

Today Múinteor John showed us how there are various ways to do multiplication than the way we learn at school. Even though they are different, they get the same results.

For example, look at how we do multiplication when we multiply 121 x 14. We usually start by multiplying 4 with the top line, then multiply the top line by 1, like below.

121	
x 14	
484	(multiply top line by 4 you get 484)
+1210	(Add a 0 and then multiply top line by 1 and you get 1210)
= 1694	(add the two lines to get your answer 1694!)

Japanese Line Method

But there are different ways of doing maths around the world!

Japanese Line Method: This will blow your mind! Let's try 14 x 23 using our method first.

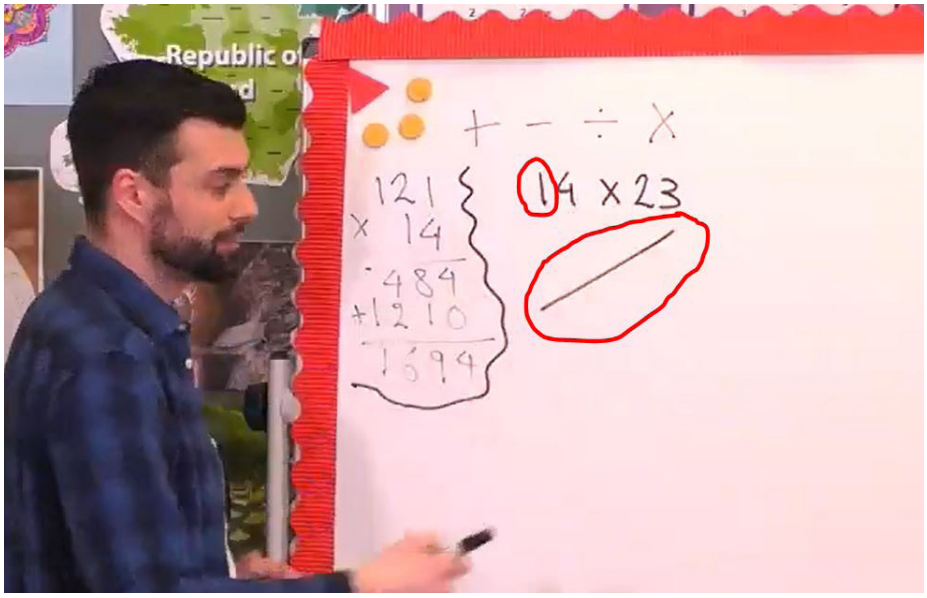
$$\begin{array}{r} 14 \\ \times 23 \\ \hline 42 \\ +280 \\ = 322 \end{array}$$

But the Japanese do it very differently and much more visually. So taking 14 x 23 again.

Step 1

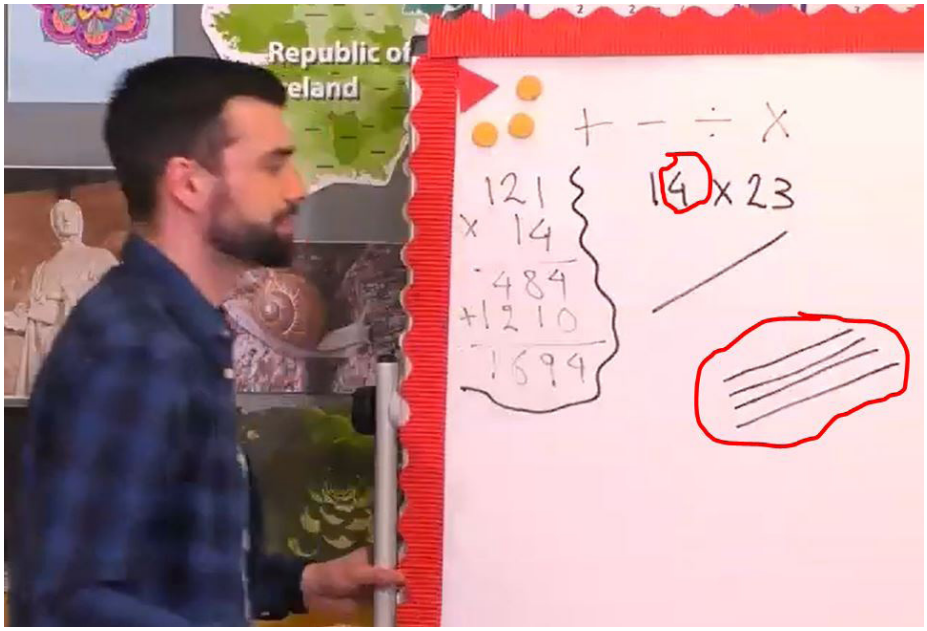
We need to split 14 into tens and units, so that is 1 and 4.

We draw a single diagonal line to represent the 1 like below.



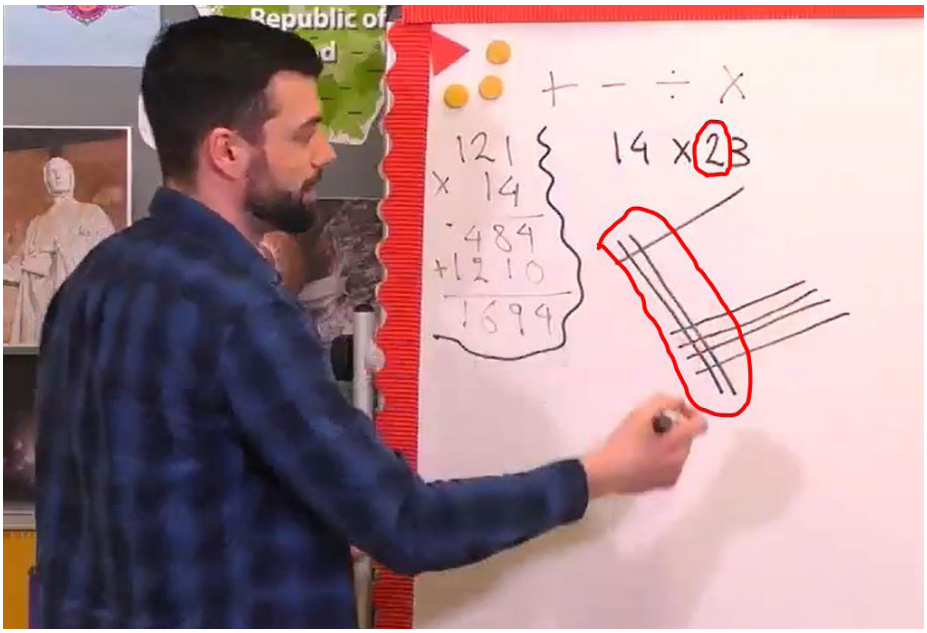
Japanese Line Method

Then draw another 4 diagonal lines to represent the 4.



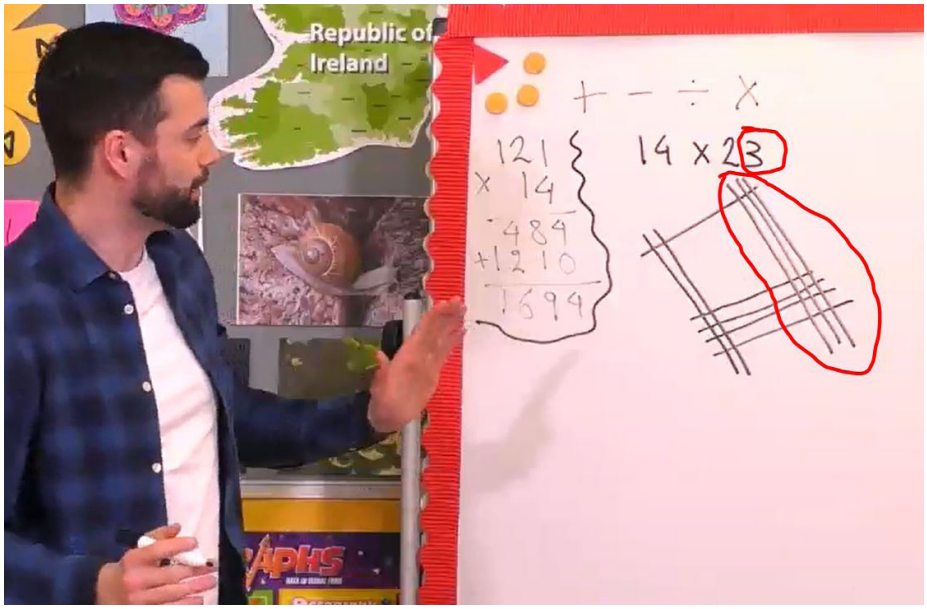
Step 2

Let's do the same with 23 and split it into 2 and 3. Draw 2 lines across the lines you have already drawn like below:



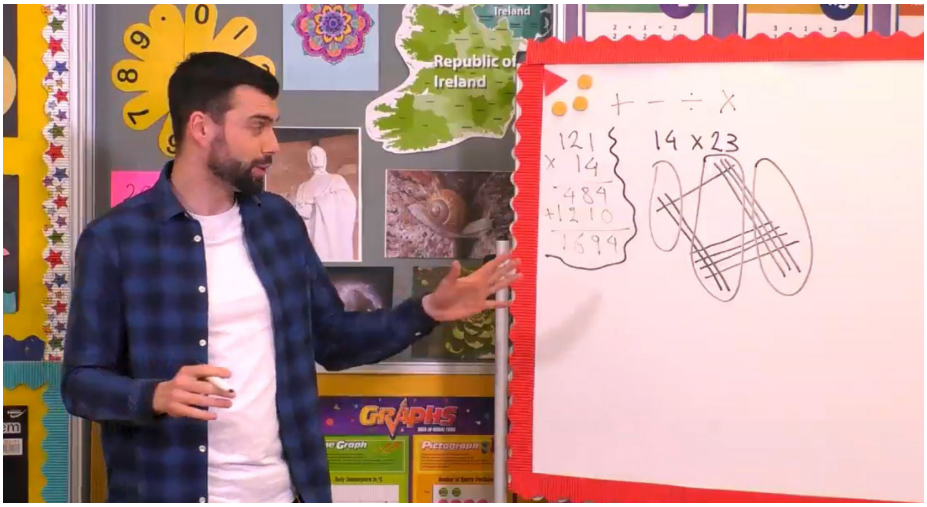
Japanese Line Method

And the same with 3, draw another 3 lines.



Step 3

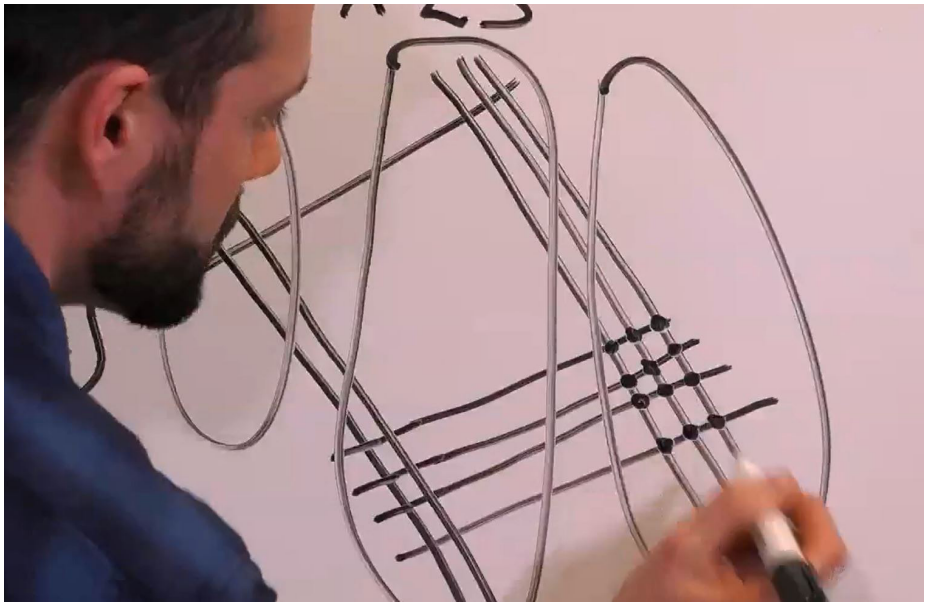
Now, split the lines into three groups and draw loops around them. So one loop on the right-hand side, one loop in the middle and a final loop on the left.



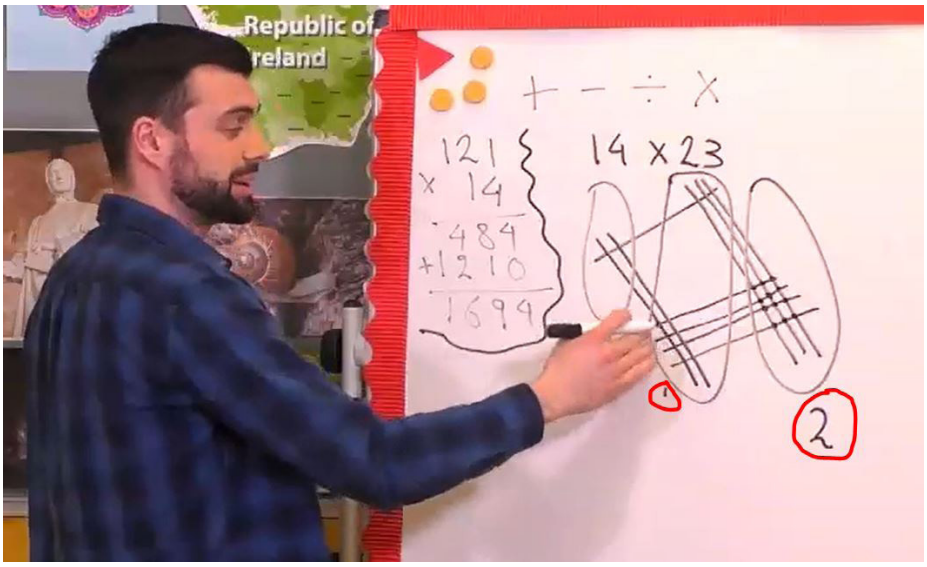
Japanese Line Method

Step 4

Starting with the right-hand loop, count anywhere the lines cross. Múinteoir John counted 12 below, marking them with black dots.



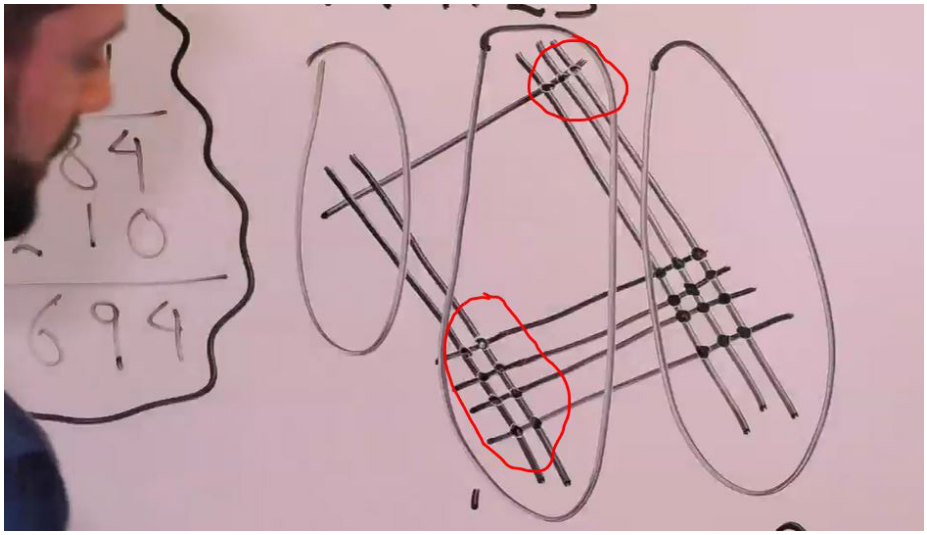
Using the 12, write down 2 under the loop and carry 1 over to next loop.



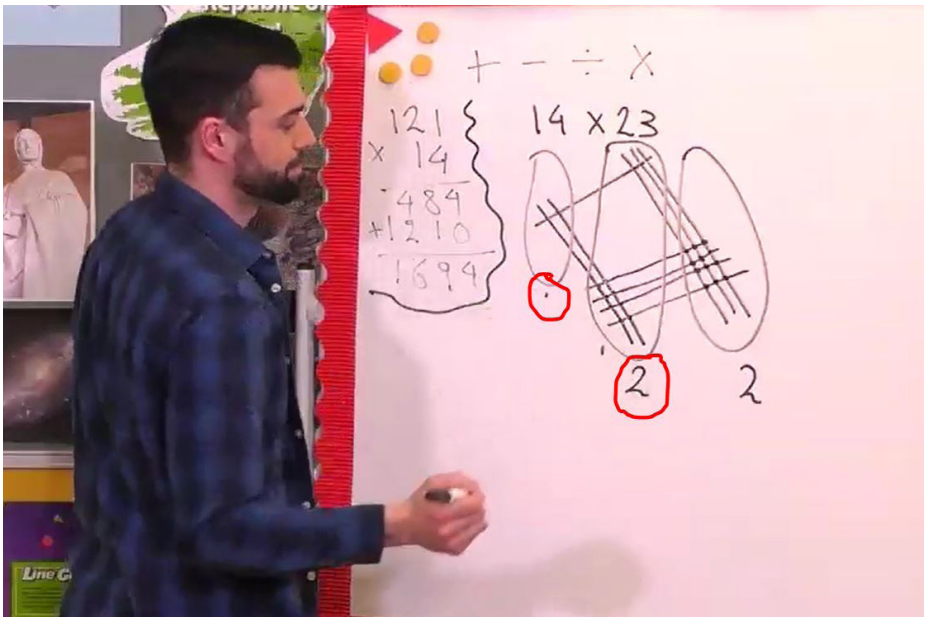
Japanese Line Method

Step 5

Count where the lines cross again, including the top and bottom. Múinteoir John counted 11 and marked them with black dots. Now add the 1 you carried over and you get 12.



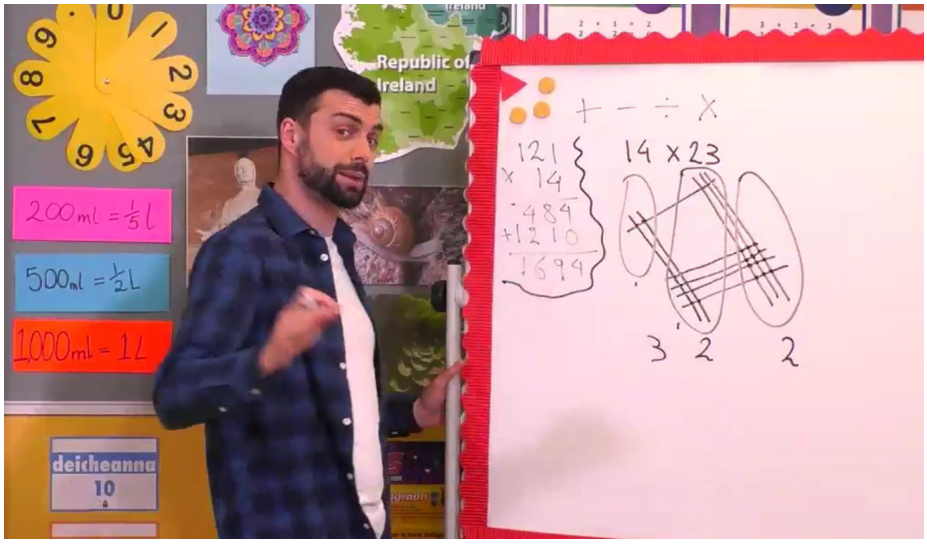
Write 2 under the middle loop and carry the one over the last loop.



Japanese Line Method

Step 6

Count where the lines cross again in the last loop and you will get 2. Add the 1 you carried over and you will get 3.



Write 3 under the last loop and amazingly, you get your answer at the bottom, 322! The same answer we get doing maths our way!

Do the following multiplication using the Japanese Line Method. Answers at the bottom of the page.

A) 16 x 34

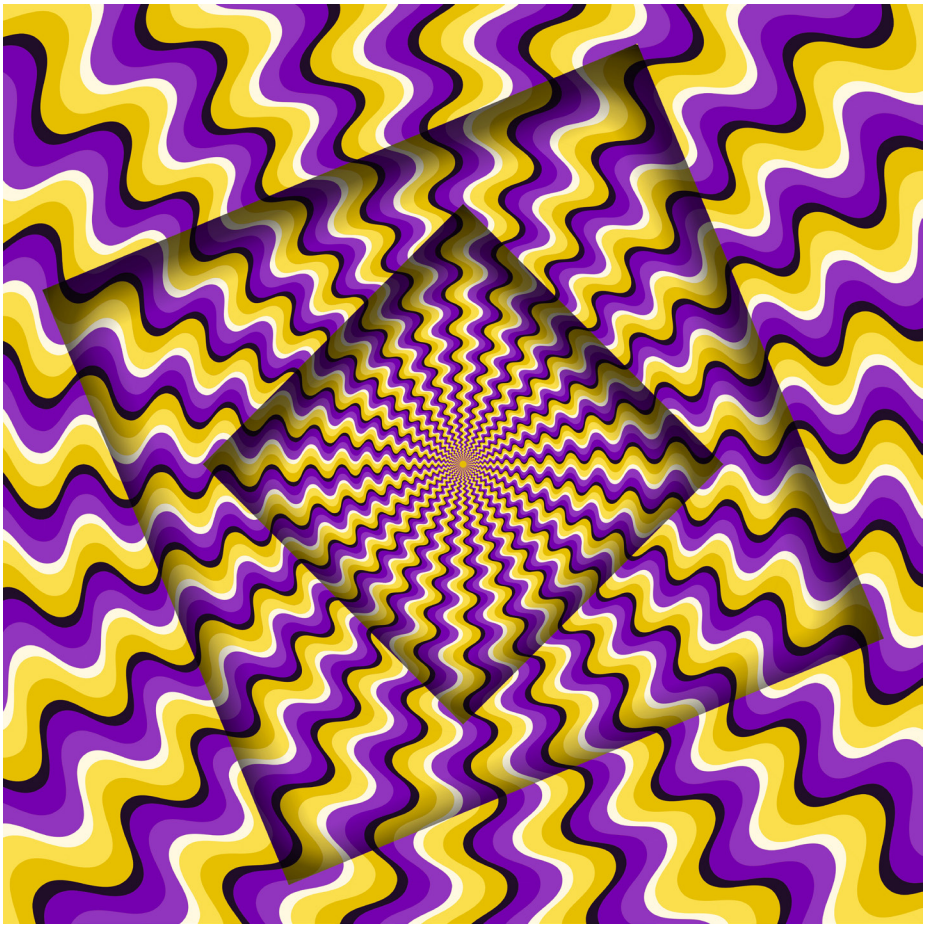
B) 22 x 34

Cool Patterns

The Japanese Line Method is a cool way of creating a pattern that we understand to multiply numbers. But some patterns completely confuse our brains.

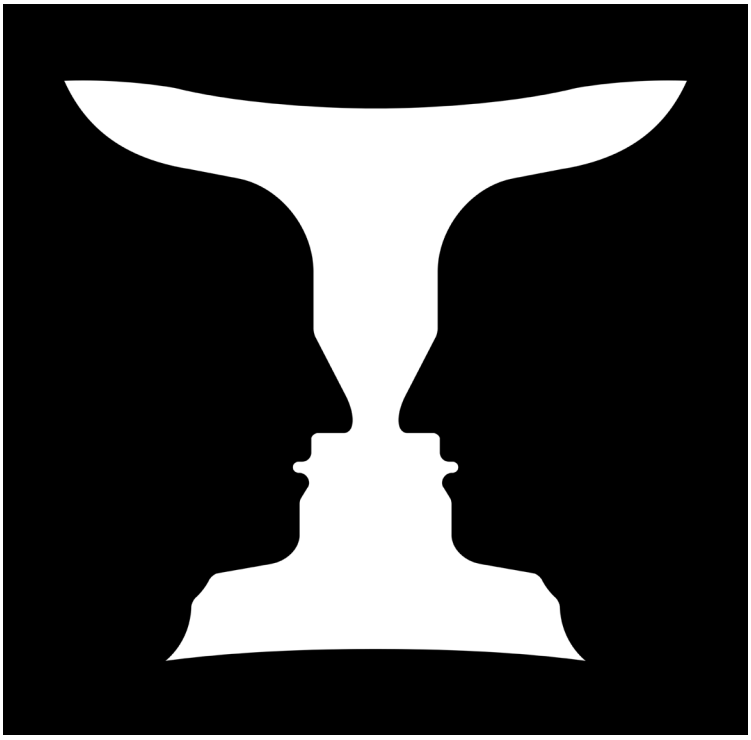
This pattern below looks like it is moving but it isn't! How weird is that?

Sometimes our brains interpret patterns that don't exist, like how we sometimes see faces in objects.



Cool Patterns

What do you see below?



Look again! Do you see a vase or two faces? Or both?

Checker Shadow Illusion

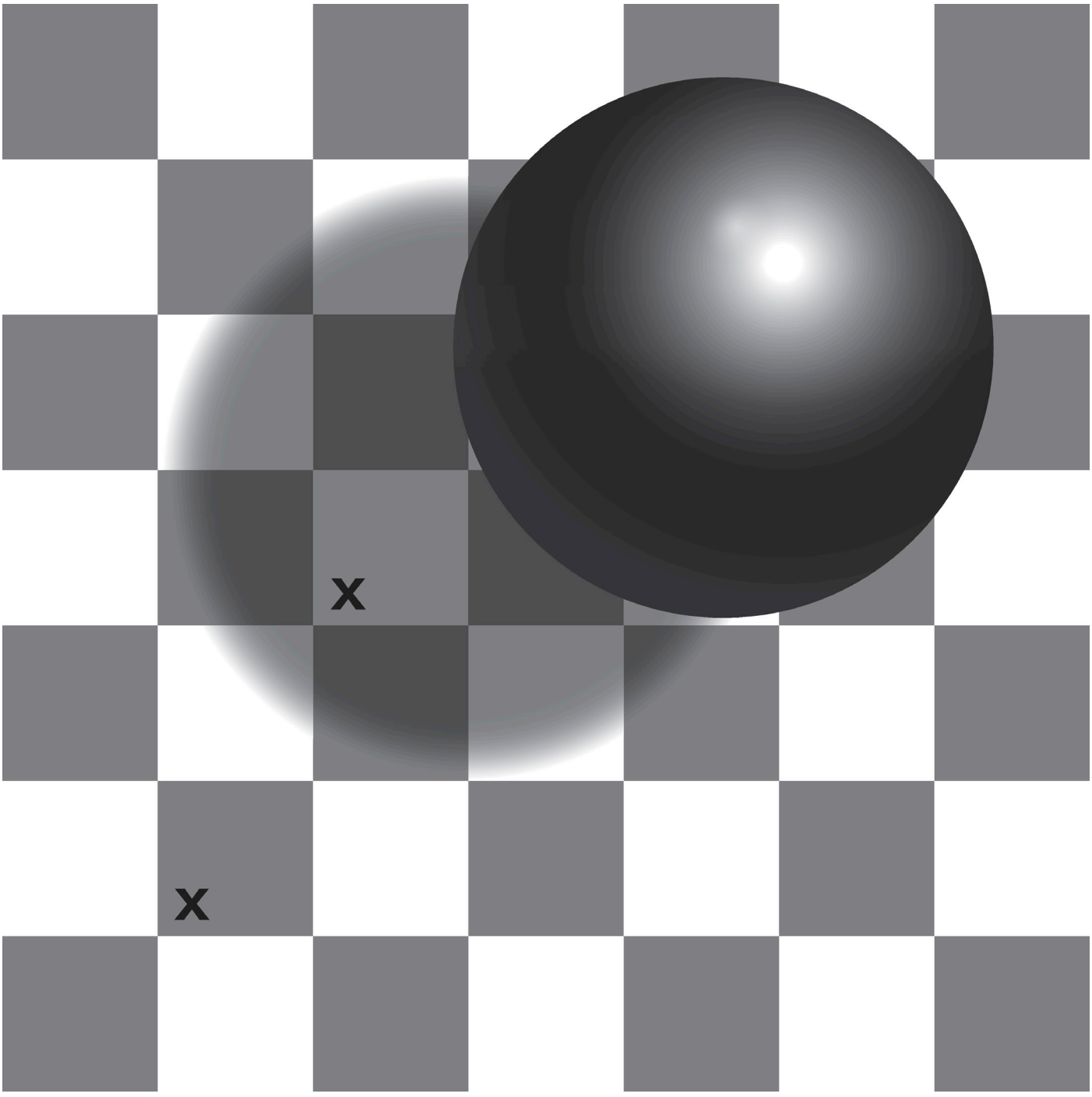
This is so weird. You will need a scissors and some help from an adult. Cut out the image below.

Look at the squares marked with an X. They look like they are different shades of grey. But they are actually the exact same colour! Don't believe it? **Cut out each X and place them side by side.**

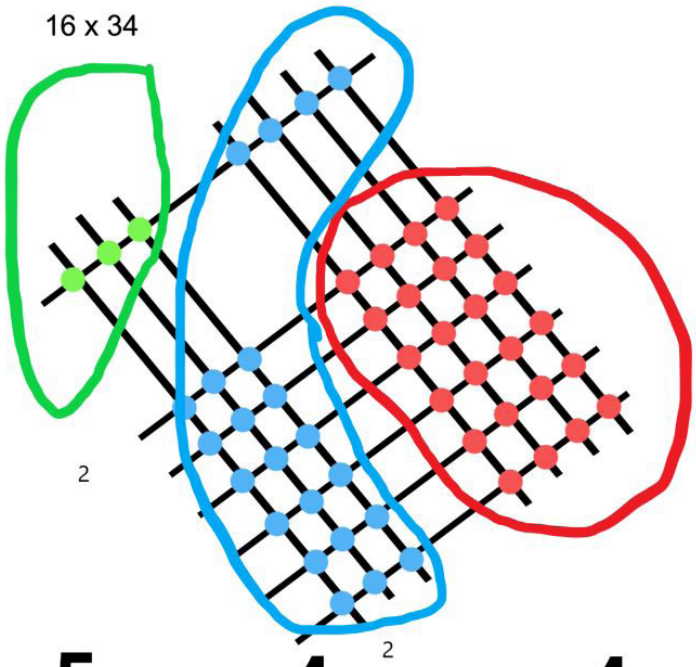
This is the X closest to the circle

And this is the X below it

How weird is that! They are the exact same colour!

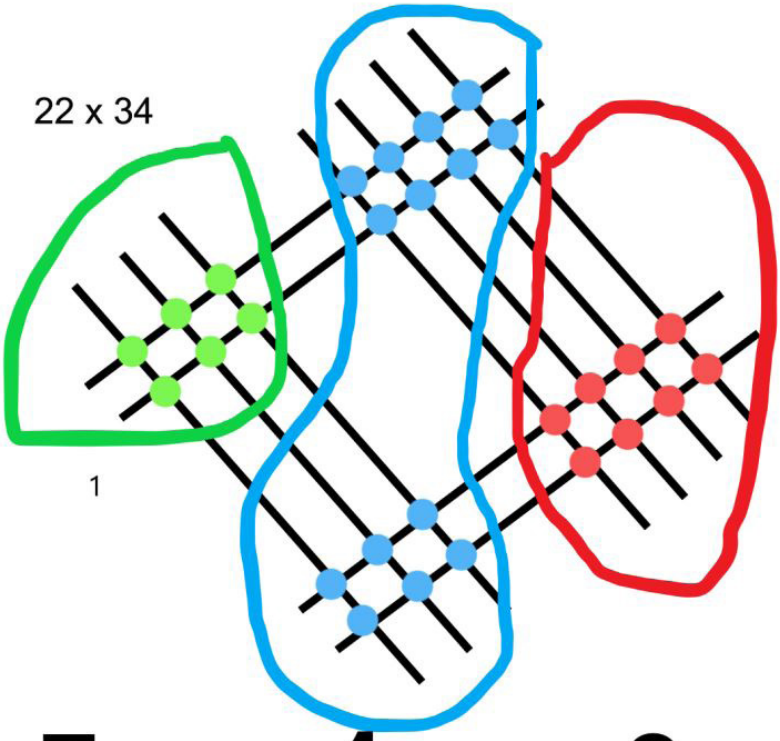

x
x

16 x 34



5 **4** **4**

22 x 34



7 **4** **8**

Answers