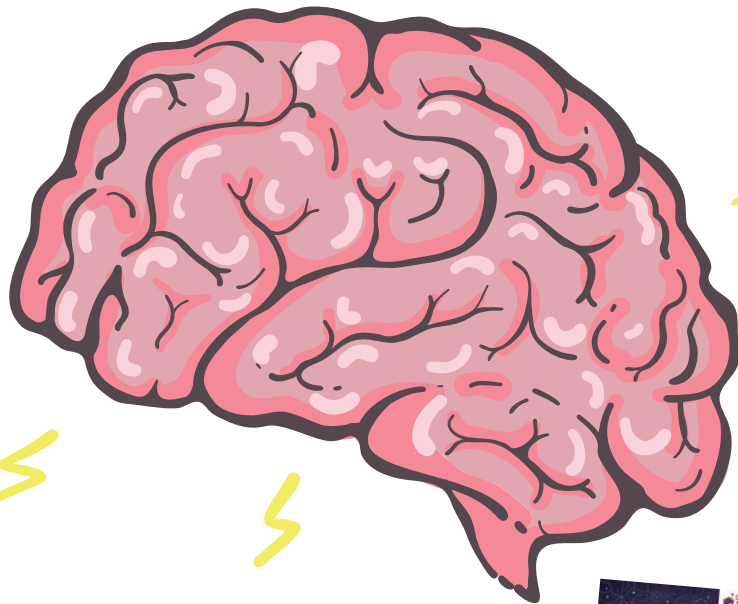


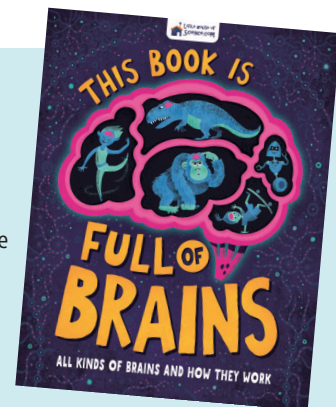
Train your brain!



Your brain is a mighty organ capable of making a billion billion (that's one followed by 18 zeros) calculations every second. Try these experiments to test your brain's computing power.

WIN!

These brain-busting experiments came from *This Book Is Full of Brains* by Little House of Science. In the book, discover the gruesome history of neuroscience (the science of the brain); look at how animals think; try some easy-to-do experiments; and find out about all the remarkable things your brain can do. To win one of five copies of *This Book Is Full of Brains*, just send your name and address to competitions@science-nature.co.uk by 23.59 on 14 October 2021. Make sure you put BRAIN BOOK in the subject line in order to enter. For terms and conditions go to sciencenature.theweekjunior.co.uk/terms



Test your frontal lobe

Learn and repeat this sequence of movements to check your muscle memory.

How does it work?

This three-step movement test is a genuine clinical trial called the Luria test. Being able to remember and copy the actions assesses how well the frontal lobe – the part of your brain that controls voluntary movements, gives you your thoughts and ideas and helps to define your personality – is working. People with damage to the frontal lobe are often unable to order their movements.



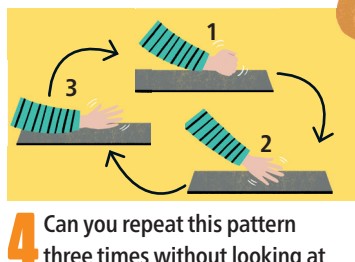
1 Hit a table or other flat surface gently with the side of your fist.



2 Then hit the table with the palm of your hand.



3 Next, hit the table with the side of your hand, like a karate chop.



4 Can you repeat this pattern three times without looking at the instructions? If you succeeded, congratulations!

The motor cortex controls movement.



This is your frontal lobe.

The Broca area puts your thoughts into words.



Memory magic

See how many random words you can remember in this simple assessment.

WOW!
In 2006, a German man was able to remember 1,040 random numbers in 30 minutes by picturing them placed around his house.

1 Study the 12 words below, then cover them up and write down as many as you can remember on a piece of paper. How many did you get?

- | | | |
|----------|---------|-----------|
| Magician | Cactus | Hot |
| Rabbit | Violin | Telephone |
| Cups | Tuesday | Potato |
| Monkey | Happy | Shower |

How does it work?

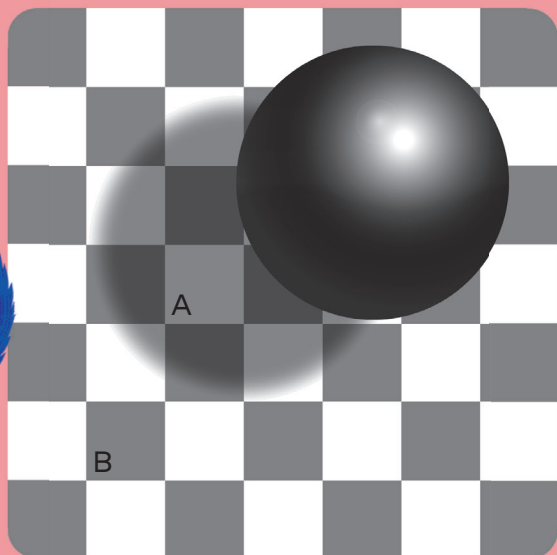
The hippocampus, a part of your brain buried deep inside it, helps you learn and remember facts. It is also the part of your brain that converts short-term memories into long-term memories. If you want some help remembering the words, try thinking of a funny image. For example, you could imagine a monkey sitting on a cactus playing a violin to remember those three words.



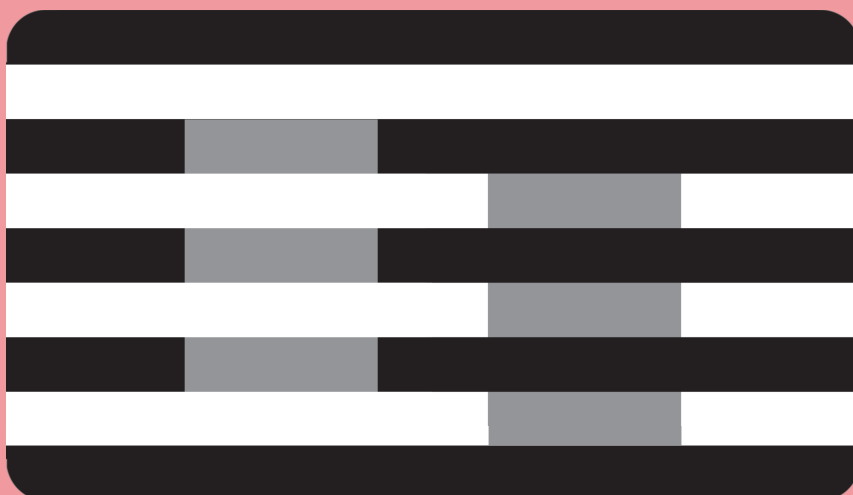
Is seeing believing?

Your brain can trick your eyes into seeing something that isn't really there. Try these two experiments to put your eyes – and brain – to the test.

1 Take a look at the chequered board. Which of the two grey boxes – "A" or "B" – is darker?



2 Next, try this one. Which of the two grey columns is darker?



How does it work?

A part of your brain called the occipital (say ock-sip-it-tal) lobe translates information from your eyes into images. However, your brain also interprets what it sees, combining the input from your eyes with previous experience, to arrive at a best guess for what is out in the world. The draughts board is just a 2D picture, there is no shadow there. If you were looking at 3D scene, of course, tile "B" really would be darker than tile "A". By clever use of contrast, both images make it look as if one block is darker than another when, in fact, they only contain one shade of grey. Cover up the areas between each block and you'll see that they are actually the same.

