



EYE INSIGHTS

OUR eyes are amazing organs, with about two million working parts.

They turn light and images into electrical impulses that our brain can understand.

Light passes through the cornea, the clear front layer of the eye, which is shaped like a dome and bends light to help the eye focus.

Light enters our eyes through the black spot in the middle, which is known as the pupil.

The pupil is actually a hole in the eye, and it can change size with the help of the coloured area around it, the iris.

By opening and closing the pupil, the iris controls the amount of light that enters the eye.

The iris will open the pupil when it's dark, to let more light in.

In bright light, the iris will shrink the pupil.

The light then passes through the lens, a clear inner part of the eye.

It works together with the cornea to focus light correctly on the retina, which is located at the back of the eye.

The retina uses light-sensitive cells to help us see shapes and colours, and change the light into electrical signals.

The optic nerve takes these signals to your brain.

Your clever brain then turns the signals into the images you see.



PICTURES: iStock/ fotoadrenalina/ gvictoria/ RHJ

Did you know only one-sixth of your eyeball is visible?

But, as clever as it is, our brains are reliant on the signals sent by the eyes, and can be tricked into seeing things that do not match the true image.

It might be convinced that objects are moving when they are not, or into "seeing" shapes, shades or colours that aren't really there.

This is known as an optical illusion, and can be created by the use of colour, light and patterns which confuse our brains.

The problem is the messages our eyes send to our brains are quite simple and limited.

Most of the time our brains can adapt, and guess the images

from these simple clues. Sometimes though these guesses are incorrect.

Check out the examples of optical illusions on the back of today's edition of *The Wonder Weekly*.

There are many other examples of optical illusions online, and in books at your local library.

You might like to try drawing one, or several, of your own.

Children's University Tasmania members can earn stamps in their passports for this challenge, at the discretion of their school coordinator.

Do not stare at optical illusions if you suffer from photosensitive epilepsy.

Fun facts about human eyesight



1. It is impossible to sneeze with your eyes open.
2. People blink about 12 times a minute, on average. That's about 10,080 blinks a day.
3. It is very rare for people to actually be colour blind and only see the world in shades of grey. But some people are colour deficient, and cannot see as many colours as people with normal vision. They can also mix up colours.
4. There was a time,

A look at the animal world

Next week's edition of *The Wonder Weekly* will focus on the science of animal eyesight.

Did you know owls cannot move their eyeballs?



- thousands of years ago, when everyone in the world had brown eyes.
5. Your eye muscles allow you to look in different directions, and are the

fastest muscles in the body, contracting in less than 100th of a second.

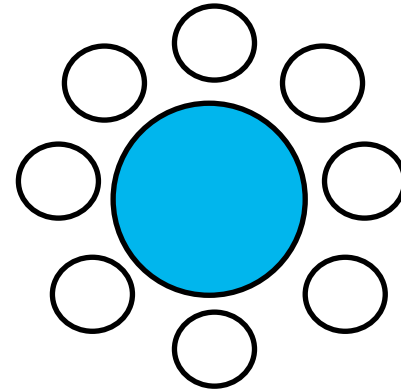
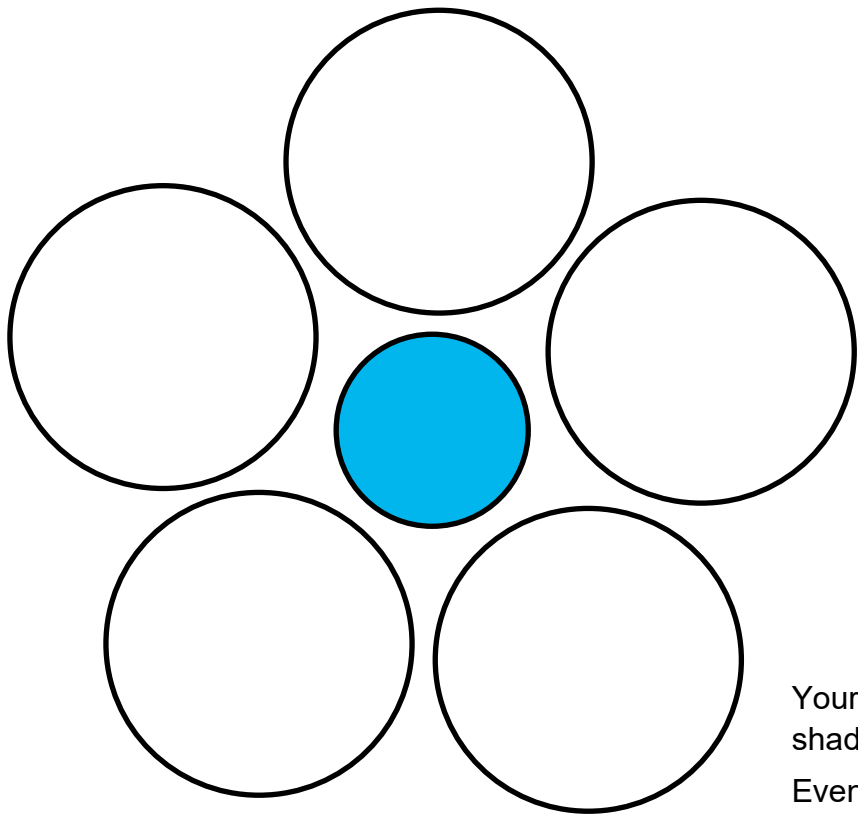
6. Leonardo da Vinci had an eye condition which may have helped him to become

a brilliant artist. One of his eyes turned outwards, which allowed him to use both his eyes separately.

7. Your eyes contain 120 million light-sensitive cells.
8. Eyelashes protect your eyes from sunlight, dust and sweat.
9. Tiny mites help keep your eyes safe from infections by removing dirt and debris from your eyelashes and eyebrows.
10. Your eyes can tell the difference between 10 million colours.

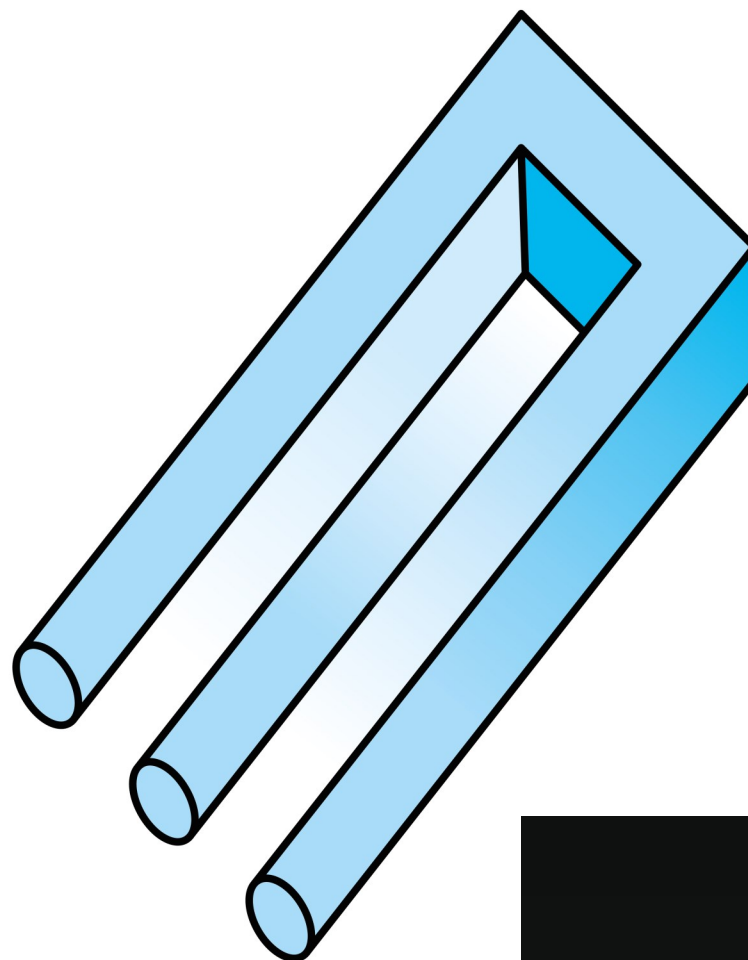
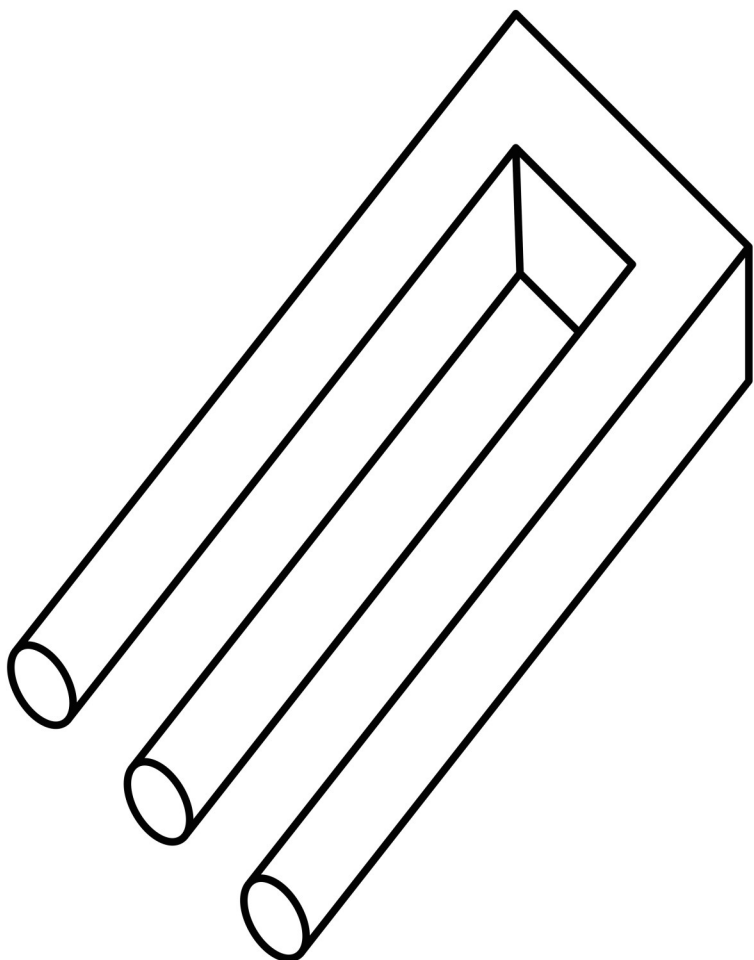
Circles of mystery

Would it surprise you if we said both coloured circles are the same size?
Measure them if you don't believe us.



Your brain is being tricked by the surrounding empty circles into believing the shaded circle on the right is larger.
Even after you have measured the two coloured circles and know they are the same size, your brain is not convinced.

The impossible trident



The shapes above are blivets, which are also known as the "impossible fork" or "impossible trident."

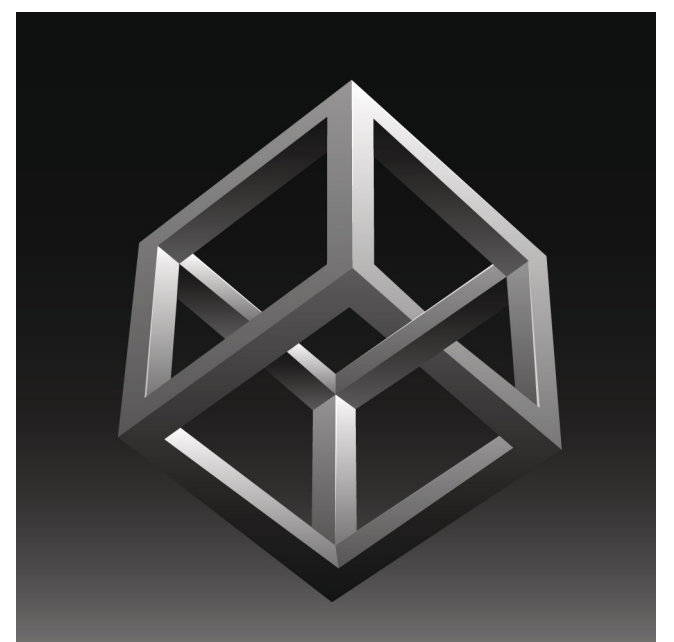
A blivet appears to have three cylindrical prongs at one end, but they transform into two rectangular prongs at the other end.

It is a type of optical illusion, known as an impossible shape.

These are drawings that use what is called "incompatible perspective" to trick our brains.

The interesting thing about blivets, is that the longer the prongs are drawn, the more convincing the illusion becomes.

Other impossible shapes include the impossible cube, pictured right.



IMAGES: iStock/ PeterHermesFurian/ martin