

ALL ABOUT EYES!

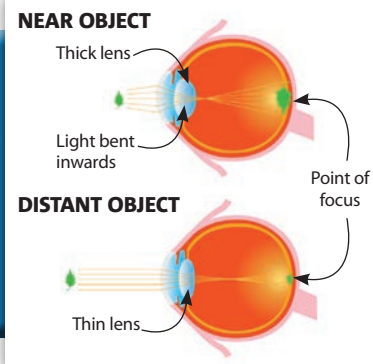


Peer into your peepers and find out how we see!

As you look around you, two small squidgy balls on the front of your face are working overtime to provide a multi-colour, constantly moving, perfectly focused view of this amazing world. So how do they do it? Whenever your eyelid is open, light enters your eye through the **pupil**. The light then passes through a **lens** which adjusts to **focus** the light onto the lining at the back of your eyeball, known as the **retina**. The retina is covered in millions of **light-sensitive cells** which transform the light into **electrical signals**. These signals zoom along the **optic nerve** to the **brain**, which interprets them into info-packed images. Wow! Let's take a closer look...

FOCUS!

Eyes have extraordinary **focusing powers**. They can switch from examining a tiny ant up-close to gazing at a faraway galaxy in less than one tenth of a second, just by **changing the shape** of the lens...



DID YOU KNOW...?

Some people have different coloured eyes. This unusual condition is known as **heterochromia**.

Object
Everything you look at **reflects light rays** into the eye.



Iris
Coloured part of your eye that gets bigger and smaller to **control the amount of light** entering the pupil. In bright light, the iris makes the pupil small to stop you from being dazzled! But in low light, your irises **dilate** (open up) to let more light in, helping you to see better.

Lens
Focuses light onto the **retina**, at the back of the eyeball.

Ciliary muscle
Ring of **muscle** around the lens that either pulls or relaxes to **alter the lens' shape** and create a clear, sharp image.

Pupil
Hole in the middle of the iris that lets light through.

Cornea
Clear **covering** at the front of the eyeball. It's **dome-shaped** to bend light rays as they enter.

Sclera
Tough, white, **protective layer** – the 'whites of your eyes'.

Conjunctiva
Thin layer on top of the sclera.

Choroid
Supplies **blood** to the retina and sclera.

TOPSY TURVY WORLD
You see the world **upside down** and don't even realise it! The image that appears on the back of the retina is the wrong way round. But your brilliant brain **automatically flips** the image the right way up.

Retina
Covered in about **126 million light-sensitive cells** that detect endless variations in colour, shape and brightness.

Vitreous humour
Clear **jelly-like fluid** that fills the eye, helping to keep its **ball shape**.

Optic nerve
Carries billions of signals from the retina to the **visual cortex**, the part of the brain that 'sees'.

DID YOU KNOW...?

If you joined all the blinks you do in a day together, you'd spend around 40 minutes with your eyes shut. Wow!

TYPES OF TEARS

Did you know that there are three different types of tears? Read on to check them out...

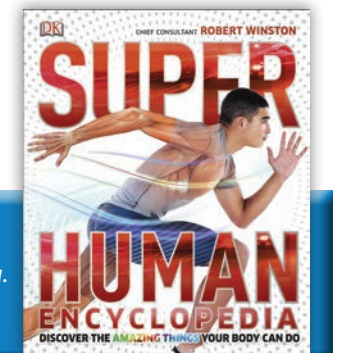
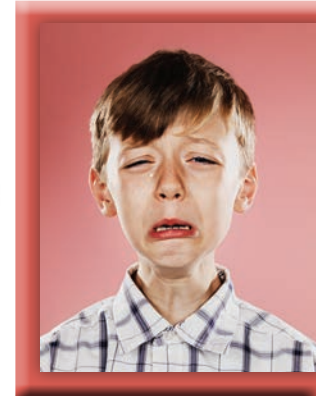
1 BASEL TEARS These are the 'everyday' tears that keep the front of your eyeballs **clean and moist**, stopping them from drying out. Each time you blink – up to **20 times a minute** – your eyelids wipe tear fluid across the cornea to clear away dust and germs.

2 REFLEX TEARS Dusty wind, pollen, smoke and chemicals in onions all trigger **reflex tears**, waterworks that flush irritants away from your sensitive eyes.

3 EMOTIONAL TEARS Sadness, rage, relief, frustration and even **joy** can make you blub. But what's the reason for weeping when you're emotional?

WHY WE CRY

Some scientists think that crying releases **toxins** that build up in times of **stress** – explaining why you often feel better after a good cry. Emotional tears also contain a **natural painkiller**. And crying may signal to your friends and family that you're upset and need their support.



The eye diagrams on this page are taken from DK's **SuperHuman Encyclopedia**. Find out more about this fascinating book at **dk.com**