

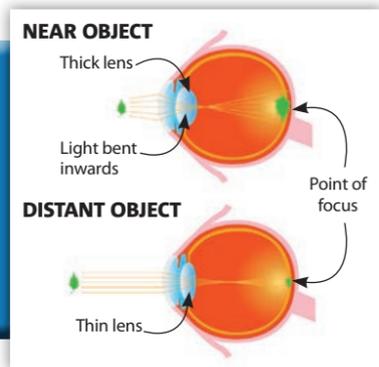
# ALL ABOUT EYES!



## 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.

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

**Conjunctiva** Thin layer on top of the sclera.

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

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

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

**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'.



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

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

**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!

The eye diagrams on this page are taken from DK's **SuperHuman Encyclopedia**. Find out more about this fascinating book at [dk.com](http://dk.com)

