

Pupil



Location

Ground floor, All About Us exhibition

In a nutshell

Our pupil developed to control the light levels into the eye.

What to do

If you look down the eyepiece you can see a reflection of your own eye. Turn the dial to alter the brightness of the light and see how this affects the size of the pupil.

Time Required

KS1 & KS2 2 minutes per student.

What's happening?

The iris is the group of tiny muscles which control the size of the pupil - the hole that lets light into your eye.

In bright light, the pupil gets smaller to limit the light and protect your retina; in dim light, the pupil grows larger to let in as much light as possible. When you move between bright and dim areas, your pupils adjust rapidly to the change in brightness.

Your pupils can also reflect your feelings. When you look at something you like, your pupils may grow larger. When you look at something you don't like, the pupil may shrink.

The pupil is the hole - the organ that controls its size is the iris. The iris is the only internal organ visible from the outside world. It has muscles running around the circumference of the iris (circular muscle fibres) and also across the radius (Radial muscle fibres). When the circular muscles contract the pupil gets smaller; when the radial muscles contract the pupil gets larger.

Dilated pupils can be caused by many things including pleasure, arousal, drugs and alcohol and also brain injuries and disease.

The pupil of your eye is also the source of the red eyes you sometimes see in flash photographs. When the bright light of a camera flash shines directly through the pupil, it can reflect off the red blood of the retina (the light-sensitive lining at the back of your eye), and bounce right back out through the pupil. If this happens, the person in the photograph will appear to have glowing red eyes.

Curriculum links

KS1/2	Science - Animals, including humans
	- (Yr 1) identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
	Science - Light
	- (Yr 3) recognise that they need light in order to see things and that dark is the absence of light - (Yr 3) recognise that light from the sun can be dangerous and that there are ways to protect their eyes - (Yr 6) use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - (Yr 6) explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes
	English - Spoken language
	- give well-structured descriptions, explanations and narratives for different purposes, including for expressing feeling - use spoken language to develop understanding through speculating, hypothesising, imagining and exploring ideas

Relates to:

Workshops & Theme Days	Shows	Trails	Other exhibits
<ul style="list-style-type: none"> • Body basics (KS1) • Digest this! (KS2) • Brain and body theme day (KS1 & KS2 lower) 	<ul style="list-style-type: none"> • How my body works (KS2) 		<ul style="list-style-type: none"> • Startle • Vein viewer

