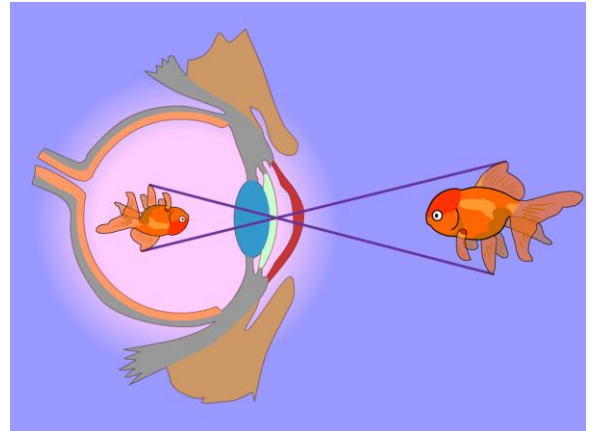


IN DEPTH

Refraction isn't only responsible for distorting our view of underwater objects. It's the reason we can see at all!

When we look at an object like a tree, our eyes collect light that reflects off the tree. The light passes through the cornea (the outermost part of the eye) and the pupil (the black spot in the middle of the eye). Then, the lens focuses the light onto the retina (the back of the eyeball). That's where refraction, and the special shape of the lens, comes in.



The eye lens is **convex**, a rounded shape that looks like a lentil bean. That's actually where the word "lens" comes from! The domed shape allows for the greatest amount of refraction within the eye. Incoming light is bent and focused into a tiny, upside-down image on the retina. The optic nerve sends this image to the brain, which flips it right side up and interprets it as a tree.

But lenses don't stay the same shape all the time. The roundness of the lens can change, which affects the angle at which light is bent. This helps us see objects at different distances.

For example, if a tree is far away, light from that tree enters the eye at less of an angle. It needs less bending to focus an image onto the retina, so a flatter lens will do. Muscles within the eye can tug on the lens to make it less round.

On the other hand, light from a ladybug sitting on our shoulder enters the eye at a greater angle. It needs more bending to focus, so a thicker lens is needed. Muscles within the eye can squeeze the lens to make it more rounded.