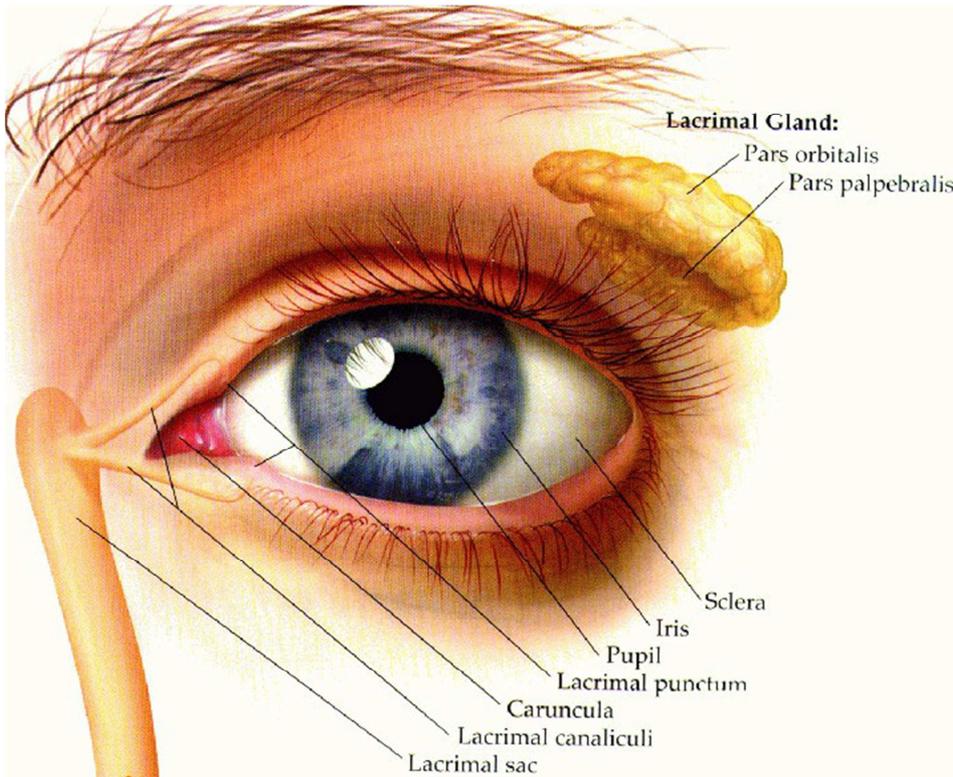


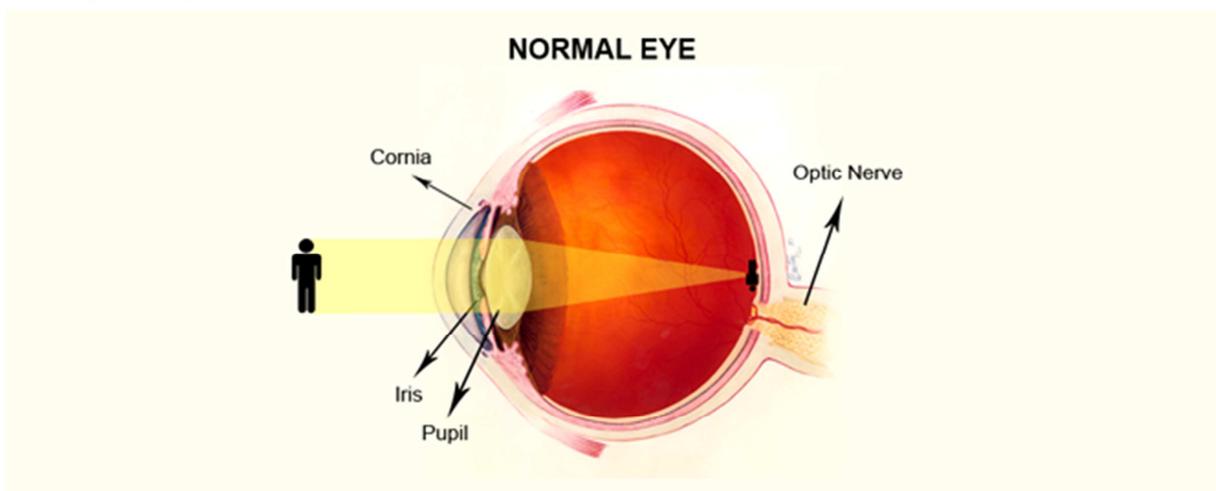
Human eye

Worksheet 1 Teacher's notes

1. Look at the drawing of a human eye, can you name :



2. How do we see? Go to <http://www.youtube.com/watch?v=nbwPPcwknPU> or <http://www.childrensuniversity.manchester.ac.uk/interactives/science/brainandsenses/eye/> to go on a journey inside the human eye.



<http://www.homehealthclinic.co.uk/how-the-eye-works>

watch the film with the students, allow any questions afterwards, check their understanding

Human eye

Worksheet 1 Teacher's notes

3. Why do we cry? and how do we produce tears?

"Crying is a natural emotional response to certain feelings, usually sadness and hurt. But then people [also] cry under other circumstances and occasions," says Stephen Sideroff, PhD, a staff psychologist at Santa Monica--University of California Los Angeles & Orthopaedic Hospital and clinical director of the Moonview Treatment Center in Santa Monica, Calif. For instance, he says, "people cry in response to something of beauty. There, I use the word 'melting.' They are letting go of their guard, their defenses, tapping into a place deep inside themselves." Crying does serve an emotional purpose, says Sideroff, also an assistant clinical professor of psychiatry at the UCLA David Geffen School of Medicine. "It's a release. There is a buildup of energy with feelings." It can also be a survival mechanism, notes Jodi DeLuca, PhD, a neuropsychologist at Tampa General Hospital in Florida. "When you cry," she says, "it's a signal you need to address something." Among other things, it may mean you are frustrated, overwhelmed or even just trying to get someone's attention, which DeLuca and other researchers call a "secondary gain" cry.

*A salty fluid chock full of protein, [water](#), mucus and oil is released from the lacrimal gland in the upper, outer region of your [eye](#). This fluid, better known as **tears**, then flows down the surface of your eye, across your face.*

*Three types of tears exist, all with different purposes. **Basal tears** are omnipresent in our eyes. These constant tears are what keep our eyes from drying out completely. The human body produces an average of 5 to 10 ounces of basal tears each day. They drain through the nasal cavity, which is the reason so many of us develop runny noses after a good sobfest. The second type is **reflex tears**, which serve to protect the human eye from harsh irritants such as smoke, onions or even a very strong, dusty wind. To accomplish this feat, the sensory nerves in your cornea communicate this irritation to your brain stem, which in turn sends hormones to the glands in the eyelids. These hormones cause the eyes to produce tears, effectively ridding them of the irritating substance. The third type of tears is **emotional tears**. It all starts in the cerebrum where sadness is registered. The [endocrine system](#) is then triggered to release hormones to the ocular area, which then causes tears to form. Emotional tears are common among people who suffer personal losses.*

<http://www.webmd.com/balance/features/why-we-cry-the-truth-about-tearing-up>

<http://science.howstuffworks.com/life/crying1.htm>

<http://www.webmd.com/balance/features/why-we-cry-the-truth-about-tearing-up>

How many types of tears are there?

Human eye

Worksheet 1 Teacher's notes

4. Rose-Lynn Fisher is an artist who photographed tears through a microscope. What might be her findings? Go to <http://www.rose-lynnfisher.com/tears.html> to find out.

further information: *In fact, one study collected both reflex tears and emotional tears (after peeling an onion and watching a sad movie, respectively). When scientists analyzed the content of the tears, they found each type was very different. Reflex tears are generally found to be about 98 percent water, whereas several chemicals are commonly present in emotional tears. First is a protein called **prolactin**, which is also known to control breast milk production. **Adrenocorticotropic hormones** are also common and indicate high stress levels. The other chemical found in emotional tears is **leucine-enkephalin**, an endorphin that reduces [pain](#) and works to improve mood. Of course, many scientists point out that research in this area is very limited and should be further studied before any conclusion can be made.*