

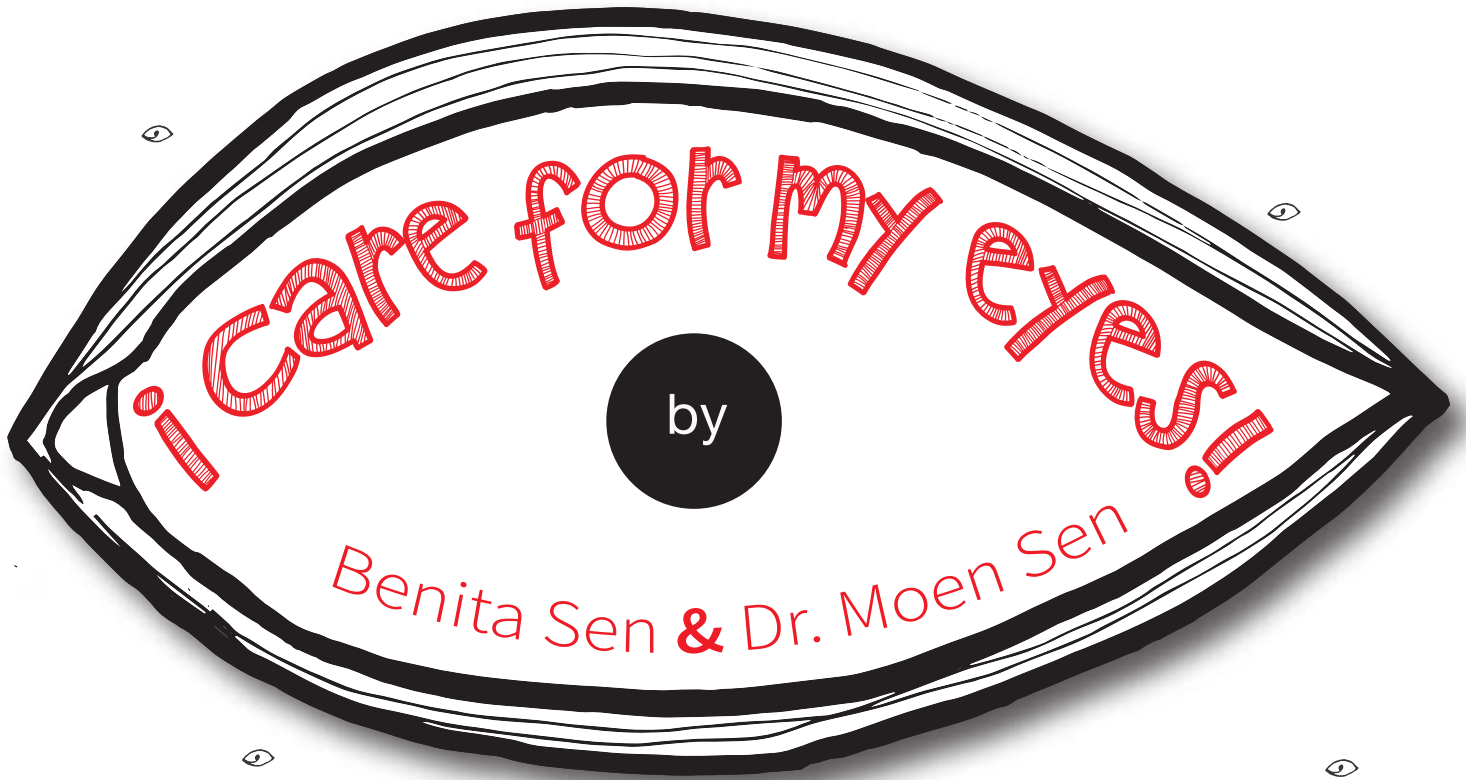


# i care for my eyes!

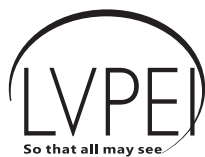
by

Benita Sen & Dr Moen Sen





Published by



**LV Prasad Eye Institute**

Kallam Anji Reddy Campus, L V Prasad Marg,  
Road 2, Banjara Hills, Hyderabad - 500034, Telangana  
Telephone: 040-30612345/372/368 (Communications)





## Hello, Children!

We depend on our vision for about 70% of our work. Whether we are walking, cycling, reading, writing, texting, or shopping, we need our eyes to see, and do our everyday tasks. So, would you like to know how your eye works? How the human eye is different from the eye of insects, birds, cats and other animals? How to take good care of your eyes? How to identify some common eye problems?

Did I hear you say, “Yes!”? Then, read on; this book is for you!

Who knows, reading this book might prompt you to look closely at other people’s eyes, and see for yourself that there are so many different shapes and colours of eyes! Maybe you will spot an abnormal feature in someone’s eyes and alert your elders. You may also want to visit your local zoo on a holiday, carrying a pair of binoculars to take a closer look at the beautiful eyes of our captive friends.

For now, just enjoy doing the activities, solving the puzzles, and reading the poems in this wonderful book on our vision and eyes!

‘I Care for My Eyes’ is a great read. Do share it with your young friends!

**Dr. Gullapalli Nageswara Rao**

Founder-Chair, L V Prasad Eye Institute, India  
Hyderabad | Bhubaneswar | Visakhapatnam | Vijayawada



this book belongs to:





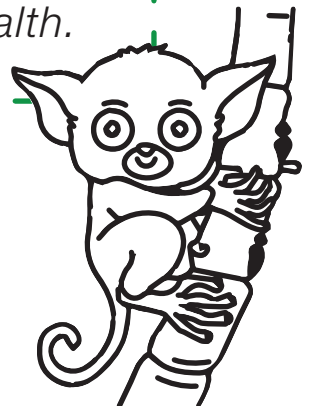
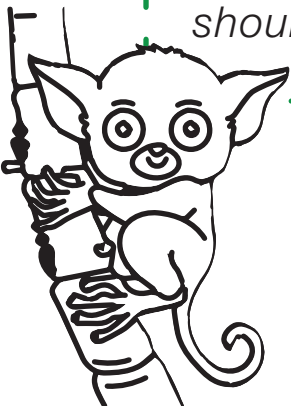
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior permission of L V Prasad Eye Institute.

Written by Benita Sen and Dr. Moen Sen  
Edited by Achala Upendran  
Additional editing by Rupak Ghosh  
Design and illustrations by Neha Vaddadi  
Additional illustrations by Seema Banerjee  
Reviewed by Dr. Ramesh Kekunnaya, FRCS

ISBN 978-81-935180-0-7

**Pledge to support the LVPEI mission to eliminate avoidable blindness! Please visit:**  
[http://www.lvpei.org/Partner\\_donation/donation/](http://www.lvpei.org/Partner_donation/donation/)

*DISCLAIMER: This book has been reviewed by a medical practitioner; and is meant for information purposes only. It is not a substitute for medical intervention, nor is it a part of medical diagnosis. The information in this book should not be used by medically non-qualified people to make decisions about eye health. A qualified eye doctor should be consulted about any concern with eye health.*





# contents

who has eyes?

page 6

what is an eye?

page 8

what is a camera?

page 10

parts of the eye

page 12

different animals,  
different eyes

page 14

eye problems you  
could be born with

page 26

Eye injury:

how the eye can be injured  
and how to stay safe

page 18

Eye problems from  
malnutrition

page 34

common eye problems  
in children and their  
correction: glasses, eye patch  
& other procedures

page 38

page 40

Eye care:

some general healthy habits

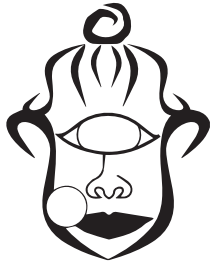
i care for my  
friend's eyes

page 42

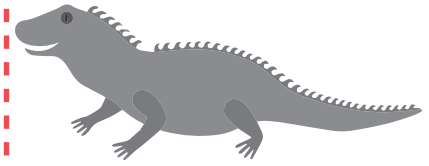
activities  
1-3

pages  
43 - 46

# Who has eyes?



The Cyclops\* has one.  
I have two.  
Tuatara have three.  
Oh yoo hoo hoo!



As you can **see**, most living non-plant creatures have eyes. Eyes are among the organs that sense the world around us; and keep us informed and safe.

## What is a sense organ?

A sense organ is an organ that is used by a living creature to get information about its surroundings.

Human beings have **five** sense organs.

ooh what's this?



**Eyes** to see

did someone say icecream?



**Ears** to hear

mmm...smells like chocolate and strawberries!



**Nose** to smell

slurrrrrrrp



**Tongue** to taste

so cold!



**Skin** to touch

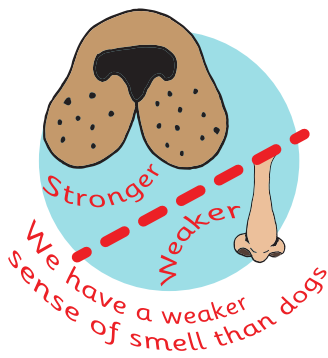
But there are other ways to take in information, like feeling pain when we are injured, or keeping our balance when we bend over. If we did not have sense organs, we would be in a lot of trouble. We would not be able to hear a tiger roar, or see the edge of a cliff. We would not be able to smell cooking gas leaking, or tell if the water is too hot to bathe in.

We recognize the world around us by using our senses. When one sense organ does not work as well as it should, we have to be even more careful about our safety. But then, the other sense organs begin to work more to help us.

Other animals have similar sense organs, though the numbers and the strength of their organs may differ, depending on the species.

\*The Greek word 'Cyclops' means 'Round Eye'. Cyclops, found in water, is also called water flea. This one-eyed creature gets its name from the one-eyed Cyclops in ancient Greek and Roman legends.





## Ours and theirs



A pig, for instance, is used by humans to sniff out truffles (the fruit of a fungus that grows on underground tree roots) from under the ground. This is because the pig's sense of smell is sharper than ours.



A dog's hearing is far sharper than your or mine, though its eyes may be weaker. So, we keep dogs to guard our homes, as they can hear the slightest sound.



How many eyes? For hundreds, or even thousands, of years, we have been wondering about the number of eyes different creatures have. Our books, from some of the earliest to today, and our films, talk about creatures with fewer, or even more, than two eyes.

**Cyclopes (singular cyclops):** Cyclopes were giants from Roman and Greek mythology, who belonged to a race that had only one eye on the forehead.

The one-eyed Arimaspi were said to live in north Scythia. The single eye was in the centre of the forehead, like a bindi.

The Chinese spoke about the Jian bird. It had one eye and one wing, and moved in twos.



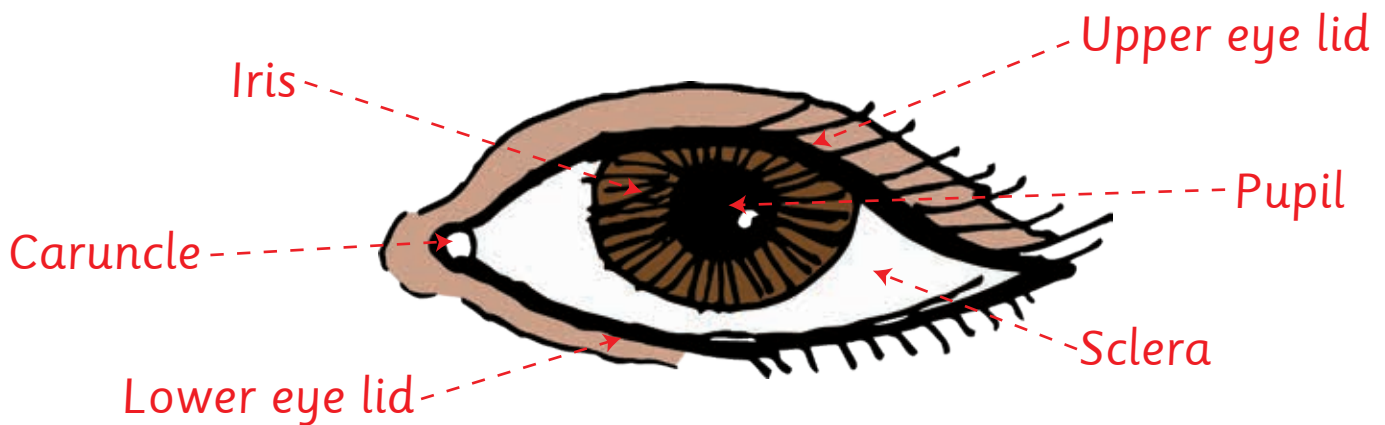
For hundreds of years, Albanian children grew up listening to stories about Katallan (plural: Katallani), one-eyed, man-eating giants who had no knees and lived in caves.

Some beings are said to have had less than one eye. The three Graeae (gr-EH-eh) witches shared one eye among themselves. In spite of that, they knew a lot!

In the Grimms' Fairy Tales, 'One-Eye' is...well...the one-eyed sister. The other two sisters are named 'Two-Eyes' and 'Three-Eyes'. Can you guess, why?



# What is an eye?



What you **see** of the eye is just a part of the whole. As we see it, the almond-shaped eye, framed by two lids that can open and shut, has a white portion and a coloured circle in the centre. The white part is the **sclera**. It is covered by a thin, pink layer called the **conjunctiva**. The coloured part is the **iris**. The iris is covered by a transparent layer called the **cornea**.

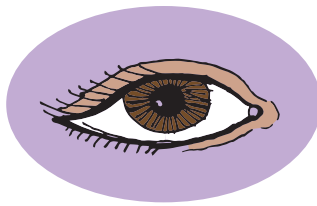
The **iris** is the coloured centre of what you can see of the eye. In the centre of the iris is a darker opening called **the pupil**. If you could 'see' inside the eye, you would note that the portion around the pupil is less dark than that in the pupil.

The iris is round and coloured. It controls the size of the pupil at its centre; and hence, the amount of light that reaches the retina inside. The colour of the iris is what we mean by eye colour in papers like your passport or other identity cards. The human iris can be very dark brown, lighter brown, blue, green, or grey. For most of us, both our eyes are of the same colour. However, it is possible for one person to have eyes of two different colours, and this condition is called heterochromia.

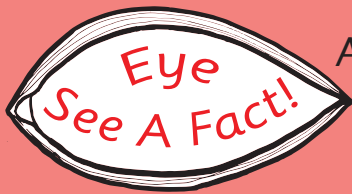
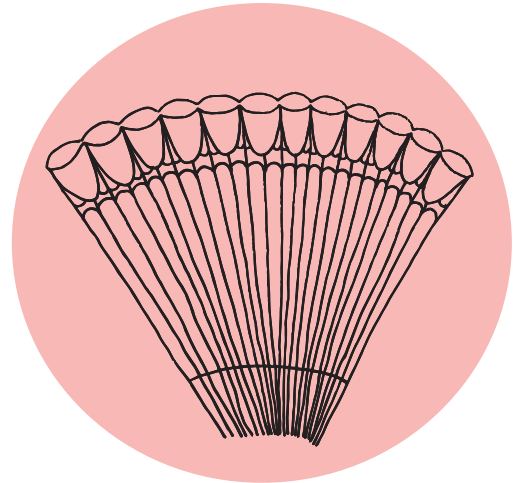
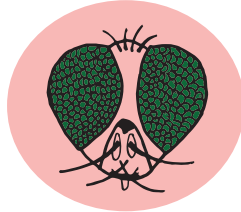
Behind what you can see of the eye, tucked safely inside the skull, are the **retina**, the **optic nerve**, the **macula** (mak-you-la), the **choroid** (kho-roy-d), and the **vitreous** (vit-ri-us).

Human beings and most mammals have a **simple eye**. Some creatures, like the housefly and krill, have **compound eyes**. In a compound eye, what looks like one eye is actually made up of many tiny eyes. As a compound eye is made up of so many eyes on a convex (or bulging) surface, the owner of the eye can see much faster movements than we can. This is why it is very difficult to swat a fly. On the other hand, the quality of the picture (or image) seen by a compound eye is not as good as the one we see.





Simple eye  
vs.  
Compound eye



A common infection of the white conjunctiva is **conjunctivitis**.

How many eyes do aliens have?

The 1965 science fiction film 'The Eye Creatures' is about aliens, who are many-eyed and whitish-grey in colour.

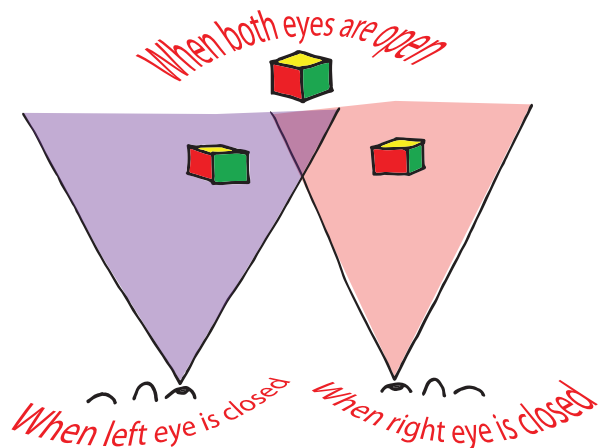
We have one nose with two nostrils; and one mouth. So, why do we have two eyes? This double eye vision allows us to locate the exact position and depth of an object and also to see small, colourless objects more distinctly.

Hence, two eyes are better than one.

Why do we have two eyes and 32 teeth? Think that over! Write, or draw below, what you think is the right answer.

Both our eyes are placed quite far apart. This means that the brain takes into account what each eye is seeing in order to understand how far an object is. Two eyes let us see things across a wider area than one eye would have.

If a friend is hiding behind a lamp post, you have a better chance of seeing him/her with both eyes than with one.



A camera is a machine that copies what is in front of it; and shows it to the person looking through it.

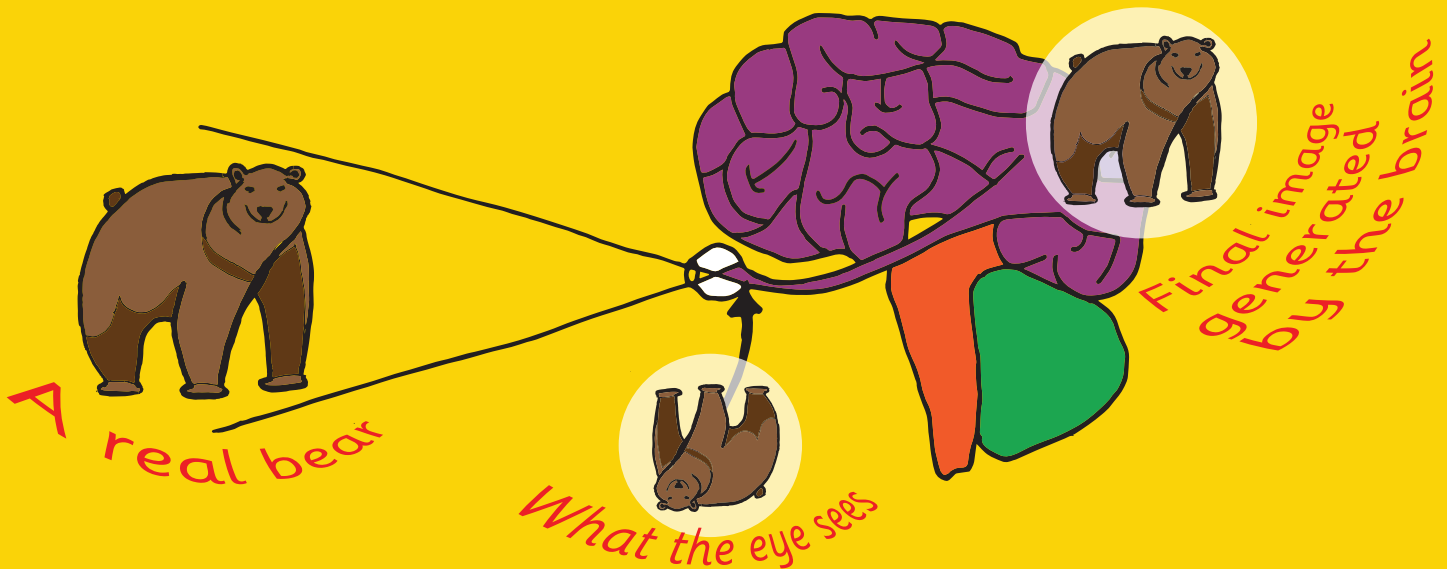


Let us say there is a bear moving towards you. Light falling on the bear is reflected and goes into the lens of the camera. The image is recorded on a computer chip. As your eye has no computer chip, it is recorded on the retina at the back of the eye. Earlier, when cameras used films, the image of the bear would be recorded on the film.

The camera records the picture (or image) upside down. So, why don't you see the bear standing on its head?



# What is a camera?



The upside-down picture goes to the brain. The brain knows that what it is seeing is really the bear upside down. The brain adjusts it for you; and tells you what you are really looking at. That is how you see things the right way up, the way they really are.





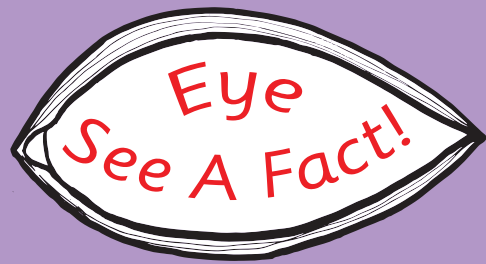
AAAAAaaaaaaaAAaAAAaaaHHhhhhHH!!



Light is important, both for a camera and for the eyes of most animals. That is why, you may not be able to see things at night!

Have you ever looked through special glasses at a bird far away so that you could see it more clearly? The glasses are called binoculars (bai-nok-ew-lahs). This large word means 'double eye'.

Using both eyes together to see is called **binocular vision**.



## Optic Nerve (ner-v)

A nerve is like a very thin wire that sends impulses (or messages) from one part of the body to another. Connected to the blind spot, the optic nerve carries messages from the retina to the brain.

## Sclera (sklee-ra)

What you call the white of the eye. It is thicker than the cornea.

## Iris (ai-ris)

The coloured part of the eye, it controls how much light gets into the eye.

## Lens (len-z)

The work of the lens is to focus the light from outside onto the retina behind it.

## Pupil (pew-pill)

The iris has a hole in it. That is the pupil. Light goes into the eye from there. It gets bigger in the dark, so that more light can go through; and gets smaller as the light increases.

## Cornea (cor-ni-aa)

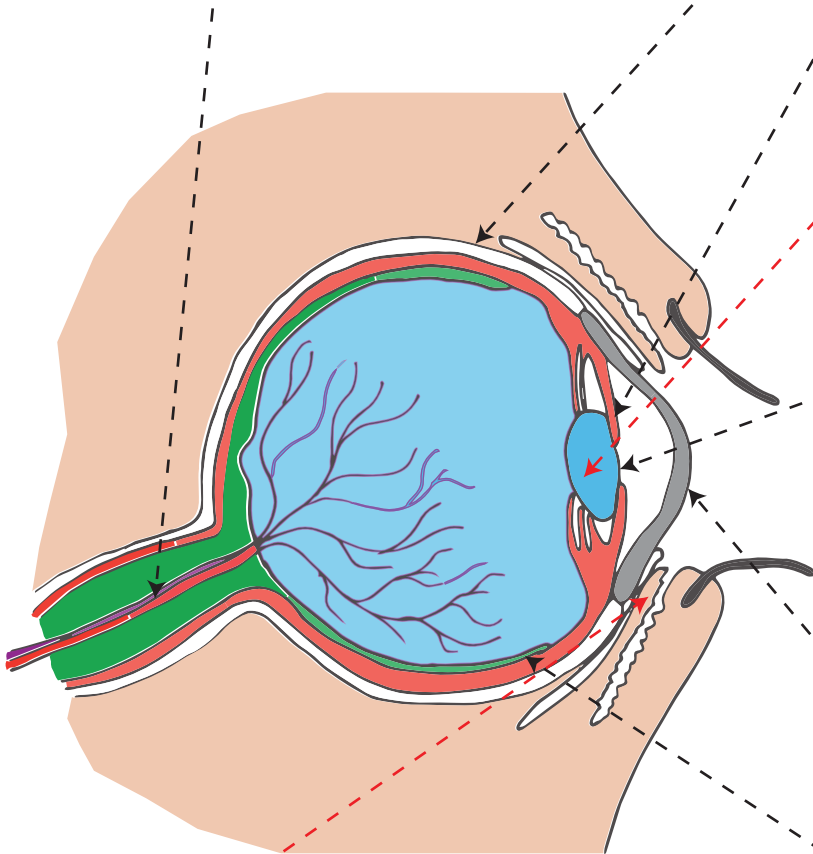
A clear, thin skin that covers the front of the eye.

## Retina (Ret-nah)

The retina is made up of two types of brick-like structures or cells. They are called rods and cones, because they look like rods and cones! The rods help you see black and white images. The cones help you see colours. Rods and cones are all over the retina except for one place, which is called the blind spot.

## Conjunctiva (cun-junk-tai-vah)

There is a lining covering the part of the eye that you can see. That is the conjunctiva. It does not cover the cornea. Tiny, pink blood vessels run all along the conjunctiva.



# Parts of the eye

# the gatekeepers



Your eyes are inside a socket (or hole) surrounded by higher bones. **The hard, higher bones protect the eyes from injury, and shade them from strong light.** The eyebrows are like a doormat or a gatekeeper. They keep sweat and dust from falling into your eyes; and shade the eyes. **The eye is covered with skin which is called the eyelid.** The eyelids are like windows that shut when you sleep, so that the light outside cannot disturb you. **Eyelashes are fixed to the free end of the eyelid.** The eyelid and eyelashes together keep your eyes safe from dust and outside particles.

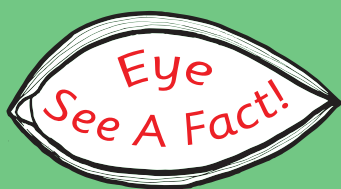
# crying buckets



**Ow! What a nasty fall! Boo hoo hoo!**

Your eyes show your pain by letting out tears.

**Where does the salty water come from?** There are **glands**, or little tanks of water, inside the eyelid. Although you see the tears only when you cry, tear glands make tears all the time to clean the outer parts of the eyes; and wash away things that can harm them, like an eyelash. Every time you blink, the eyelids close and open; and like a car's wiper, spread the water over the eye. There is a little opening at the corner of your lower eyelid from where a tube leads the tears out from the eye and into the nose. That's why you have to grab a tissue to blow your nose when you've had a good cry. Throughout the day, you blink without a second thought, **but do you know that you shut your eyes for nearly 1.6 hours a day just by blinking?**



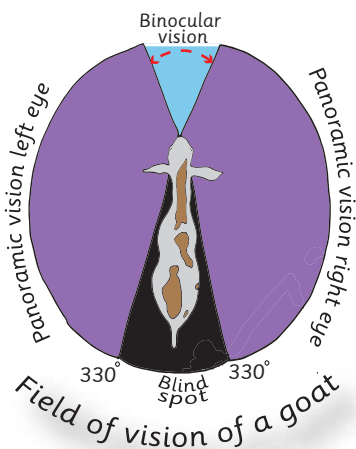
Do you really 'see' a dream? A dream is an image (or a picture) that comes to you only when you are sleeping. If you 'see' a dream of playing with a dinosaur, that does not mean you really played with a dinosaur while you were sleeping!



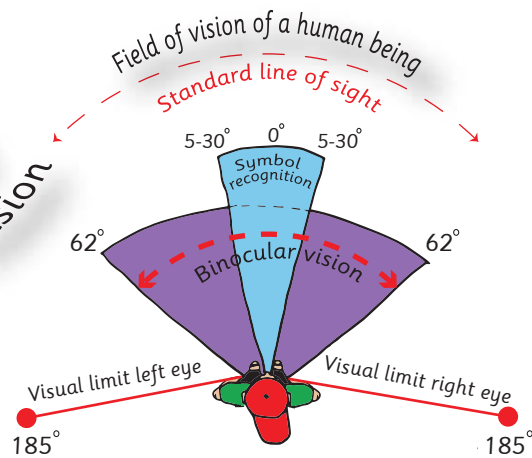
# different animals, different eyes

So, you think the Cyclops is a strange creature because it has one eye? The animal world is full of wondrous eyes!

The aye-aye (yes, you say it like eye-eye), an animal that lives on the island of Madagascar, is related to apes. The animal is up at night; and its large eyes help it see in the dark. If you think the aye-aye is an animal with strange eyes, read on to find out about the others!



Pupil shape  
and  
field of vision

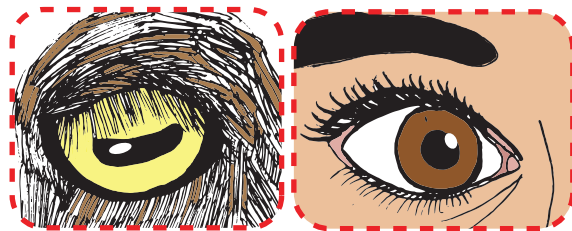


**Goats:** Take a look at the goat's pupil. What shape is it? The pupils of a goat's eyes are rectangular; and not round. Since the pupils are wider, the goat can see 330 degrees. You and I barely manage to see 185 degrees.



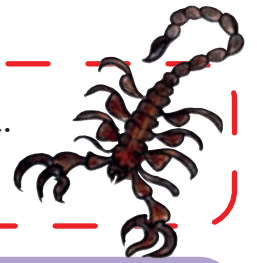
**Octopus:**

An octopus has two bulging eyes that are good workers. Although it lives in water where there is less light than on land, its sharp eyes help the octopus make out different forms, even if the water is a little muddy.



*Goats have rectangular pupils  
whereas humans have round ones*

**Scorpion:** A scorpion has two compound eyes on its head. It may also have up to five pairs of simple eyes on its body!



**Frog:** If you see two bulging eyes, they probably belong to a frog! As the frog spends much of its time in water, the eyes bulge or stick out; so that even if the frog is just under the surface, the eyes can pop out and see things above. As the eyes close, they also pull back. The eyelids of a frog are made of thin skin that allows some light to come through.

**Flatworm:** Most flatworms have two-to-four eyes, but some can have as many as a hundred! You need a lot of space to hold so many eyes! So, even the sides of its body have eyes! The high number of eyes keeps the worm from bumping into bigger, stronger enemies.



**Butterfly:** Most insects have compound or many-in-one eyes. The butterfly is a good example. Each eye that you see is really thousands of tiny 'eyes' or lenses. Each lens has six sides. The butterfly can see ultraviolet light, and hence, recognizes the ultraviolet pattern on flowers which have the nectar (food) it needs.



**Mole:** How do moles live underground? Nature decided that the mole needed very small eyes, ears and hind legs; a cylinder-shaped body and strong front paws to dig its way through the soil. The tiny eye size protects it from any mud lodging in the eye when it is digging a tunnel. What do they see in the dark? The mole is able to see light and shadow, and any object that moves.



**Owl:** What large eyes an owl has! The eyes are in front, close to each other. The close-set eyes make the owl different from other birds of prey that hunt their food. As the owl hunts after dark, the way the eyes are placed helps it to see prey better in the poor light. If you are standing at its side, the owl will have to turn its head to see you. An owl also sees things at a distance better than it sees things up close.



"Hey, Thousand Eyes, how many am I?" asks the kitten.



Silly question. One!



How did you know?

I sit on your nose everyday. If I don't know, who will?



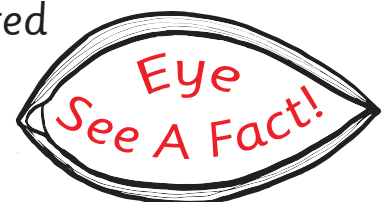
**Tarsier:** The tarsier may be a tiny creature, but its eyes are huge. Each eye is about the size of its brain. That also makes the tarsier's head heavy for its size. The eyes of most animals that hunt at night have a way to reflect light (see page 17), but this is not the case for the tarsier. That's why its eyes are so big, and its ears are so sharp.



**Spider:** Most spiders have not one, not two, but four pairs of eyes on their heads! The eyes do different kinds of work. The two eyes in front can catch where the light is coming from. Only the most important eyes can actually 'see'. And yet, all those eyes cannot work as efficiently as the two you have. A type of huntsman spiders, discovered in 2012, has no eyes. These spiders live in dark caves, where it is too dark to see!

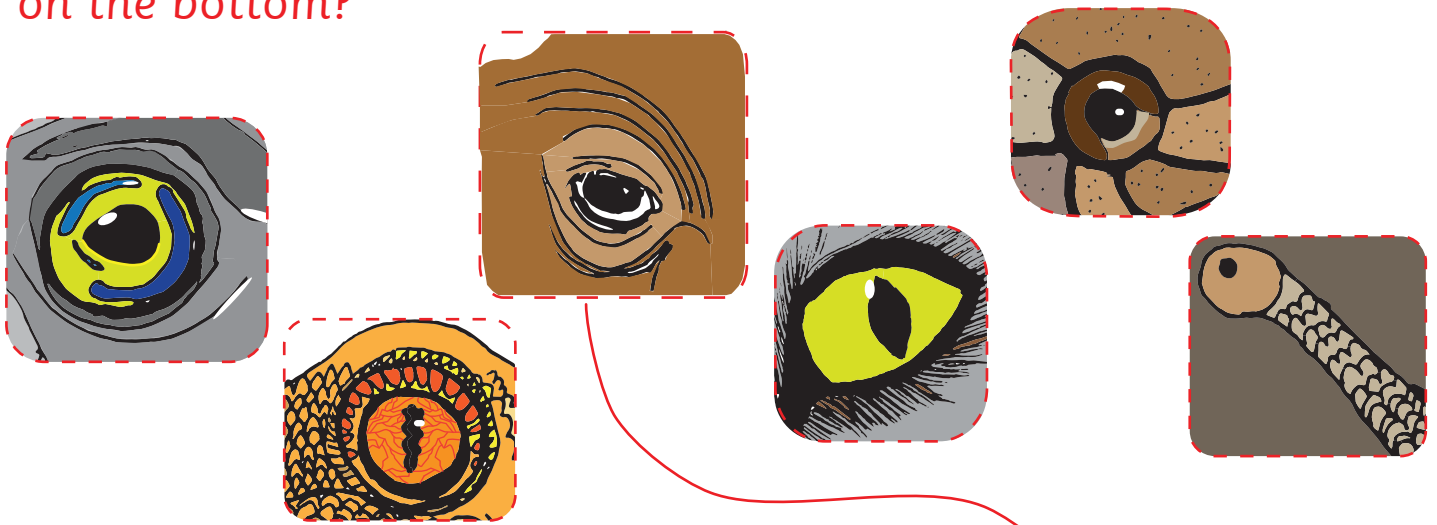


Can every eye make out colours? No. Even if they can see colours, different animals can see different amounts of colour. The human eye can 'see' about ten million colours, although some of us might be able to see fewer than that. Some fish seem to see many more colours than we do! So, the red rose you see as red may look a little different to your friend or to the fish.



# Match the eye to the animal!

How closely have you looked at the eyes of the animals and birds around you?  
Can you match the eyes on the top with the names on the bottom?



snail

fish

lizard

cow

cat

snake

## Look at that!

The huge elephant has tiny eyes. The eyes don't just look small for such a large animal, but are also not as sharp as its nose. The elephant's sense of smell makes up for what its eyes lack. Unlike your eyes, an elephant's have no tear ducts. So, the tears that are needed to keep the eyes damp roll out of the eyes directly.



Why do a dog's eyes glow when a car's headlights beam on them at night? They have the tapetum, a mirror-like layer at the back, so that the dog can see better in the dark. When light falls on the tapetum, the eye glows.

Answers, from l to r:  
fish, lizard, cow, cat, snake, snail





# eye injury:

👁️ how the eye can be injured; and how to stay safe 👁️

The eyes are important to us. They are softer than our nails, teeth, and bones, so we can hurt our eyes more easily. Here are some ways to say "I care about eye care".



If something does get into the eye, wash it out with clean water.



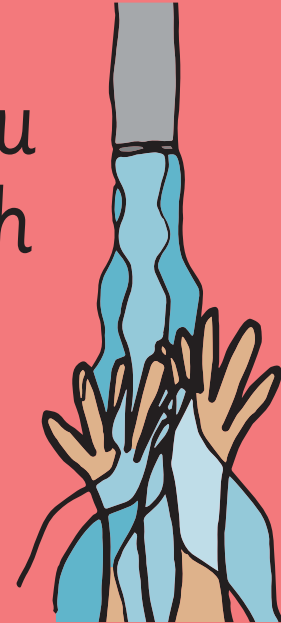
Touch your eyes only if you must; and only when your hands have been washed clean.



Never use eye drops without asking a doctor.

👁️ Never rub your eyes. If something like dust gets into the eye, rubbing it can injure the soft eye.

👁️ Wash your hands after you come in, or after you touch something unclean, so that you do not dirty your eyes, even by mistake.



👁️ If your eye itches, or hurts, tell your parents, or your teacher. It may be time to see an eye doctor!



👁️ Soap, shampoo, oil, sunscreen lotion, and cream can make your eyes itch, burn, or water. Try to make sure that these things never get into your eyes (see page 41).

👁️ Only read, write, paint, or do crafts when the light is sufficient. If you read in dim light, your eyes will become weak.



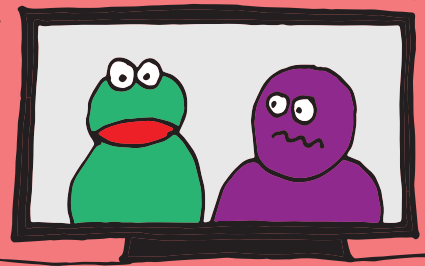
👁️ Read, or write, sitting up. Sit on a chair. Keep your back straight. Make sure the light is behind you, falling on the book. The book should be about 14 inches away from you. That is a little more than a long ruler.



👁️ If the text on the computer looks small, make it larger. If the text of your book looks small, tell your parents. You may need to get glasses that will help you read comfortably.

👁️ If you are working on a computer, don't stare too long. Make sure you look away every few minutes. Blink, so that tears can spread over the front of the eye; and keep the surface wet.

- 👁️ **Watching television?** Sit about **seven feet away** from the screen. That should be a little less than the distance that you and your friend would cover if you lay down head to head. The room should have a light behind you, or to the side, and not behind the television.



- 👁️ Do you enjoy playing games on the mobile phone or tablet?

Your eyes could tire easily, so try not to play more than one or two games. Watching TV? Take a break every 20 minutes, or so. Look away, or shut your eyes to rest them.



- 👁️ Even if you can see well in low light, make sure the area around the book you're reading is lit well; or you may strain your eyes and get a headache.

- 👁️ **Reading for too long?** Working on the computer? Give your eyes some exercise every half an hour. Blink as fast as you can for about 20 times. Then, shut your eyes up to the count of 10. Now, get back to reading.



- 👁️ Focus on, or stare at, things at different distances from you. Look at the wall at the far end of the room. Then, look at the tip of your nose. Look again at the table half-way to the wall. Now, look at the tip of your finger. This will make your eye muscles stronger; and prevent them from getting tired.



- 👁️ Staring at the computer? Sit up. The screen should be straight in front of your eyes.

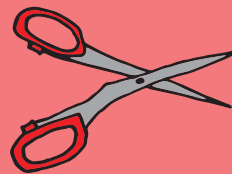


- 👁️ If you study for long hours, give yourself a break every hour. Get up, walk around, or simply put your head down and shut your eyes for a few minutes.

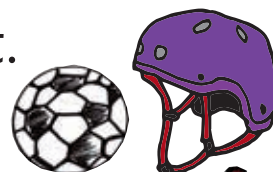


- 👁️ Don't keep sharp things like pencils, pens, or scissors where people walk, sit, or lie down. That means keeping the floors, chairs, and beds clean. Put these things away in a pencil box, when you are not using them.

- 👁️ If you must carry something sharp, walk. Don't run. If you slip and fall, you might hurt yourself.



- 👁️ Play safe. Don't tease or scare or fight others with sharp things like pencils, pens, or scissors. It takes just a little slip for someone to get badly hurt.

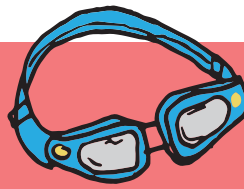


- 👁️ Some sports like hockey, cricket, and football can get rough. Wear a helmet if your parents or coach ask you to. Sports is a leading cause of eye injuries in children under 15 years of age. Children should wear protective eye wear when playing sports like cricket, baseball, basketball and when playing games with projectiles such as pencils, pens, sharp toys, darts, sticks, stones, guns and air guns. Remember, if anything pokes your eye or hits it at a high speed, you may lose your vision. Do consult an eye doctor immediately after any eye injury, to protect your vision.



- 👁️ Play safe. Toys like guns that throw out darts or rubber bullets can injure your eyes. Try not to play with them, or be sure to wear protective eyeglasses; and aim away from yourself and others.

- 👁️ Going for a swim?  
Don't forget to wear goggles!



- 👁️ If you are going out in the sun, wear sunglasses that block UVA and UVB rays. These might harm your eyes.



- 👁️ Try not to look directly at any bright light like the sun, or even the headlights of a car after dark. Sunrays are very strong. They can damage the retina.



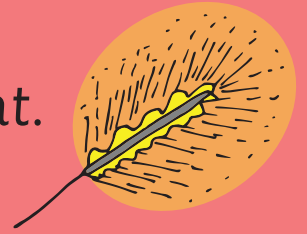
- 👁️ You could wear a wide hat to shade your eyes.

- 👁️ Wear hobby glasses to protect your eyes when you are painting, doing crafts (or projects) that need paint and glue. These use plain glass; and not the prescription glasses used for eyesight correction.

- 👁️ At a picnic? Avoid sitting too close to the campfire. Smoke can hurt your eyes. So could flying ash.



👁️ Be happy, but be safe. During Diwali, many children hurt their eyes while burning crackers. It is safest not to light crackers yourself. Let an adult do it. Watch from far. Injuries to one's eyes are most common during a firecracker accident.



👁️ Holi hai!



Do you enjoy playing Holi? Be careful not to smear colour in the eyes of your friends. Take care that colour does not get into your eyes too. Shut them tight if someone is smearing colour on your face. Dust the colour off thoroughly before opening your eyes.



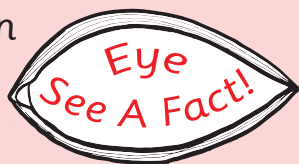
👁️



Birthday party? Be careful no one smears cake near your eyes.



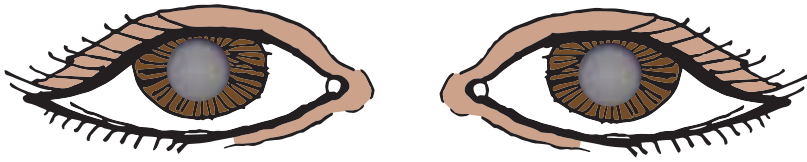
Most of us think we need to see the eye doctor only when we have a problem seeing. Even if you do not have any eye problem, it is good to get your eyes checked by an eye doctor at least once before two years of age, and then once every two years. So, if there is a problem, the eye doctor can catch it — and even cure it — before it affects your life.



### THINK!

It may seem like fun to try on other people's glasses, but wear only your own; as these are prescribed for correcting your eyesight.

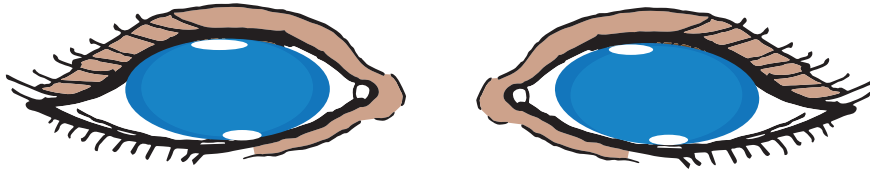




Congenital cataract



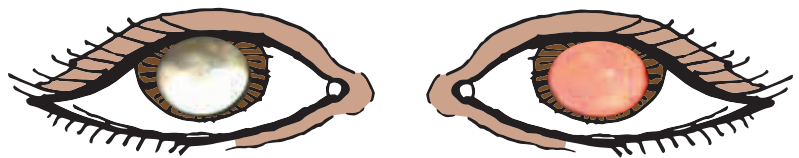
Retinopathy of Prematurity (ROP)



Congenital glaucoma



Newborn baby



Retinoblastoma

eye problems  
you could be  
born with



There are some eye problems that you might be born with. Health problems that one is born with have a word to describe them: congenital (kon-jeni-tul).



Some congenital problems are because of an infection (or illness) the mother may have had. Congenital problems can 'run' in the family, or be caused by things around us. Even what your mother and father ate before you were born, the amount of sugar in your mother's blood, and the vitamins she took, could have an effect on your health. The age of your parents (when you were born) might have an effect, as well.

No one is sure why one child of the same parents can have a congenital problem, while the other does not. The most common congenital problems are to do with the heart, but even eye problems can be congenital.



*Wearing an eye patch  
is easy*

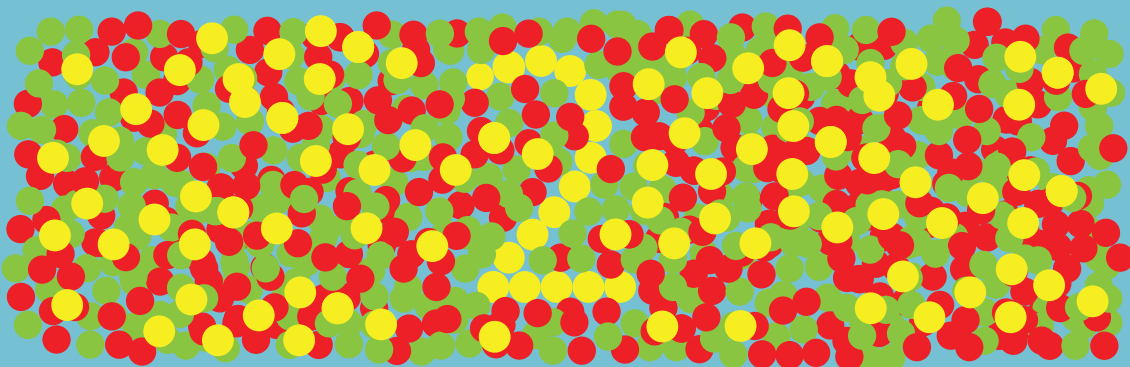


## AMBLYOPIA (am-blee-OH-pee-ah)

**What it is:** Amblyopia, also called lazy eye, means blunt sight in Greek. Both eyes look normal; but one eye can see less than the other. The problem is really inside the brain. You may have to wear glasses to correct the problem, or an eye patch to cover the eye that sees well to make the lazy eye work during that time.

**See your eye doctor:** Consult an eye doctor to correct the lazy eye, or it will stop working altogether.

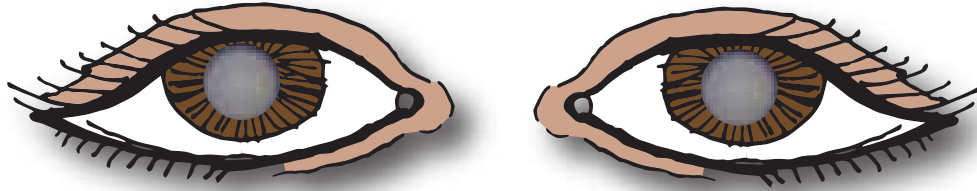
## COLOUR BLINDNESS (kukur BLYND-ness)



Can you spot the number in the middle of the green, red and yellow dots?

**What it is:** A person with colour blindness has trouble telling the difference between certain colours. It does not mean that you see only in black and white! You just do not see some colours like red, green, blue and so on.

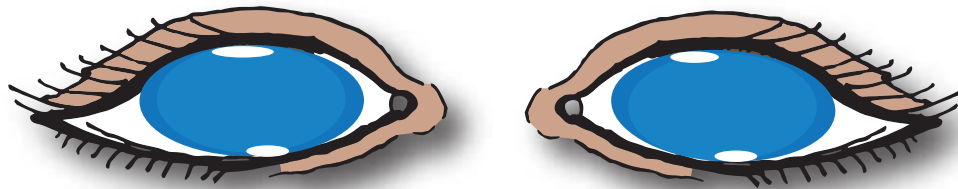
**See your eye doctor:** You may be prescribed contact lenses to overcome the difficulty of recognizing certain colours.



## CONGENITAL CATARACT ((kon-jeni-tul KAT-a-rakT)

**What it is:** The eye has a lens, which is a crystal clear transparent structure. When there is a cataract, the lens loses its transparency, and hence obstructs light from passing through. The opaque lens is seen more often in older people, but some children are born with it. Some cataracts remain stable, while others become more dense, making it difficult for the person to see.

**See your eye doctor:** Your eye doctor can help you replace the cataract with an artificial lens to restore your vision.



## CONGENITAL GLAUCOMA (kon-jeni-tul glaw-kO-mA)

**What it is:** Congenital glaucoma is a condition where the pressure inside the eye is increased. Constant high pressure damages the optic nerve, leading to blindness.

**See your eye doctor:** If congenital glaucoma is treated early, the eye pressure can be controlled; and vision can be protected.





*Pink, sticky eyes  
are a symptom  
of conjunctivitis*

## CONJUNCTIVITIS (con-junK-Ti-VIT-is)

**What it is:** Pink eye or conjunctivitis - you guessed it - is a problem with the conjunctiva, or the outermost layer of the eye and the inner part of the eyelids. You can get pink, sticky eyes for a number of reasons, including from touching your eyes with unwashed hands that have touched the eye discharge of someone with the disease. Most conjunctivitis is caused by an infection due to bacteria or fungi that you come into contact with when sharing a towel, soap, or make-up kit. You may also get conjunctivitis from touching the unclean surface of a telephone, light switch, coins, or currency notes that are shared by many users.

**See your eye doctor:** Once the doctor knows what has caused the conjunctivitis, you will be given eye drops.

## NYSTAGMUS (ni-stag-muss)

**What it is:** Nystagmus refers to eye movements that one cannot control. When something happens when you want it to, it is called voluntary (vol-un-tree). When you did not mean for it to happen, it is called involuntary. Heartbeats are involuntary. Nystagmus, or dancing eyes (rapid, uncontrolled, left-right, involuntary eye movements), can cause you to see less.

**See your eye doctor:** Till a few years ago, this condition could not be treated. Now, nystagmus can be treated (or reduced) in most situations.

## PTOSIS (toe-sis)



**What it is:** If a child, or adult, has droopy eyes with a heavy upper eyelid, eye doctors call that condition 'ptosis'. One, or both eyes may seem to droop. In some children, the eye is covered entirely by the eyelid.

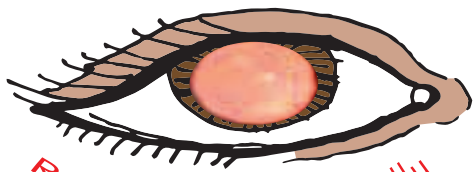
**See your eye doctor:** The eye doctor will correct the eyelid position by performing an eye operation to lift the eyelid, so that it appears normal.



## RETINOPATHY OF PREMATURITY (AAR-O-PEEE)

**What it is:** ROP is an eye disease in which blood vessels grow abnormally in the premature baby's retina. The retina layer crumples down from its usual position (called retinal detachment) and the baby goes blind.

**See your eye doctor:** Take the newborn baby to an eye doctor before the baby is 30 days of age. Laser treatment and eye surgery can protect the child's vision and prevent him or her from going blind.



*Red reflex is normally seen in flash photographs*

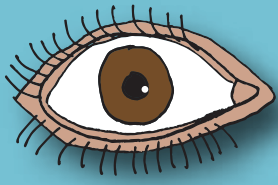


*White reflex resembles a cat's eye glowing in the dark*

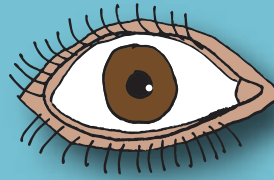
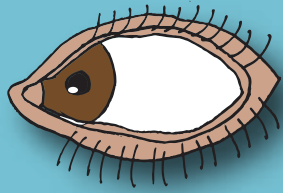
## RETINOBLASTOMA (ret-in-oh-blah-STOH-ma)

**What it is:** Retinoblastoma is the most common eye cancer that can develop in very young children, mostly those under six years of age. Retinoblastoma may begin as an abnormal white reflex, watering eyes, squint, red eyes, or swollen eyes.

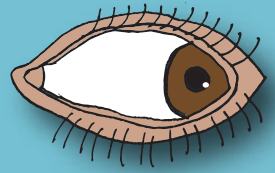
**See your eye doctor:** The earlier retinoblastoma is treated, the faster it can be cured.



Convergent squint



Divergent squint



## STRABISMUS (stra-bis-muss) or SQUINT or CROSSED EYES

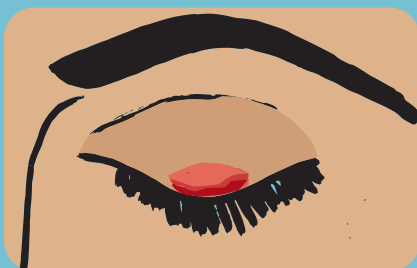
**What it is:** The two eyes are positioned in such a way that both can look at the same bumblebee, and create separate images of it. The separate images merge to form one final image of the object being viewed, which is called binocular vision. Some of us have trouble with this, as both our eyes do not look at the same thing at the same time. That means that the eyes are not aligned with one another, or are not in the same 'line' they should be in. About four in 1000 children have strabismus.

**See your eye doctor:** Strabismus can be corrected by eye patching, medication, or eye surgery.

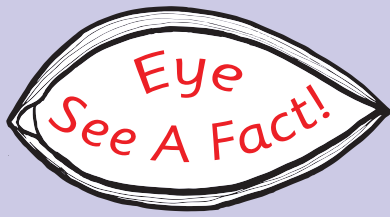
## STYE (sty)

**What it is:** A sty looks like an angry boil on your eyelid. It can be quite painful. It happens when there is an infection on the rim of the eyelid. Some people get a sty more than once.

**See your eye doctor:** The eye doctor will write out medication for the sty.



An infection on the eyelid is a sty



In India, conjunctivitis is also known as Madras Eye, or Joy Bangla. The bug that makes the eye pink was found by a doctor in Chennai (the place was then called Madras). The second name came in 1971, when thousands of people got conjunctivitis in Kolkata, soon after the war that won Bangladesh its freedom. It was believed to have spread from the war zone. Joy Bangla means 'Victory to Bangladesh'.



THE EYE WORD

**Sight** (sY-T) is when you can see something.  
**Vision** (vi-zhun) is your ability to know and understand the thing that you see.

You may think you have the same eye problem that your friend did, and reach out for her eye drops.  
**Stop!** Never use someone else's eye drops or medicine.

IN A BLINK!





We eat food not only to stay alive, but also to stay healthy. Many of us cannot find (or buy) the food we need to eat. So, we end up eating cheap food that may not be enough to keep us healthy.



Nutrition (new-tri-shun) is the process of obtaining energy from food that contains any of the 6 nutrients: carbohydrates, fats, proteins, water, vitamins and minerals. Nutrition is required for growth and good health. When your body doesn't get nutrition, or when you eat food that is not good enough to keep you healthy, you suffer from malnutrition (mal-new-tri-shun).



Malnutrition can make your eyes weak. Thousands of children all over the world suffer from night blindness (nyctalopia). They cannot see well outdoors after the sun goes down, or even in poor light inside the house. These children lack Vitamin A.



# eye Problems



**Immunization**

**Good hygiene**



Soap



Maternal health care



Exclusive Breast feeding



for first 6 months



They did not eat enough fruits and vegetables like carrots, pumpkin, oranges, and drumsticks. If they are not given proper food and medicine, their vision will become so weak that they might grow up to be blind.

At least 2,50,000 children from all over the world, mostly those living in poor countries, go blind every year because they do not get as much Vitamin A as they require. Some of them are so poor that they cannot buy food rich in Vitamin A.

If you are scared of the dark, it could be because you find it difficult to see well in the dark. Tell your parents; and consult an eye doctor to correct your problem.



from malnutrition

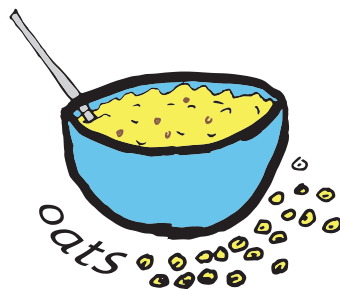


# diet for eye health

## I SEE A RABBIT!

The good news is, weak eyesight can be cured if you eat the right food. Fruits and vegetables that are orange or yellow are good for the eyes. Become Bugs Bunny. Eat carrots and oranges and other bright vegetables. There are also foods to which Vitamin A has been added. Your doctor may ask you to eat some of those. Eat food that is eye-healthy. Eat all the colourful veggies - mix them with rice, or stuff them inside the fold of a roti/chapati. Enjoy the colours, smell, texture, and taste of all kinds of fresh fruit. Pour yourself a glass of milk to finish off your meal.

A balanced diet to keep your eyes healthy should include some of these:



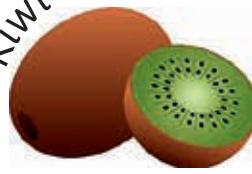
Sweet Potato



Papaya



Kiwi



Broccoli



**Eat:** Nuts and whole grain.

Fruits, like oranges, papaya, kiwis; all kinds of berries like strawberries, grapes, grapefruit. Vegetables like sweet potatoes; all green leafy vegetables like spinach, broccoli, green peas.

**Drinks:** Milk, orange juice, berry smoothies (thick, fruit drinks).

Orange

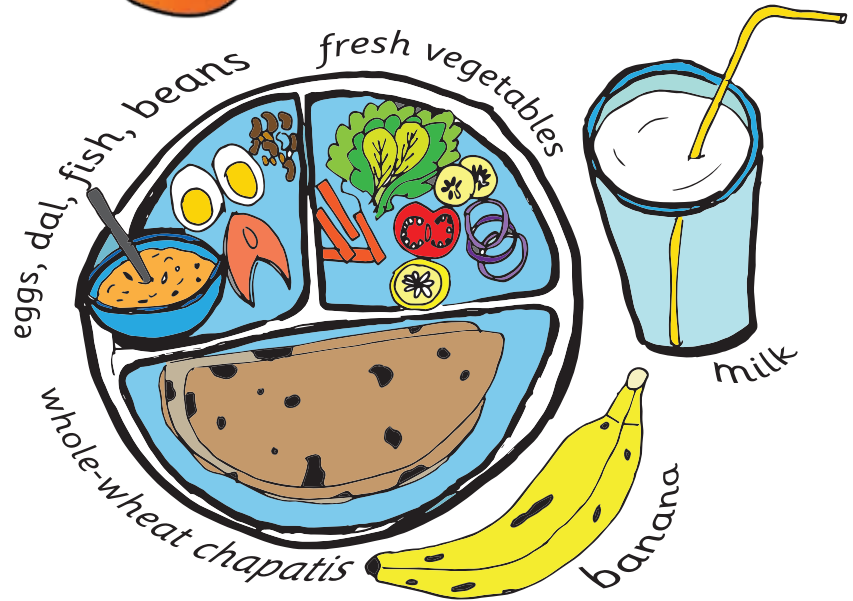


Spinach/Palak

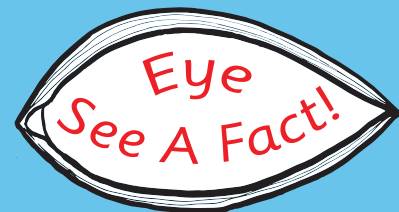


**FOCUS POCUS!**

Vitamin A is good for your eyes, but you also need food rich in Vitamins C and E and zinc. A plateful of food like this can keep your eyes healthy. If you are vegetarian, eat more dal and beans instead of eggs and fish.



If you are not a vegetarian, eating eggs, liver, and dark-fleshed fish (such as Frigate Mackerel which has dark brown muscle) is good for the health of your eyes.

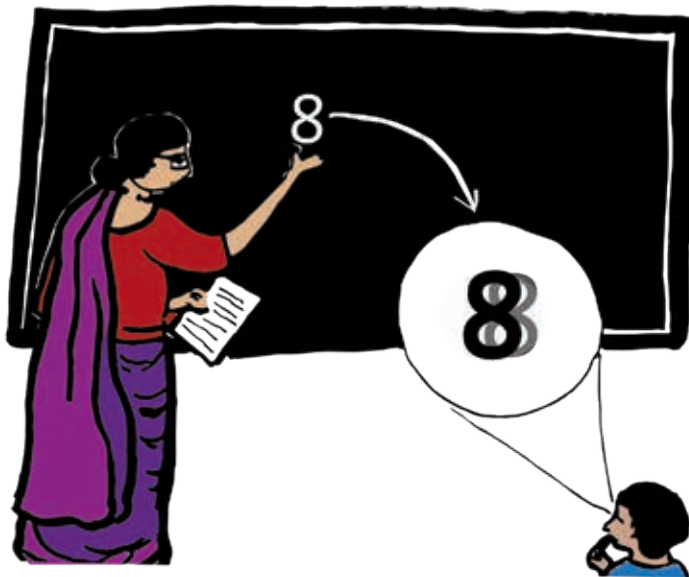




## DO YOU NEED TO WEAR GLASSES?

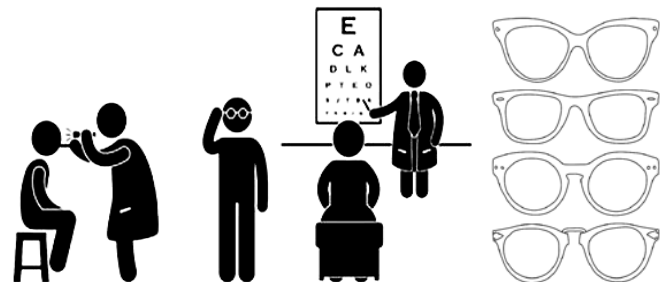
There is no reason to feel scared if you cannot see clearly, or if you see two of everything.

### Common eye problems in children and their correction: glasses, eye patch, and other procedures



**Tell your teacher and your parents.**

Remember, you are not alone. Many of us have some problem with our eyes.



#### IT'S TIME FOR AN EYE CHECK-UP, IF...

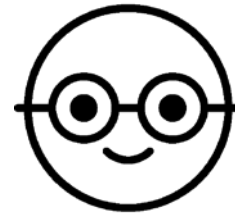
- 👁 You find it difficult to read what the teacher writes on the board.
- 👁 You have to ask your neighbour for help when you have to copy something written on the board.
- 👁 Your own writing looks blurred.
- 👁 Your friends tease you for holding your book up to your nose to read.
- 👁 Your eyes hurt when you read.
- 👁 You tell your friend her blue sweater is cool; and she says, 'Blue? It's yellow!'

## HELLO, DOCTOR!

The doctor will test your eyes to find out how to help you see better. Eye tests are not painful. The doctor (or optician) may ask you to read from a chart. If you cannot read a letter, tell the doctor.

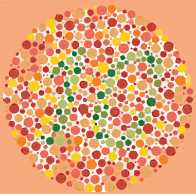
The doctor may ask you to:

- 👁️ Wear glasses. You may need them for a few years, or for a longer time.
- 👁️ Do some exercises to make your eyes stronger.
- 👁️ Come back after some time.

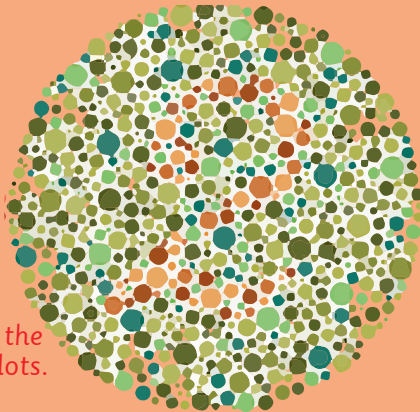


Some eye problems are permanent, like colour blindness, or not being able to tell the difference between red and green.

If you keep making a mistake in telling one colour from another, the eye doctor may show you this coloured diagram:



If you look long enough at it, you should be able to see a letter (or number) inside the ball of coloured dots.



I'm not colour blind!  
I'm just colour confused.



## GOT MY GLASSES!

How do you look? If you choose the frame with care, you will look smart when you put on the glasses! For the first few days, be careful; as your eyes have to get used to the glasses. Try not to run around. Stay away from contact sports or wrestling. Don't be too scared of breaking your glasses. Most glasses are made of plastic, not glass, so they do not break very easily.

## 1 EXERCISE!

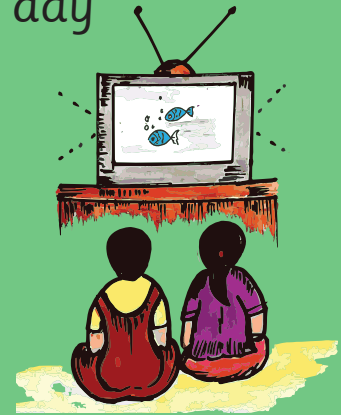
Your eyes work hard for you from the minute you wake up to the time you go to sleep.



Try to exercise your eyes at least once a day for five minutes.

Try to blink enough every day.

Never stare at a screen or a book for a long time.



Take breaks from these activities, otherwise you may strain your eyes from the close work.

Reduce the screen time to an average of 60 minutes per day.

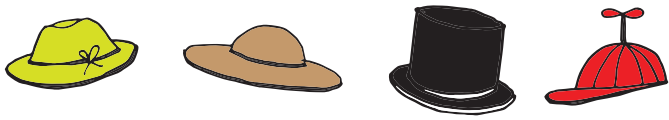


Actively involve yourself in outdoor activities, especially on weekends.



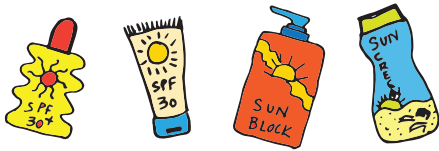
eye care:  
some general healthy habits





## HATS

Whenever you go out in the sun, wear a hat (or cap) to shade your eyes from the ultraviolet (UV) rays. UV rays might cause harm by destroying the natural cells in the eye.



## SUNSCREEN LOTIONS

Apply sunscreen lotion over the exposed parts of your body - only the limbs, face, neck, and midriff, NOT on the eyes - to safeguard yourself from harmful ultraviolet A or B rays. Check the bottle label to see if the lotion has a minimum Sun Protection Factor (SPF) of 30.



## DARK GLASSES (ANTI-GLARE)

When you are going from one place to another in hot weather, wear a pair of sunglasses to protect your eyes from the glare of the bright sun. When you buy sunglasses, always ask the optician for the anti-glare type.



# i care for my friend's eyes



Now, we know how important our eyes are. They are not as tough as, say, your bones. So, even when you are playing, you need to be careful about keeping your eyes safe. And you need to be careful to keep your friend's eyes safe as well.

Never touch your friend's eye. If something has gone in, ask your parent (or teacher) to take it out.

Never poke your friend's eye with a finger, or pencil.

Playing in the sandpit can be fun. Never throw sand, or mud, at your friend's eyes.

Don't spray anything into anyone's eyes. Must you spray from a can? Tell those around you; so they can shut their eyes.

Splashing around in a puddle? Give your friend time to shut his/her eyes before you take that huge jump!

Never aim at your friend's eyes with a paper aeroplane, a toy gun, or a pebble.

Is your friend trying to slice some butter for you? Ask her/his mother for help. If the knife slips on the frozen butter, she/he could hurt her/his eyes.



# Activity 1

## WORD SCRAMBLE: I SEE NEW WORDS

These 'eye' words have forgotten how to spell themselves; and gotten jumbled.

Can you guess the words?

**YESE**

(I see with these)

\_\_\_\_\_

**TEINRA**

(Starts with R!)

\_\_\_\_\_

**SIRI**

(That's the colour  
of your eyes)

\_\_\_\_\_

**DIL**

(Outer covering)

\_\_\_\_\_

**WOBR**

(Gatekeeper keeps  
dust out of your eyes)

\_\_\_\_\_

**KLINB**

(To open and shut your  
eyes fast)

\_\_\_\_\_

BROW

IRIS

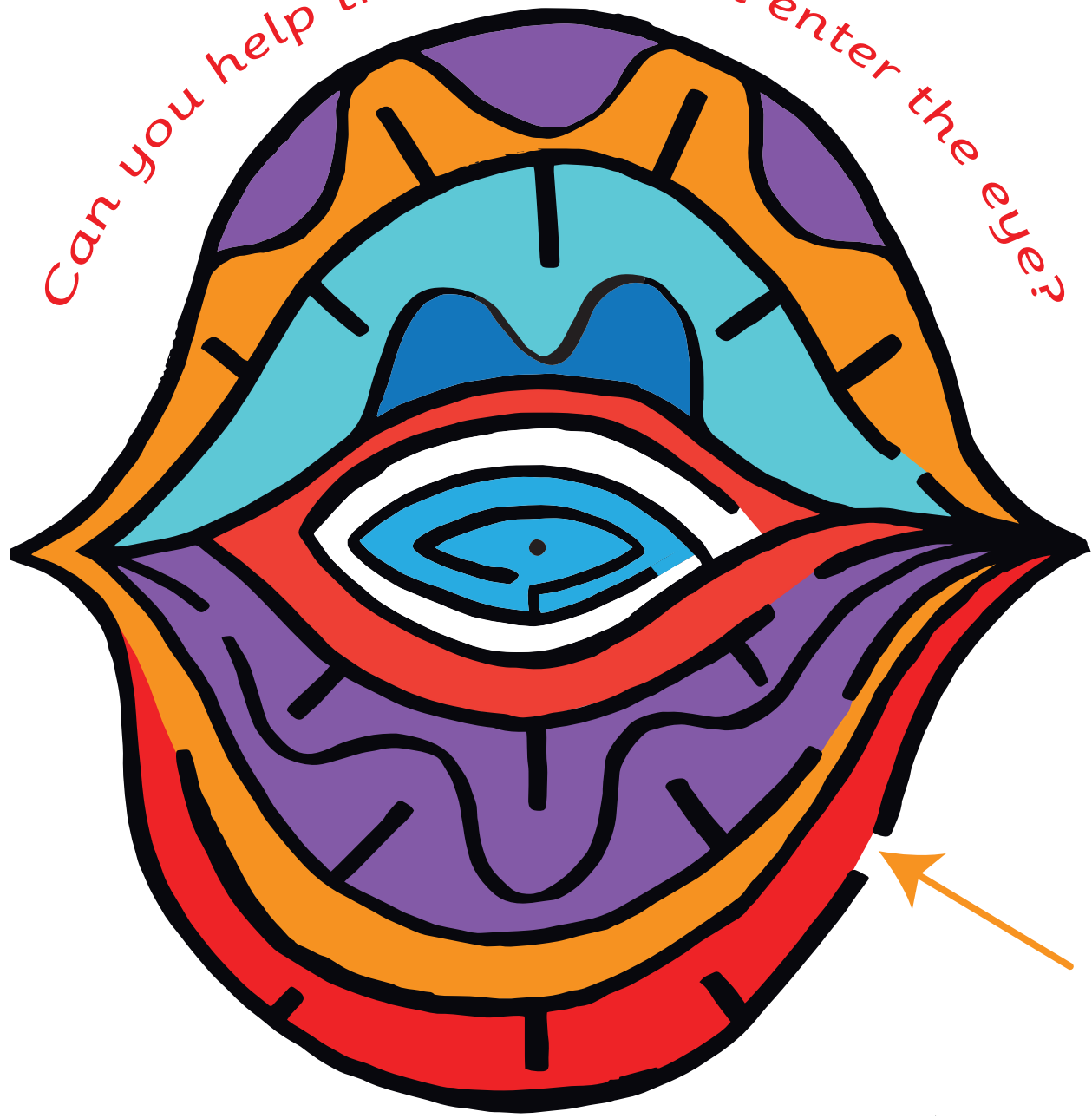
RETINA

LID

BLINK

EYES

Can you help the ray of light enter the eye?



# activity 2

# Activity 3

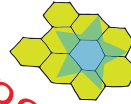
## LEARN WORD MEANINGS

**Binocular vision**



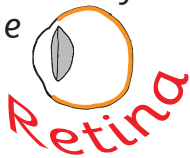
When you see two separate images one over the other as a single image

**Compound eye**



Many tiny eyes are arranged on a convex surface to form a single compound eye

Projection screen at the back of the eye



**Contact lenses**



Transparent plastic lens worn over the eye to correct colour blindness, eyesight problems, or for cosmetic reason

**Iris**



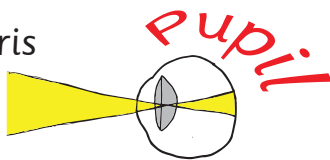
Coloured part of the eye ball

Cover shielding the view of the eye, worn over the better eye to correct the lazy eye, which is not covered

**Eye patch**



Opening in the iris to allow light to reach the retina



**Sense organs**



Parts of the human body that help us learn about the surroundings, viz., vision, hearing, touch, taste, smell



White part of the eye ball

**Congenital**

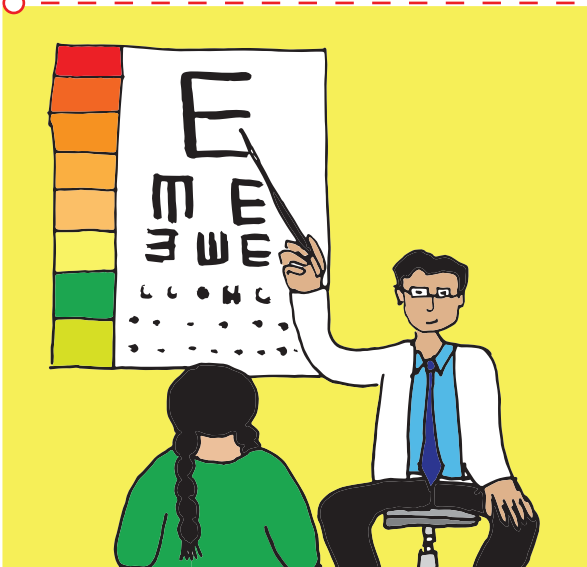
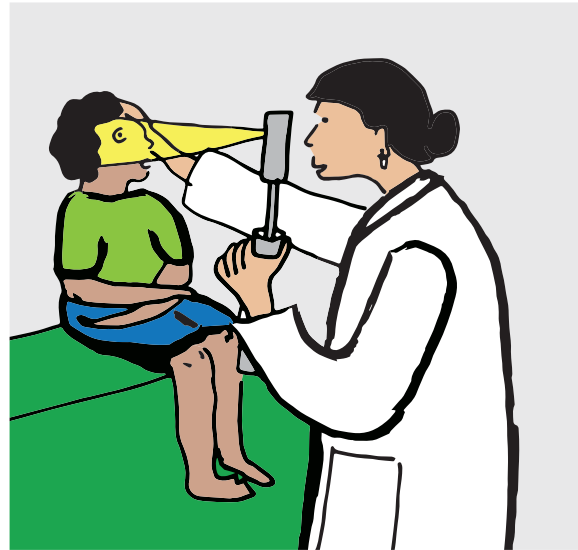


From birth



## Ophthalmologist

An ophthalmologist is an eye doctor who checks the inside of the eye; and treats abnormal eye conditions using medicine or surgery.

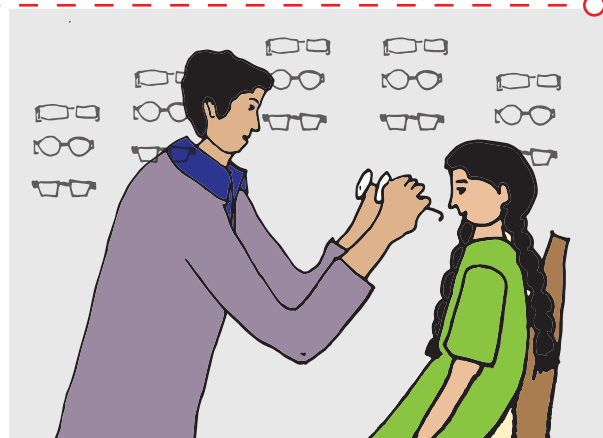


## Optometrist

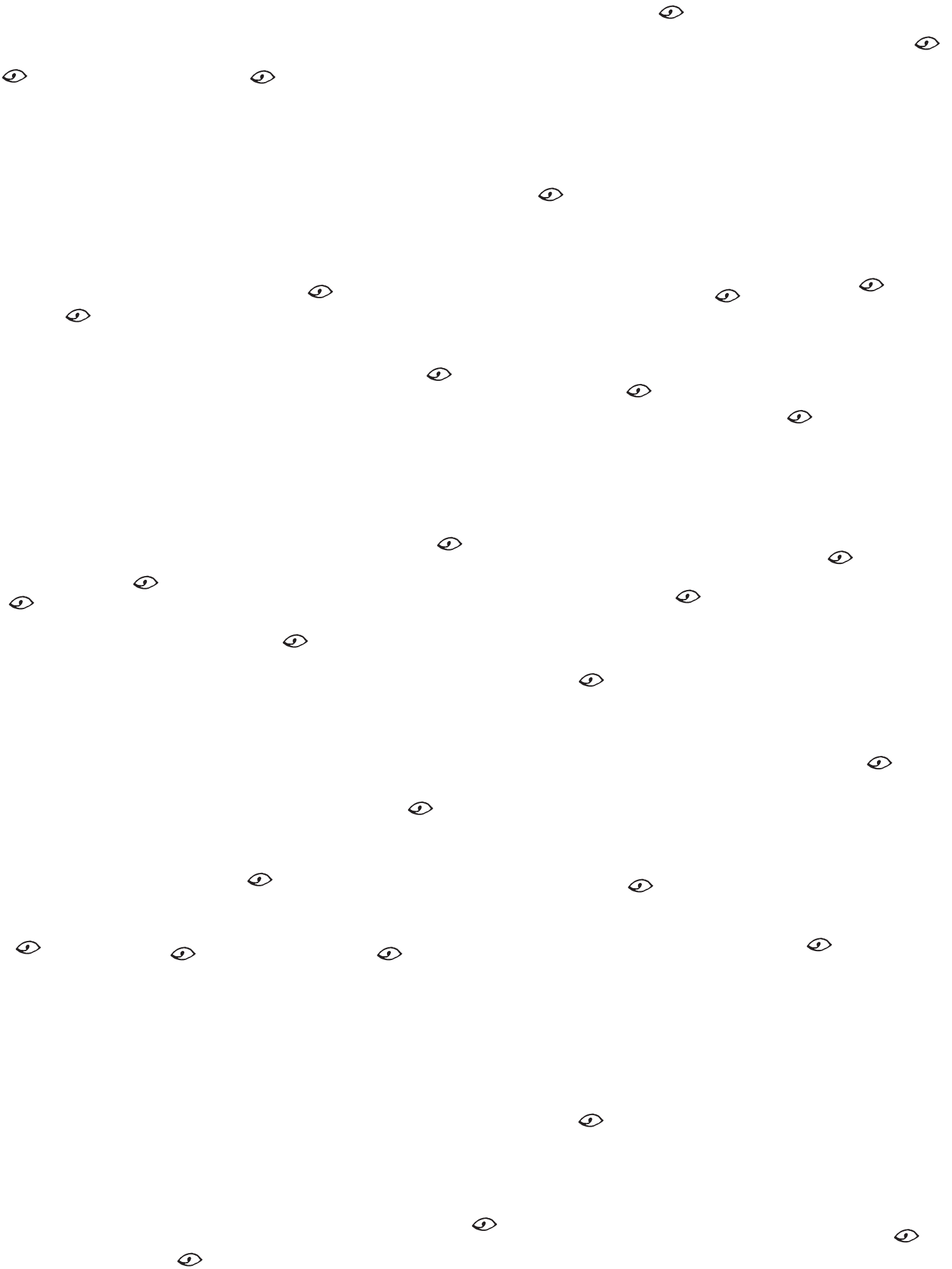
An optometrist helps the eye doctor in checking the patient's eye condition, writing it in a medical record, prescribing eyeglasses or contact lenses, and giving instructions for eye care.


## Optician

An optician is a professional who makes eyeglasses (or spectacles) for customers.



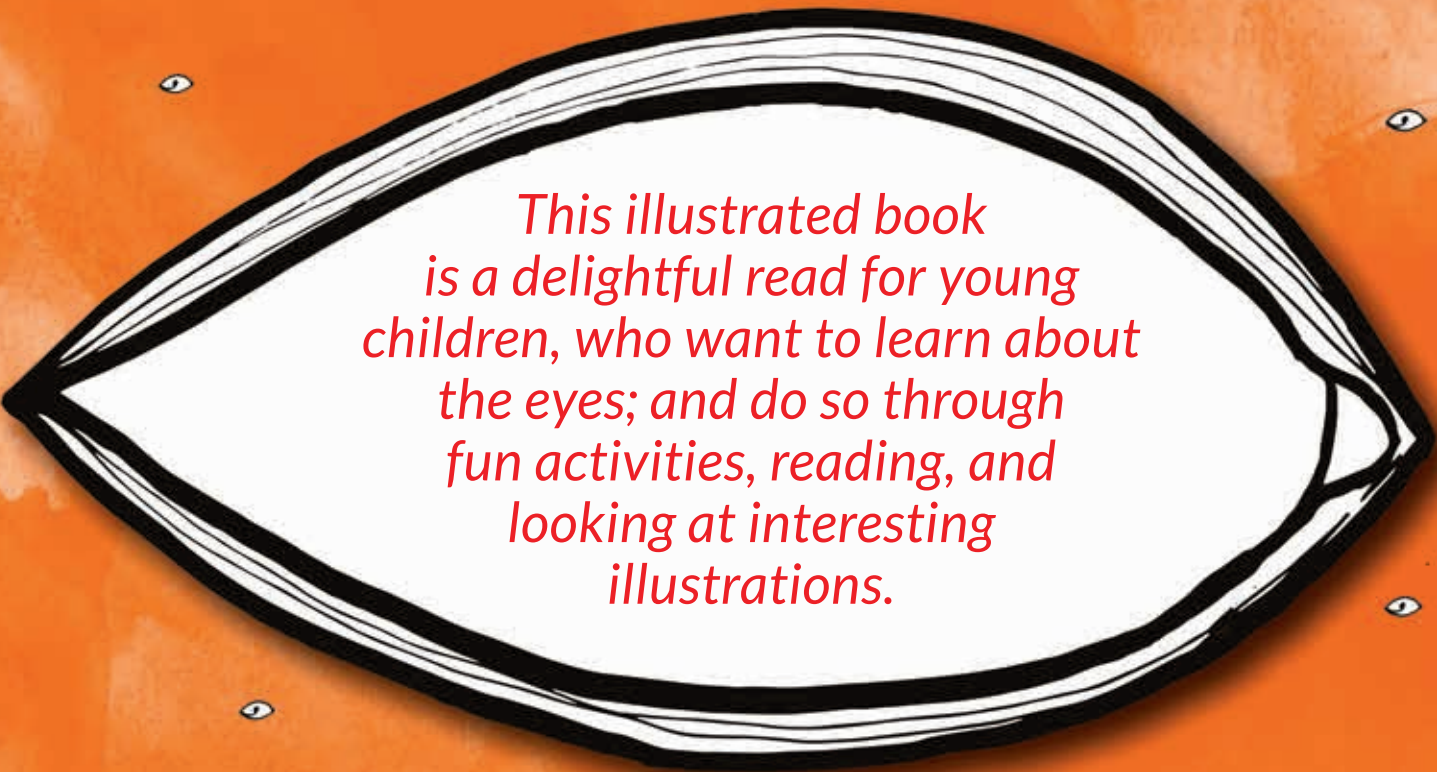
introducing professionals in eye care





Authors Benita Sen and Dr. Moen Sen

*A journalist, horticulturist, landscape artist, writer, dog lover, activist and more, Ms. Benita Sen and her daughter Dr. Moen Sen, a cancer biologist, have together written this book for children on the eye. In Benita Sen's words, it is truly a labour of love, written up for the love of all children.*

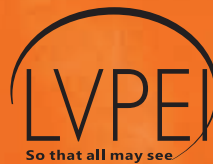


*This illustrated book  
is a delightful read for young  
children, who want to learn about  
the eyes; and do so through  
fun activities, reading, and  
looking at interesting  
illustrations.*

**Ages: 7 & above**

**Pledge to support the LVPEI mission to  
eliminate avoidable blindness! Please visit:  
[http://www.lvpei.org/Partner\\_donation/donation/](http://www.lvpei.org/Partner_donation/donation/)**

**Published by:**



**LV Prasad Eye Institute**

**ISBN 978-81-935180-0-7**

