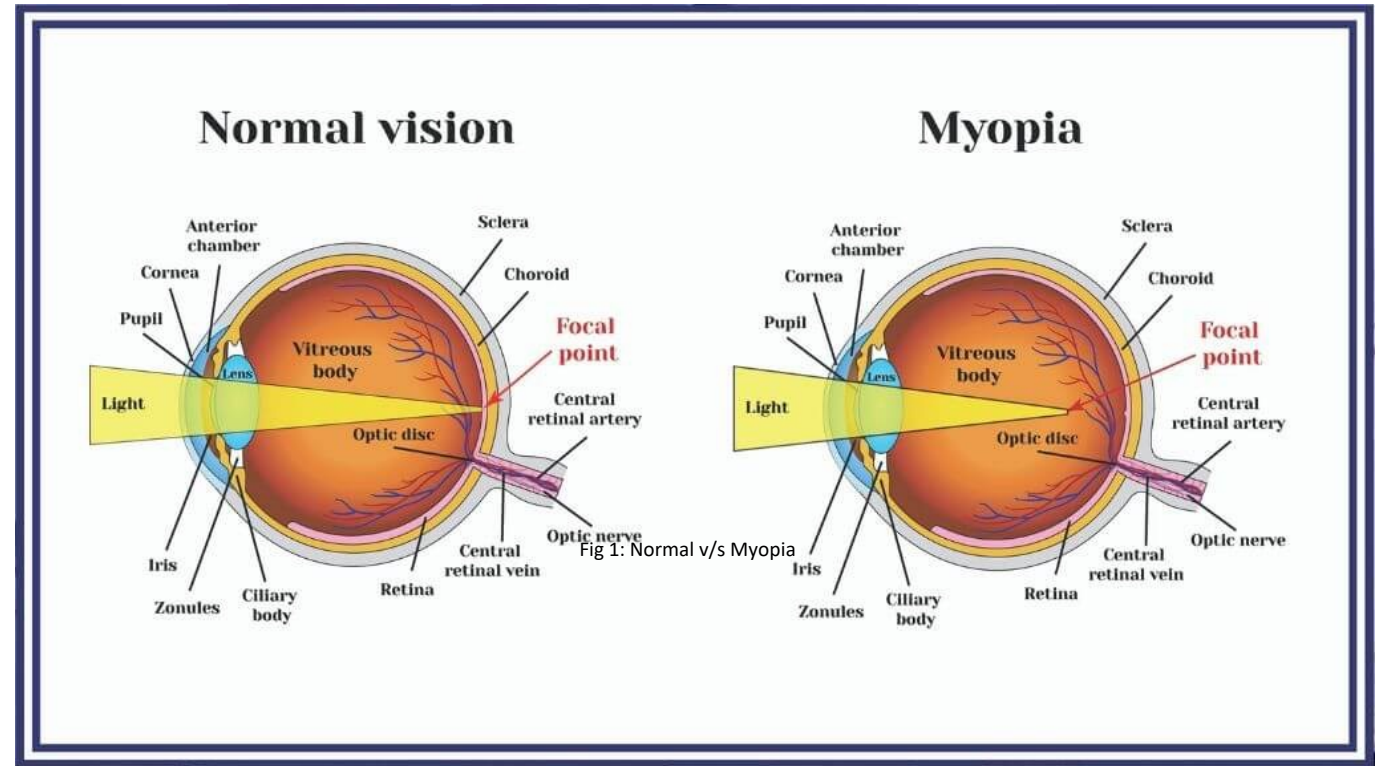


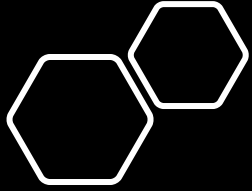
Near/Short Sightedness or Myopia – My eye vision journey so far!

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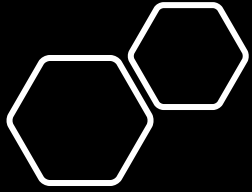
Purpose

1. Myopia is the condition of near-sightedness - when you can see objects close to you, but it is harder to see things farther away.
2. The purpose of my STEM project is to find out why my vision had problems which started sometime in the summer of 2020, because my parents and I were worried.
3. So, I investigated the problem and how it was fixed after I consulted my eye doctor and started wearing glasses/ contact lenses.

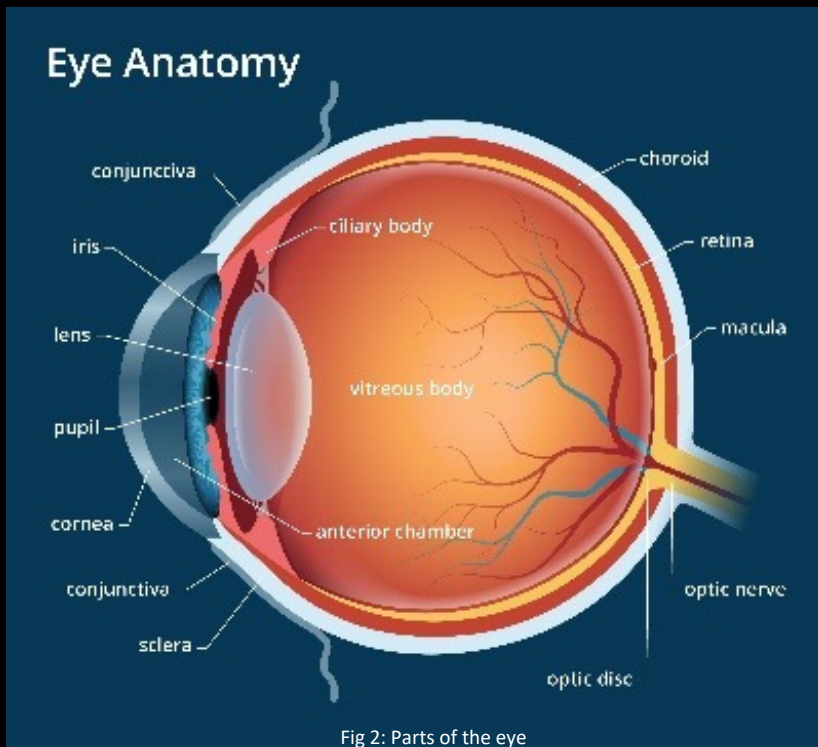
Hypotheses

When I started having blurry vision, my thinking was that I might have been getting too much screen time from the pandemic and all the online school.

My parents thought maybe I wasn't getting enough nutrition, so my eyesight might have deteriorated.



Procedure

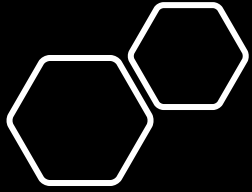


I wanted to understand the what might have happened. So, I started with studying what are the parts of my eye and how does my eye vision work.

#1: *Parts of the eye:*

First, I studied the parts of the eyes:

- ❖ The outer eye, aka the parts you can see if you're just looking at an eye with the naked eye.
 - ❖ The big black part in the middle of your eye is the pupil
 - ❖ The part around it, which is different for everyone because everyone has different eye colors, is the iris.
 - ❖ The white part around that is the sclera.
 - ❖ There is a part that is kind-of above the iris and pupil, which is the cornea.
 - ❖ The lens is a part right behind the iris and pupil.
- ❖ The interior eye which cannot be seen by the naked eye are:
 - ❖ ciliary body, vitreous body, anterior chamber, choroid
 - ❖ Retina is where the light hits so you can see
 - ❖ There is also the macula, light receptors, and the optic disk and nerve.



Procedure

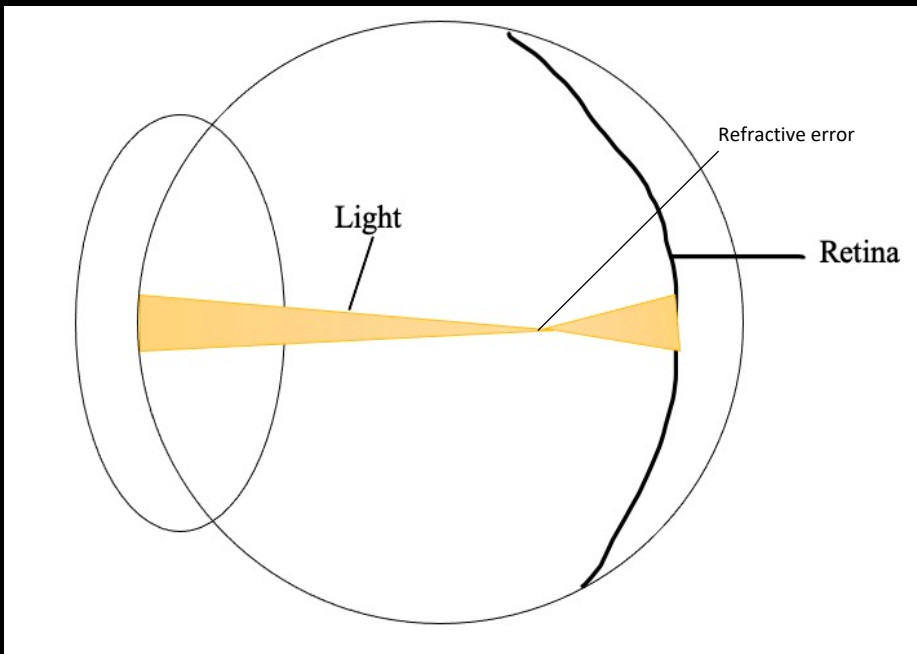


Fig 3: Refractive error in eye

#2: *What happens to the eye of a person having short sight?*

Usually in a person who has normal eyesight:

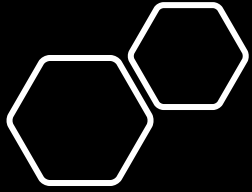
- ❖ The light goes into the pupil and reaches the retina without hesitation
- ❖ But in myopia, the light stops in the middle and doesn't reach the retina. This is called a refractive error.
- ❖ Refractive error in Near-Sightedness/Myopia:
 - ❖ Based on the phenomenon of refraction: Refraction is caused when light rays get deflected when they pass through one medium through another which have varying obliqueness. The deflection is caused due to the change in the speed of light when light passes through these mediums.
 - ❖ This is one of the most common eye vision problems in children. The image of the distant object becomes focused in front of the retina rather than on it.
 - ❖ The eyeball axis could be too long or the eye's refractive power maybe too strong
- ❖ Children will start having blurry vision and it may also cause headaches
- ❖ The focusing power of the eye can be re-adjusted and corrected either by eyeglasses or contact lenses

Result

My parents and I wanted to find out what was causing my vision to be impaired, so we went to the eye doctor– the optometrist. The doctor confirmed that I had Myopia – Near Sightedness

The cure for this eye condition is either I wear glasses that will correct the condition and I can have normal vision. I could also wear contact lenses. So, I was prescribed glasses and I started wearing them about 20 months ago.

About five months ago, my doctor also found that my condition kept progressing and it needs to be controlled so that my eyes don't feel too strained. She recommended a type of contact lens that will control the progress and keep the vision intact. So, I am now wearing contact lenses during the night. They felt weird in my eyes at first, and it kind of hurt, but I have gotten used to them. My vision has gotten much better these past couple of months and I don't need to wear glasses all the time!



Conclusion

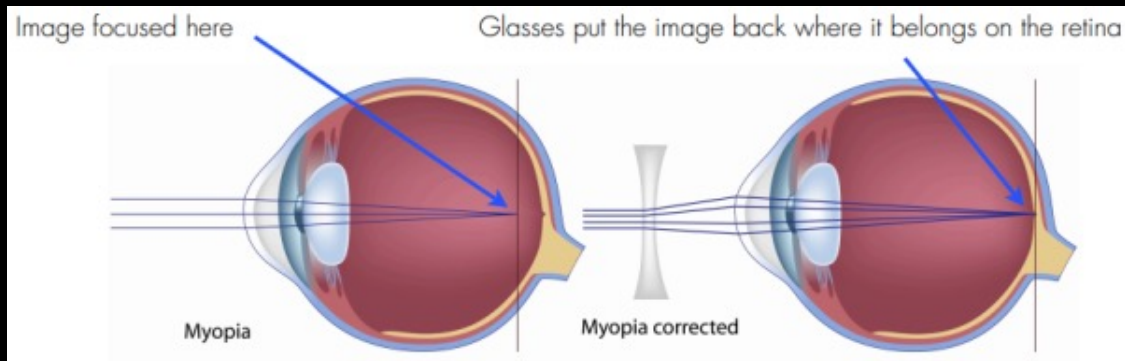
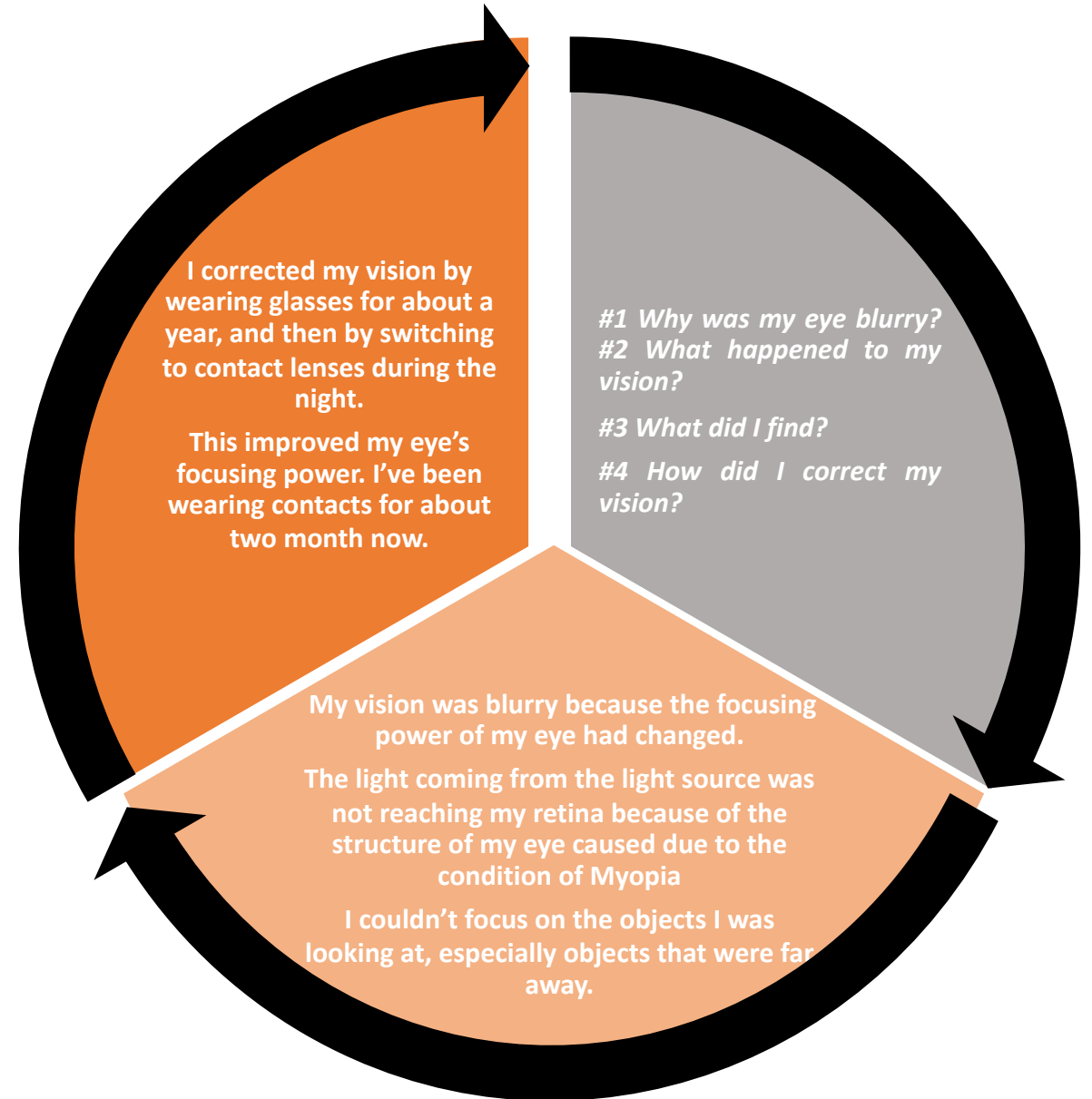


Fig 4: Correction for myopia from wearing glasses



References

- National Eye Institute (NIH)
- Stanford Children's Health
- My Optometrist – Children's Eye Care

Thank You!

Myopia – Refractive Error

