

# Lab experience: reflection of light

## A brief introduction

*Liceo Scientifico Leonardo da Vinci*

Trento  
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# What is light?

- Electromagnetic wave
- Light speed in vacuum

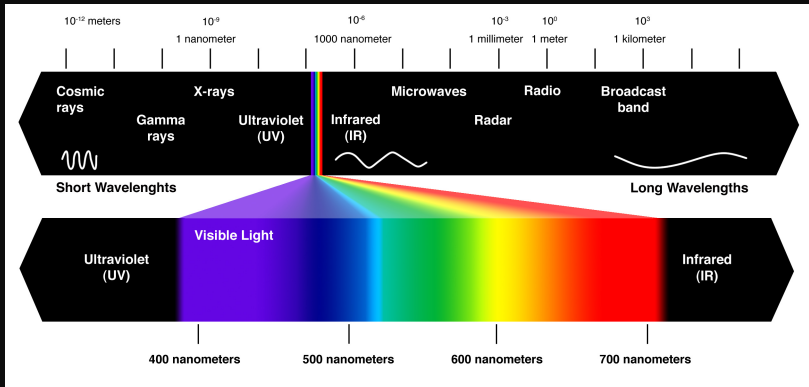
$$c = 3.00 \cdot 10^8 \text{ m/s}$$

- Light speed in a material

$$v = c/n$$

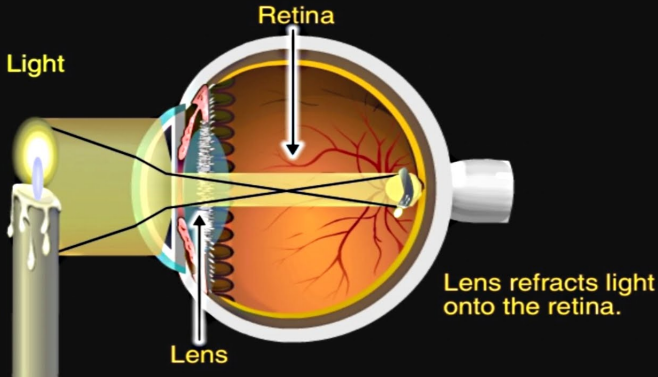
where  $n$  is the refraction index of the material ( $n > 1$ ).

# Visible spectrum



# Light detectors

## The eye



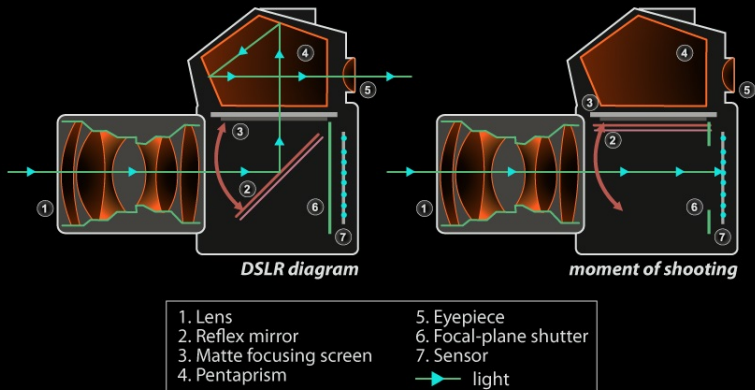
Retina can detect only light in the visible spectrum.

<https://www.youtube.com/watch?v=YcedXDN6a88>

picture from <https://plus.google.com/110478375689840502121>

# Light detectors

## Reflex camera



picture from <https://photodrugs.wordpress.com/2010/10/20/dslr-principle-scheme-of-work/>

[//photodrugs.wordpress.com/2010/10/20/dslr-principle-scheme-of-work/](https://photodrugs.wordpress.com/2010/10/20/dslr-principle-scheme-of-work/)

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- photographic plates (x-rays machines,...)
- silicon (Si) based detectors (digital cameras, phones,...)
- ...

Are all these detectors only sensible to visible light?

# How can we detect light outside the visible spectrum?

Remote controls usually send IR signals.



Is there a way to detect this IR light with everyday tools?

picture from

[https://commons.wikimedia.org/wiki/File:Xbox\\_360\\_remote.png](https://commons.wikimedia.org/wiki/File:Xbox_360_remote.png)

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Yes! Let's find out how.

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End of part 1