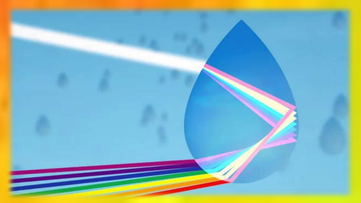
WHY IS THE SKY INSIDE THE RAINBOW BRIGHTER THAN OUTSIDE?

INTRODUCTION

This project began because of a competition called *Illuminating Curiosity.* It consisted in answering a question made by famous people related to the light and one of them got me curious: *'Why do we see the sky brighter under the rainbow than above?'* by Tomàs Molina.

In this topic there are some words we should look at in order to understand the project better:



REFRACTION: is the change in direction of a wave due to a change of medium in its transmission.

REFLECCTION: is the change in direction of a wave at an interface between two different mediums so that the wave returns into the medium from which it was originated.

VISIBLE SPECTRUM: is the portion of the electromagnetic spectrum that is visible to the human eye.

INDEX OF REFRACTION: of a material is a number that describes how light propagates through that medium.

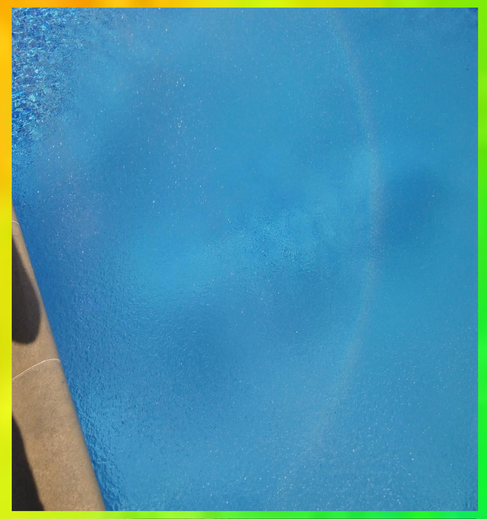
SNELL'S LAW: is a formula used to describe the relationship between the angles of incidence and refraction, when referring to light or other waves passing through a boundary between two different mediums.

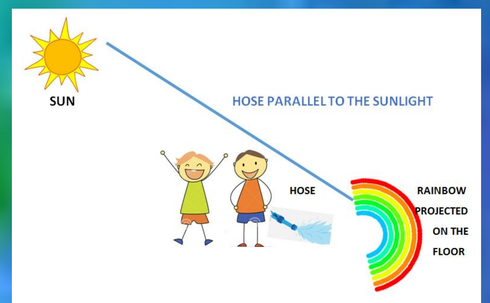
MATERIALS AND METHODS

To check what we've planned we're going to need only a hose.
So, as we can see in the draw below, we have to situate the hose in parallel to the sun light.

RESULTS

These are our results:

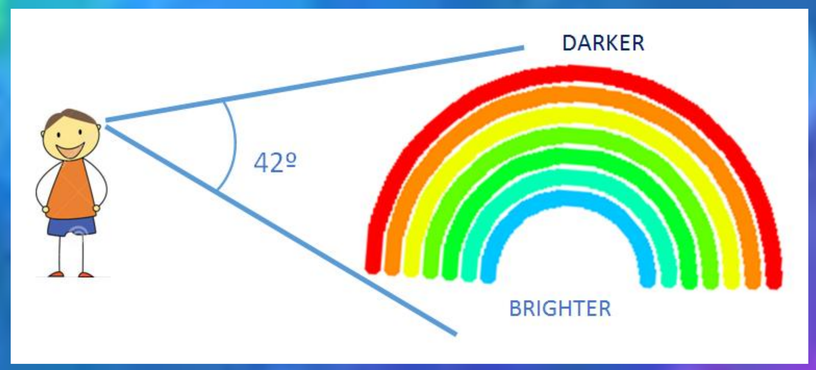




CONCLUSION

- The factors that determine our rainbow are: the sun and the observer position and the movement of the raindrops.
- Because of the refractions and reflexions given inside the raindrops different angles were created that constituted our rainbow. Depending on the final angle, it produces a different colour.
- We observed a rainbow in maximum 42 degrees because there wouldn't be any colour due to the angles formed.
- If the angle was bigger than 42, we could not see it because of our visible spectrum.

So, for all these reasons, the inside part of a rainbow is brighter than the outside part.



BIBLIOGRAPHY

For the love of physics by Walter Lewis
https://wikipedia.com
Physics teacher

THANKS TO...

My physics teacher Verònica Santamaria and the competition Illuminating Curiosity because thanks to them I want to go in depth into this world of photonics and physics.

Juny 2016