

# GEOMETRICIAN'S VIEWS



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## TOPIC: LIGHT

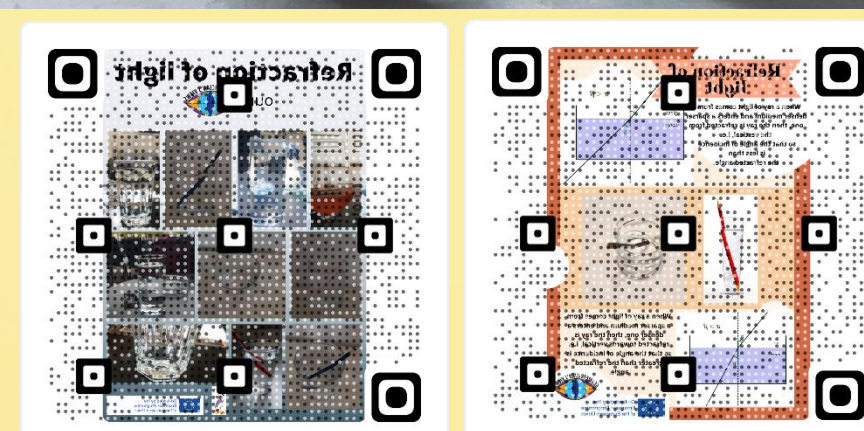
### RESEARCHER VIEW

#### Light

Students investigate the phenomenon of light refraction. They perform practical experiments immersing a pencil in a glass of water or observing the "world from the other side of the glass". They come to a conclusion about the refracted angle considering the different density of two media between which the light ray is refracted. They also investigate the physical laws of eyeglasses and distinguish convergent and divergent lenses. As an example of optical phenomenon related to the light refraction, students observe a rainbow. Students take photos of water surface and create true artistic photographs of the light reflection on the water and look for the most interesting landscapes in order to obtain the most beautiful forms of axial symmetry. This subject is a combination of art, mathematics and physics.



Researcher  
Željka Dijanić



### ARTISTIC VIEW

#### Beauty of light

With the theme of light, the students could show the experience of light and its reflection in nature and through human manipulation through several different examples.

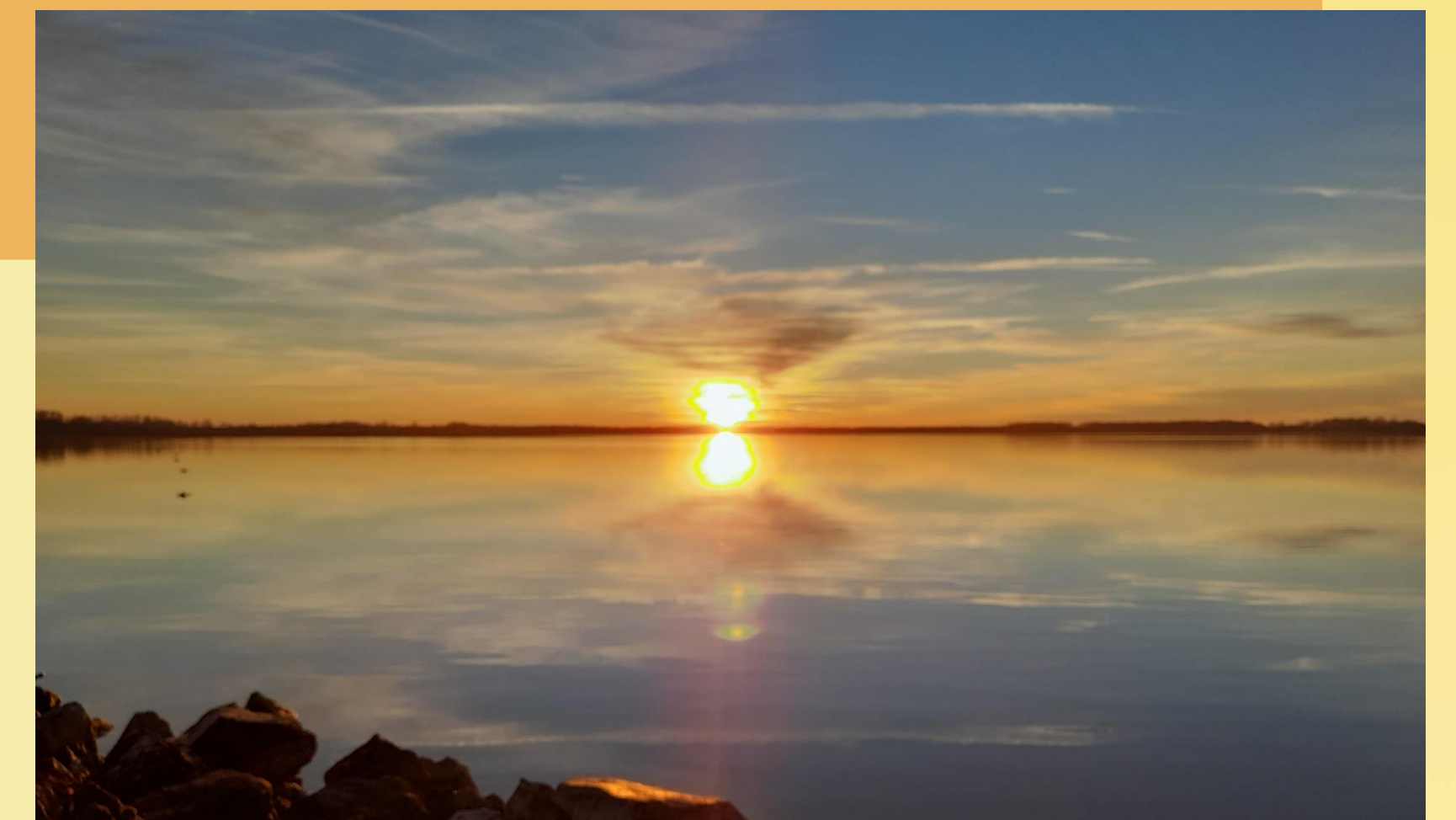
In photographs from nature and faithful, i.e. realistically recorded photo representations of the landscape and sky and reflection in the water as well as the representation of a rainbow, the students, in addition to the wide range of colors recorded by our organ of vision, also displayed them with the lens of the camera and "captured" the axis of symmetry.

Also through the medium of photography, they record an experiment they performed by immersing a pen in a transparent glass of water that is not completely filled, where we optically experience the refraction of light depending on the angle of observation as well as in relation to the density of the two media between which the light is refracted, so we can conclude that by observing through our with an imperfect eye, we can treat a situation or call it a so-called optical illusion. Otherwise, without this kind of knowledge, we could misinterpret this and similar "situations", so it might seem to us that the pencil is broken, i.e. that the pencil breaks at the water level and continues or joins at an illogical place above or below the water level in the glass.

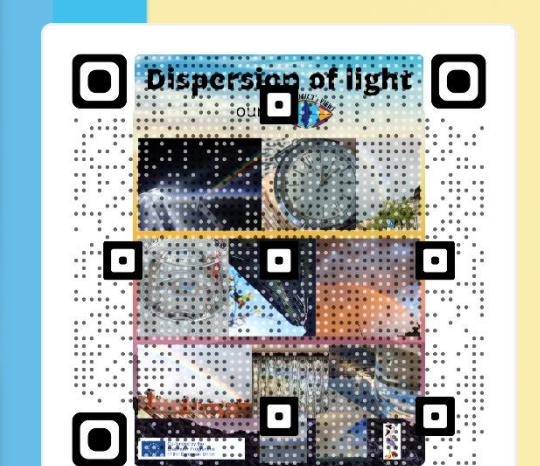
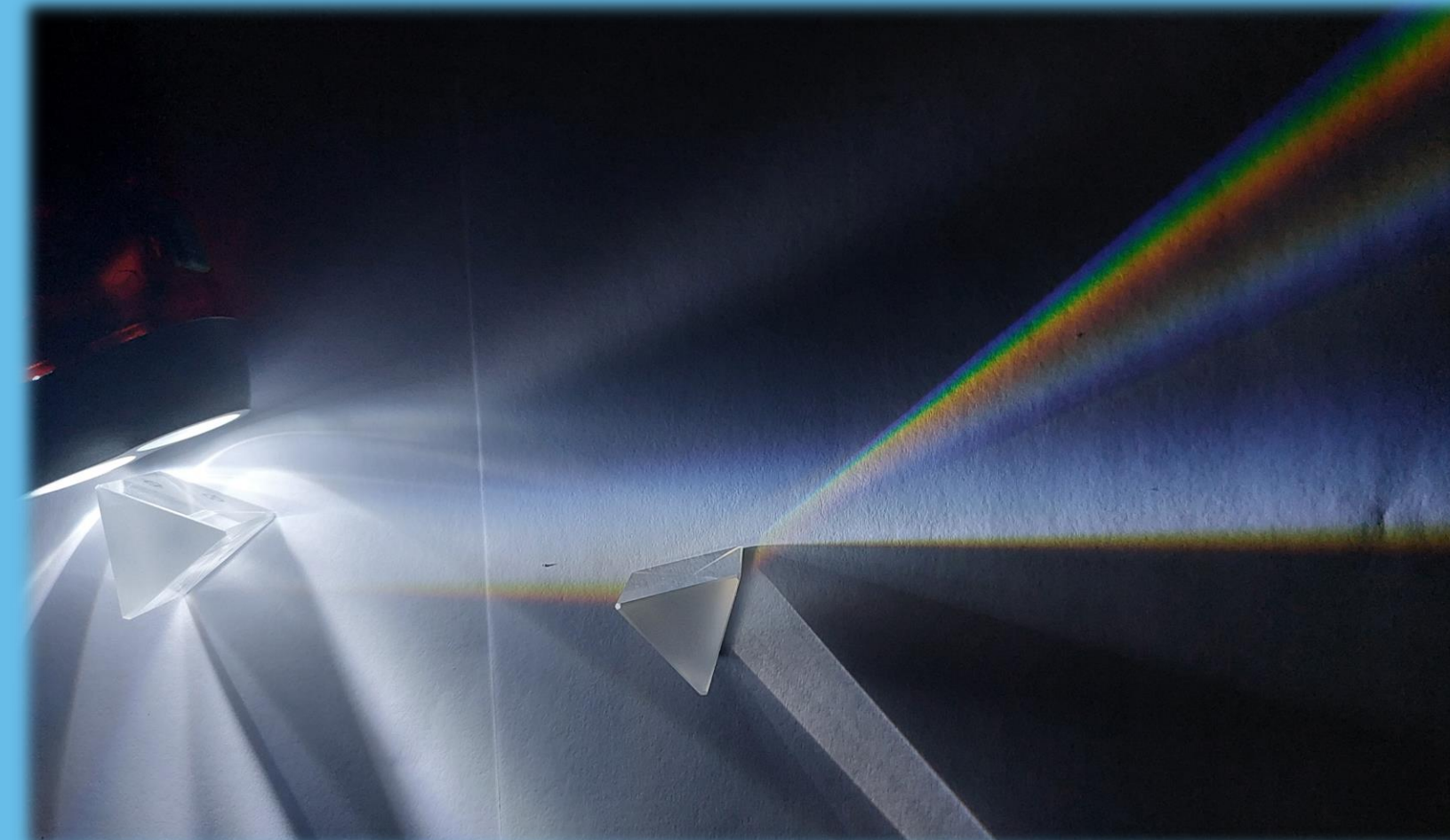
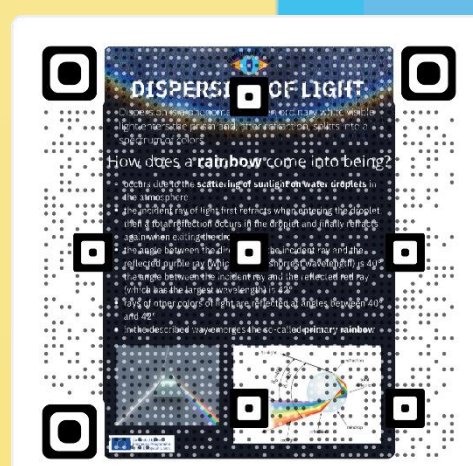
Using the example of a photo of an optical lens or a magnifying glass placed, or moved away above the written text on paper, the students realistically demonstrated how the optical lens, as an aid for magnifying what we observe, directly affects our eyes if we move the lens far enough above the observed text, so that the text in the lens frame is visibly enlarged compared to the text outside the lens frame.

In addition to all of the above, the students also learned how to create beautiful photos by changing the camera settings. Photos adjusted in this way achieve greater beauty and greater artistic value.

Artist  
Ivana Komel



### COMMON VIEW



Scientifically speaking, light is visible electromagnetic radiation with wavelengths in the range from 380 nm to 780 nm, that the human eye sees as colors of the spectrum from **purple** (380 nm) to **red** (780 nm).

But non-scientifically speaking it is a source of life, a phenomenon we can not imagine life without, and a source for beautiful phenomena such as rainbows (dispersion of light) or light reflections – we all enjoy looking at sunsets, especially over the sea horizon.

Light is something that travels through space at the highest known speed, so the journey of light in time is called the speed of light, and according to Einstein there is nothing faster than the speed of light.

Thanks to light we see all objects around us, and it is possible because of light reflection. On the other hand, light reflection gives us some of the most beautiful views.

*"There are two ways of spreading light; to be the candle or the mirror that reflects it."*

Edith Wharton

