The scenario

Subject	Optics / Focus
Length	3:01
Main objectives	Describe the representation of objects using a conjunction.
Detailed objectives	
Structure and description of experiments:	
1. Introduction	Description: The motivation for the experiment will be to investigate the imaging properties of lenses.
2. Main subject	Description: Understand the imaging of objects using lenses depending on the distance from the optical system.
Part 1	
(0:40), **Experiment 1 (0:51),** **Experiment 2 (1:31),** **Experiment 3 (2:21),**	**Tools:** Glass cup, water, object (1) **Description:** Fill the glass with water. The object (number 1 on the paper) is moved just behind the glass in the horizontal direction. We observe that the number 1 has the same shape (it is slightly enlarged). We then move the object back and observe the same thing again behind the glass of water. Subsequently, we move the paper with the number 1 10-20 cm back and again move it behind the glass in a horizontal direction. We observe that 1 has "turned" (right-left direction). When scrolling back, we again observe the rotation of the number 1. In the next phase, we move 1 behind the glass of water and gradually move it away from the glass. We observe that at a certain distance from the cup, 1 "turns" in the right-left direction. When we then move the paper with the number 1 back to the glass, we again observe the rotation of 1 at a certain distance from the glass. The place where the rotation of the digit 1 occurs in this experiment is called the focal point of the imaging system. **Questions:** How would the experiment change if there was no water in the glass? **Conclusions:** A glass of water acts as a lens and depending on the distance of the object - 1 from the glass it changes shape - the object rotates in the right-left direction after passing the focal length of the optical system.
3. Summary, evaluation and notes	**Application:** the working principle of lenses, magnifiers, Based on the given experiment, we can explain the functioning of the eye and the principles of imaging, the creation of a direct and inverted image.

Co-funded by the Erasmus+ Programme of the European Union

	Level: primary school (ISCED 2 / 8th grade)

Co-funded by the
Erasmus+ Programme
of the European Union