

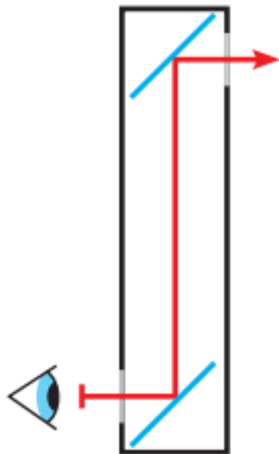


## OBJECTIVES

With this activity, the kids, after the study of optical reflection, experiment this phenomena understanding better how it works and the uses that can be made of it.

- Science: the optical reflection
- Engineering: groundwork to build tools
- Art: different types of artistic products
- Mathematics: calculation of the measure of all necessary materials; measures with different tools like rulers, protractor

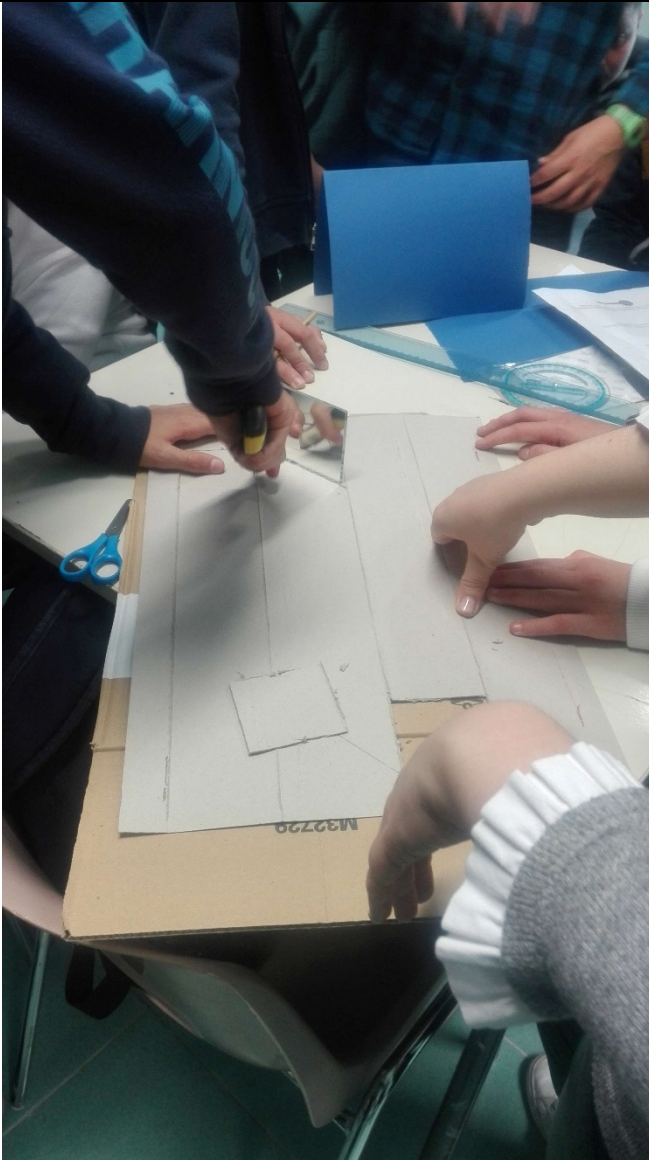
## TOPICS



If the reflecting surface is very smooth, the reflection of light that occurs is called specular or regular reflection. The laws of reflection are as follows:

1. The incident ray, the reflected ray and the normal to the reflection surface at the point of the incidence lie in the same plane.
2. The angle which the incident ray makes with the normal is equal to the angle which the reflected ray makes to the same normal.
3. The reflected ray and the incident ray are on the opposite sides of the normal.

Starting from these laws if we put a mirror inclined of  $45^\circ$ , the light that hits the mirror will be reflected by the same angle. So, the sum of the two angles is  $90^\circ$ . If we put a second mirror with the same inclination of the first so that they are reflected, our eyes can see what is reflecting in the first mirror, watching in the second.



-Cut a cardboard taking the measurement of the  $45^{\circ}$  inclined mirrors

-In correspondence of the mirrors, cut a small square to let the light hits the first mirror and the eye receive the reflection from the second mirror.

-Paste the mirrors with hot glue measuring exactly  $45^{\circ}$  with the protractor.

-Fold the cardboard around the mirrors and paste it with hot glue.

#### ASSESSMENT

The assessment is focused on the ability of students to: construct a model step by step thinking about what it demonstrates, pay attention to measurements, managing, constructions of model itself and calculations of the different variables.

