



ERASMUS+ 2017-1-ES01-KA219-038074_1
OUT OF THE DARK: ASTRONOMY AS UNIFYING THREAD FOR CULTURES.



Building instruments: sundials and quadrants

Introduction

As the project Erasmus+ had the aim to give students a wide range of knowledge for what concerns sciences, in particular astronomy, we related this to navigation techniques and instruments, such as quadrants, which we learned to build and use. This is an important part of the Spanish contribution to the knowledge of the universe.

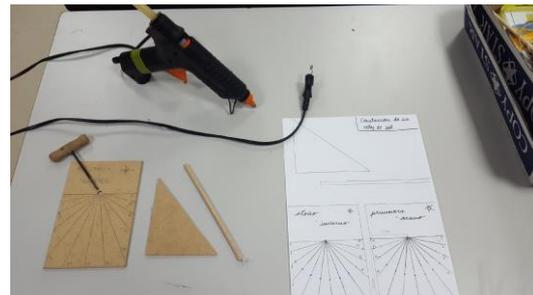
We also made sundials with simple materials, studying once again the influence of the positional differences of our respective schools and the importance of the stars in the construction and use of these instruments.

The Spanish students were trained by the Astronomy center team and prepared a video explaining the procedure. This activity improved their skills in English and trained them for the meeting in Italy.

Materials

For the sundial:

- MDF board 244x122x3mm, cut into rectangular pieces of 15x10cm and triangular pieces 11x9x14cm,
- smooth rod beech 6 / 1000mm
- carpenter's glue or silicone
- drill



For the quadrant:

- MDF board 244x122x3mm, cut into square pieces of 20x20cm,
- drinking straws
- twine thread or similar
- drills
- nuts or weights
- glue



Procedure/Method

In order to prepare the instruments, the Italian teachers prepared all the materials and then, after watching the video and guided by the Spanish students, the international teams built sundials and quadrants.

We needed a square piece per student for the quadrant, a triangular piece and a rectangular one per student. The rod was divided into pieces around 17cm long.



Results

The workshop was a good opportunity to collaborate and do a technical work. After building the instruments we used them discussing the little differences between our location and the angle needed for each latitude in order to accurately measure the time.

Conclusions

This is one of the proposals from the Astronomy center in Fuenlabrada, that Spanish students could do in one of our visits. An opportunity to learn from other teachers and become a teacher at the same time, thus developing the ability to explain a content, find solutions to a problem, investigate, etc. Peer learning has always been one of the priorities of this kind of projects, as well as the exchange of knowledge and experiences.

This was one of the activities related to our Erasmus project that we showed at the III Science Fair to the local community in Fuenlabrada, together with the Escape room of Astronomy in its first version and the World views exhibition, bringing our first year of project closer to our environment.

Bibliography

<https://outofthedarkerasmusus.blogspot.com/2018/12/building-sundials-and-quadrants.html>