

CERN laboratory

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Target: To familiarize students with the world's largest physics lab CERN and its contents. To understand the basic experiments that are conducted at CERN, as well as why they are important for humanity. That students know how to transfer what they have learned on the broader masses.

Outcomes: Students will get to know the LHC detectors after all activities, particularly CMS. Students will know how to convey their knowledge to the scientific and popular way to those who are not informed about CERN. Students will know how to describe the process of detection of elementary particles. Students will understand the importance of CERN's research and they will be familiar with their future plans. Students will understand the importance of investing resources in basic research and the implications for the overall benefit of mankind.

Description of activity:

Activity 1.

Students are provided with online materials within the ODS group *Virtual visit to CERN* <http://portal.opendiscoveryspace.eu/community/virtual-visit-cern-774522> , which they observe and analyze from their homes. They were given the following materials: animation Cernland, then "CERN open data" as well as video materials CERN brochures.

Activity 2.

After analyzing materials, students write a report on the part of the CERN laboratory, which made the best impression on them. They are put into groups according to their interests, and then they go on with their work in Edmodo groups. At the end of the report, they write questions that they couldn't find the answers to.

Activity 3.

With the teacher's mentoring, students present to other students what they have learned. During the presentation, the teacher gives them the answers to those questions for which she is competent to respond to. Of course, there are always some questions which the teacher can't answer. Questions are divided into discussion on ODS within the community so when they come to virtual visit, they know who is going to ask which question.

Activity 4.

Via the ODS project in Serbia, the teacher organizes a virtual visit to CERN. During visit scientist show them how laboratory looks like from the inside, and give them lectures about all the details about CMS detector. Students get information, from the first hand, about voltage, magnetic field, weight of devices and all other performances. Students have the opportunity to peek into Laboratorie parts in which no one, except the staff, does not have access to enter. Also they have possibility to ask questions about their parts, purpose, method of work and everything else that children's imagination comes to mind.

During the meeting, our scientists Dr. Predrag Milenović and Dr. Milos Djordjevic did their best to get answers to all students questions so students were very grateful. In this meeting the following schools participated:

First Grammar School from Kragujevac (20 students), Grammar School Predrag Savic, Kraljevo (37 students), Grammar School „Svetozar Marković“, Niš (150-170 students), Grammar School „Isidora Sekulić“, Novi Sad (50 students), Grammar School Aleksinac, Nis (24 students). After this meeting, the participants joined together in discussion on the ODS website, exchanging experiences and corresponding about new encounters.

The enthusiasm of students after such visits can be seen in comments in discussion.

After the meeting on using ODS community, the students worked on poll, in which they positively evaluated the meeting, and expressed a wish to re-visit. Also, we opened a discussion, in which they could exchange their experience. Future meetings will be announced to the ODS in the community and on Facebook in order to expand the number of participants.

Activity 5.

After the program ended, in order to increase women in science, interested girls had the opportunity to pass on what they have learned to their parents and other guests, who come to our traditional meetings "Thursdays at Isidora." They made scientific popular presentation of CERN, with all the elements that we have processed and successfully presented it to his parents, where they also had the opportunity to learn something new from their children. Before the presentation, they did research on the representation of women staff scientist at CERN. The presentations are uploaded on the ODS community <http://portal.opendiscoveryspace.eu/community/virtual-visit-cern-820285>