



NTSE - Nano Technology Science Education

Project No: 511787-LLP-1-2010-1-TR-KA3-KA3MP



THE CASE STUDY OF VIDEO CONFERENCE ON LEDs (Video Conference Trial and Sample Lesson)

Dec the 14th, 2011

TR - BG

TR students&teachers

(Çekirge Doga Anatolian High School, Bursa, Turkey)

BG students&teachers

(John Atanasov Electronic High School, Bulgaria)

Lesson Title: "LEDs"

Nanocrystal Fabrication lesson link:

<http://vlab.ntse-nanotech.eu/NanoVirtualLab/experimentroom/ac5d9f677f9b4c19a55457be2042b753>

ABSTRACT

Through employing the Virtual Lab (www.ntse-nanotech.eu) at the web-site designed with a view to achieving this as well as the lesson plans which are inquiry-based lesson plans with reflections of Nano Technology in Science Education Ref. 511787-LLP-1-2010-1-TR-KA3-KA3MP, courses in which students actively participated were given. In the experiment room the teachers can watch teachers guide first in order to implement an experiment with their students.

<http://vlab.ntse-nanotech.eu/NanoVirtualLab/experimentroom/list?page=1&size=5>

INTRODUCTION

In 02 Dec 2011, the 1st period of 2011-2012 Academic Years, an on-line lesson between John Atanasov Electronic High School in Sofia and Çekirge Doga Anatolian High School in Bursa students and their teachers was held. This video conference session was the first video conference session as a sample and trial in order to develop the connection, lesson plans and the procedure of the video sessions that will be held during the project. The main aim of the video conference was to find out the interest level of students and to



raise their interest in nanotechnology. The video conference session was conducted in 60 min. During the video conference students were informed about LEDs (Light Emitting Diodes). During the video conference session, it was aspired to;

- Understand the main concepts in LEDs
- Comprehend the relation between stimulations of atoms and light
- Comprehend the structure of light
- Acquire the relation between wavelength and colour of light
- Understand the advantages of using LEDs

The empiric procedure of the implementation is explained in a timely fashion below.

1. While planning the education, integration of inquiry based learning, improving digital and science literacy drawn out in scope of the NTSE project have been taken into consideration and each activity aims to gain these competences.
2. The call for video-conference sessions was sent to schools and they were informed about the requirements of the video conference session.
3. The week before the commencement of the implementation of the empiric process, the project expert has met the students and informed them on the implementation and tried to motivate them to willingly participate.
4. Before the implementation of the sample experiment about LEDs experiment, a ppt presentation prepared specially for this video conference by the Turkish project expert was mailed to BG in order to have the students and teachers informed.
5. Before the video conference, BG mailed their smart board program and the Turkish teacher uploaded it on their own smart board in order to synchronise both smart boards in TR and BG.
6. Turkish teacher introduced the lesson about LEDs and implemented an activity using LED strips and normal light bulb with the students.
7. Both during and at the end of the video conference TR and BG students asked their questions.

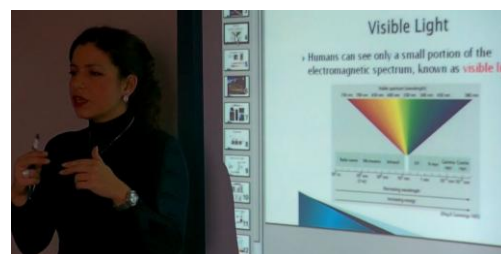
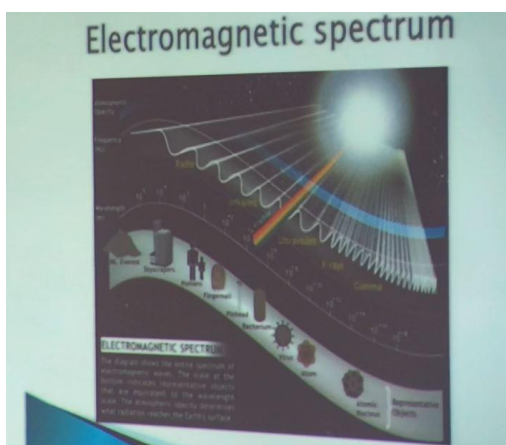
8. At the end of the video conference students of John Atanasov Electronic High School have demonstrated an activity using a PC microscope with LEDs. They showed the microscope images of different objects and asked the students to guess what they were.

THE STEPS OF INTERACTIVE LEDs EXPERIMENT WITH STUDENTS

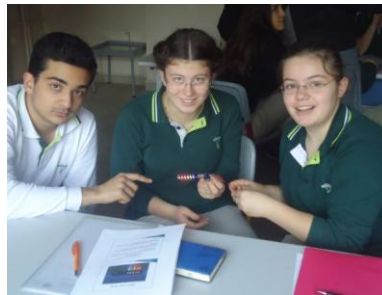
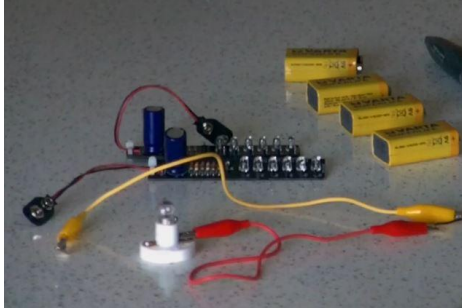
The students of both schools participated in the LEDs experiment were able to follow the presentation used.



The teacher implemented the lesson about LEDs. Students comprehended the metals used in LEDs, realised the main concepts of producing light, the relation between stimulation of atoms and light, the properties of light, the relation between the wavelength and the colour of light produced, advantages of using LEDs.



At the end of the lesson students in TR did the activity with LEDs and light bulb in order to see the differences between light bulb and LEDs and to visualise the light produced via stimulation of metal atoms used in LEDs.



At the end of the experiment BG students showed different images of different materials by using a PC microscope with LEDs and asked the TR students to find out what they were. This activity helped the students to understand the size and acquire the decrease of size in images.





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CONCLUSION:

After the call for the video conference was done, the teachers of both schools have informed their students about the video conference and the subject. Students learned more about light and LEDs. The time dedicated for the activity was fair enough.