Optical elements applied in simply building of toy realised by students in Fun Club Science

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Abstract. *Optical elements were applied in simply building of toy realised by students in Fun Club Science, which is a club from „Emil Racoviță"High School Baia Mare.*

The toys are using mirrors for studing the reflexion phenomenon.

Students were organised in groups of three members. Each working group developed experiments. Students have taken photos and videos that accompany the explanations of experiments. Students have prepared files (PowerPoint presentations / video that accompany the explanations of experiments) with the proper software. I will organise an exhibition in the school with results of the project. The result is "Fun and learn!" thematic posters.

Keywords. Mirror, Racovita High School Days, Physics Club.

1. The beginnings of the club

It all took place as a "relay race" between the students in the classes I was a headmistress to and the students who participated in the activities of the "Saturday School Project" and Physics Club.

Working in projects has been an organized way of spending leisure time. It was also been pleasant and useful and it was accompanied by formative and stimulative appreciations. These activities in fact lay the foundations of life long education and learning. [1]

To show students that SCIENCE is a very interesting and thus to encourage them to learn it I made this club. Preparing exhibition about students projects in our school.

Now we have a virtual space for students projects .It is the online project is name "Fun Club Science -Open doors to the world" .It is a virtual Fun Club Science.

The Subjects is: Astronomy, Chemistry, Informatics / ICT, Natural Sciences, Physics

Languages used is português - english - română

We used tools: e-mail, MP3, other software (Powerpoint, video, pictures and drawings), virtual learning environment (communities, virtual classes, ...), web publishing

The result is "Fun and learn!", thematic posters, pupils create an information-rich photo gallery of their partners entertaining physics class, probably „The entertaining science ",CD, www .

About one activity view link MAGIC number 05.05- 5th anniversary: MAGIC DAY from site project eTwinning [2].

2. The projects

The toys are using mirrors for studing the reflexion phenomenon.

2.1. The number of images in mirrors

Bianca & Ionut were determinated which is the connection between an dihedral angle and a number of images in mirrors.

Figure 1. Bianca, Ionut and mirrors

When the dihedral angle is 90˚ result 4 images, when the dihedral angle is 60˚ result 6 images.

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Figure 2. When the dihedral angle is 90˚ result 4 images

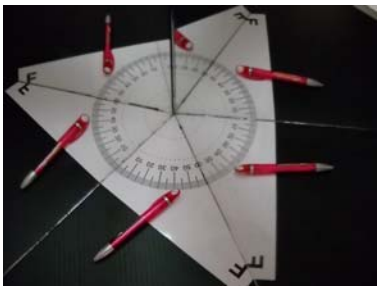

Figure 3. When the dihedral angle is 60˚ result 6 images

2.2. "How to make a caleidoscope?"

The project "How to make an caleidoscope?" was made by Noemi, Ramona and Carmen. Their project are related to etymology of the word "kaleidoscope",history of kaleidoscope, reflection symmetry, fractal and their made a worksheet.In theres objects several mirrors (3,4,5 or 6) are attached together.

Figure 4. At work ...

Their project is finised with an Crossword Puzzle
Or "Another REVISION " Learn and FUN !

1. REFLECTATA
2. FROFAGAR F
3. F OCAR
4. F L A N
5. R E F L E C T A T O A R E
6. R E F L E X I E
7. I N T E R S C T I A
8. N E D E V I A T A

1.Care raza care se întoarce în acelaşi mediu?
2.Drumul unei raze de lumină nu depinde semnul său de
.....
3.F se numeşte.....
4.Raza incidentă şi normala se reflectă în acelaşi.....
5.Oglinda este suprafaţă.....
6.La oglinzi întîlnim fenomenul de.....
7.Imaginea reală se obţine prin .....razelor
8.Raza incidentă care trece prin centru se reflectă.....

Figure 5. Crossword Puzzle about reflection

3. Fun an learn about: laser, light and transmits data

We have built a laser transmitter that transmits data by laser light on and off, intermittently, by a bulb that will light up.

I have removed optic fibres and transmitted the light through the air only, which is called free space transmission of laser data.

For the laser data transmitter you need the following components:
package laser, a bulb, a circuit board ,a 9 volt battery, a screw or nail about 2 inches long with a flat head, a small wooden block for a basis, tape and some glue to hold them together.

The basic idea of this project was the wireless transmission, a technology increasingly more and more requested and used, technology that transmit signals from one place to another without wires, which can light a bulb located at a distance just by sending laser signals.

4. Virtual Fun Science Club

Now we have a virtual space for students projects .It is the online project is name "Fun Club Science -Open doors to the world". It is a virtual Fun Club Science [3].

5. References (and Notes)

[1] Simona Velea, cercetător şt. princip. III, asist. univ. Olimpius Istrate. Introducere în pedagogie. Note de curs (2006-2007). http://www.docstoc.com/docs/20541888/ Fundamentele-educa?iei-Teoria-si- metodologia-curriculum-ului

[2] site project ETwinning: http://www.etwinning.net/en/pub/anniversary/index.htm http://www.friendsandflags.org/

[3] site project Fun Club Science -Open doors to the world: http://new- twinspace.etwinning.net /web/p29527/welcome

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