

Visual Mathematics in Practice



Name of the teacher:	<i>Katarina Ivanovic</i>
Name and address of the school:	<i>OS „Stevan Dukic”, Danteova 52, Belgrade, Serbia</i>
Theme of the lesson:	<i>Prism</i>
Place in curriculum: (type of school, grade)	<i>Primary School, 8th grade</i>
Age of the students/pupils:	<i>15 years old</i>
Title of the lesson:	<i>Net, Area and Volume of Prism</i>

Description of the lesson			
Time	Exercises, matters, parts of the lesson	Methods and forms of student activities	Developable competencies
<p><i>-5 minutes to make groups and introduce activities;</i></p> <p><i>-5-7 min for each student to do the counting,</i></p>	<p><i>This activity is organized for thematic planning method of teaching. Name of the theme for mathematics and natural science subjects, planned for 8th grade, was „a house and its maintenance”. My math unit was called „furnishing a house”.</i></p> <p><i>Preparation: Each student had to bring to class at least one prism (it could be box of some product, like box of cookies or perfume).</i></p> <p><i>Teacher have made a model of 4 empty rooms by using cardboard boxes. They represented kitchen, living room, sleeping room and bathroom.</i></p> <p><i>Teacher have organized students in groups by the way they are sitting in classroom, taking care that each group have at least one student with good knowledge about prism.</i></p> <p><i>Tasks: Each of 4 groups choosed</i></p>	<p><i>Work in groups and individual, exhibition.</i></p>	<p><i>Problem posing and solving, modelling, reasoning and proofs, representation, symbols and formalism, making use of aids and tools.</i></p>

<p><i>without or with help, -23-25 min,</i></p> <p><i>- 10 min for evaluation of projects</i></p>	<p><i>one room (there were about 6 pupils in each group) and had a task to make a furniture using their prisms, taking care to provide pieces of furniture necessary for (what they think it would be) a pleasant life. Before that each student had to count the area of the prism he brought. They have to submit to the teacher their finish tasks together, as a team, but everyone is working on its problem independently. While working, each student can use a help of others in group, if needed.</i></p> <p><i>If the group have finished counting, they could start making furniture for their room. They also had to share and organize their ideas and split a job. Teacher provided all necessary material that they were free to use. During pupils working time, teacher asked questions about area and volume of prism each time students have made some changes on them.</i></p> <p><i>Teacher talked with students about their homes and furniture: its artistic, geometric and practical sides, if and how much they influence each other and about importance of each.</i></p> <p><i>At the end of class: teacher have already checked counting of every group and If someone haven't done his job in a proper way, teacher choose a team leader who have to organize a peer learning and monitor the progress of that student.</i></p> <p><i>Inspiration: Sunčica Zdravković, Đurđica Takači, Ljiljana Radović, Timo Tossavainen, Andrea Solazzo</i></p>		
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Summary

I think this class is good for making good connections between mathematics and different subjects like ecology, physics, art and design... A connection with art is maybe best seen in pupils ability to „see“ the way they could give a different shape to their prism - using scissors just to make cuts so they could fold sides of prism, which leaves the area just the same (see couch in living room). Also, this way of learning brings an opportunity to get pupils interested in math, telling them that different parts of their work have a mathematical meaning (curves they made in bed or stove). At the end it was a good way to, using the model, teach pupils (make them realise by themselves) functional mathematics, not just telling them about it.

Pupils were, mostly, very interested and engaged. A few of them didn't like a cooperation in group, and some didn't bring a prism (they had to make it during the class, from paper or thin cardboard).

I like this class very much because it gives student a opportunity to „feel“ a space, in interesting and creative way, since in most cases we represent them 3D shapes using 2D images on blackboard.

Supplements

Used materials :

Ruler, cardboard, boxes, coloured paper, glue, scissors, scotch tape, marker...

Photos:







