Visual Mathematics in Practice

Name of the teacher:	Dejana Vojinovic
Name and address of the school:	Primary school „Lazar Savatic", Kej oslobodjenja 27, Zemun, Serbia
Theme of the lesson:	Sets
Place in curriculum: (type of school, grade)	Primary school, 5th grade
Age of the students/pupils:	11 years
Title of the lesson:	„Alice in Setland"

Description of the lesson

Time	Exercises, matters, parts of the lesson	Methods and forms of student activities	Developable competencies
3 minutes	*Introductory part:* *Few words about Lewis Carroll, about his life and work.*	*Project work and exhibition – children made posters before the class and the best ones were chosen and exhibited.*	*Development of general culture and knowledge. Ability to search for relevant information and to present it.*
10 minutes	*How do we represent sets? Which way is suitable in which situation? Venn's diagrams, enumeration of the elements, stating a defining property…* *An example of two sets given by a Venn's diagram. Where are the elements that belong to both of the*	*After first problem presented and solved by techer, all others were solved by any child or by two or three of them in group.*	*Ability to visualy represent relations between mathematical objects.*

	sets A and B, only to set A, only to set B, either to set A or set B? *An example of three sets given by Venn's diagram. Where are the elements that belong to the set A only, belonging to the sets B and C but not to the set A, belonging to all three sets, belong to set B or set C?* *An example of four sets. Let the pupils try to draw Venn's diagram in this case. Problem: where are the elements that belong only to the sets A or D (but do not belong to B or C)?*		
25 minutes	1) *The following sets: A={1,2,3,4,5}, B={2,3,6,7}, C={3,4,6,8,9}, D={4,5,9,10} are given. Represent them by a Venn's diagram.* 2) *A famous writer of books for children, Lewis Carol, a mathematician, in one of his stories poses the following problem: "In a fierce battle participated 100 pirates, 70 pirates lost one eye, 75 pirates lost one ear, 80 pirates lost one arm and 85 pirates lost one leg. What is the least number of pirates that lost an eye, ear, arm and leg?"* 3) *In a class consisting of 25 pupils at least 17 pupils speaks French, at least 17 pupils speaks English and at least 17 pupils speaks German. Prove that at least one of the pupils speaks all three languages.*	*Children were giving their solutions to the problems, and solutions were discussed.*	*Development of analytical thinkig, separating essential information.*
5 minutes	*Concluding part of the lecture:* *Children were given homework asignement:* 1) *In the class V3, consisting of 32 pupils, there are twelve girls. Fourteen boys in the class have brown eyes, three puples weigh more than 60kg, two of the pupils are taller than 170cm and fifteen boys have brown*	*As a best method for doing this reaserch, Internet was proposed both from the teacher and from the children*	*Ability to use abstract knowledge in a concrete situation.* *ICT competencies.*

	hair. Prove that in that class at least 4 boys have brown hair and brown eyes and weigh less than 60kg and are shorter than 170cm.		
	The second part of homework was to make some reaserch to give an answer to the following question:		
	Could have Lewis Carroll met John Venn?		

Summary

Both teacher and pupils were extreamly satisfied with class. Children could not hide their smiles especially when were dealing with problem with pirates. That shows us that even problems as dificult as that one can be well adopted if creatively presented, in good humor and good working atmosphere. Perhaps the most important part were well chosen illustrations.

Supplements

Used materials:	*Before the lesson, pupils were asked to prepare posters and to bring them to the classroom, the best ones were exibeted on the wall. Through the cours of lecture, the blackboard was used, as well as printed material, for graphical representation of sets and solving problems. As a homework after the lesson, pupils were asked to make some research over the Internet considering topics covered and about Lewis Carroll and John Venn.*
Photos:	