Inspiring Teaching practice example

Use of Easy Java Simulator in Sciences

Author	Kyriakou Emmanouil - Greece
Title	Use of Easy Java Simulator in Sciences
TET-SAT Area	**Digital Pedagogy**
Number and name of the illustrated competence	**Question 10.** Teachers' competence to use and adapt ICT-based assessment tools to support different types of assessment (formative, summative)
Estimated level for this competence	**Capable**
Learning outcome(s) associated with it	Students are gradually developing critical and scientific thinking and learning how to explore and gain insight into world environment. They use skills needed by scientists such as asking questions, collecting and processing data, interpreting facts and assumptions based on prior knowledge, forming new knowledge and discussing it with their classmates. **ROLE OF TEACHER** The role of the teacher is advisory and, where necessary, instructive, but it is legitimate for students to act on their own so that they can even learn from their mistakes. **ROLE STUDENT** Students are gradually developing critical and scientific thinking and learning how to explore and gain insight into world environment. They use skills needed by scientists such as asking questions, collecting and processing data, interpreting facts and assumptions based on prior knowledge, forming new knowledge and discussing it with their classmates.
Type or name of ICT used	SIMULATION - Easy Java Simulator (EJS)
What you do that meet this level	

This project has been funded with support from the European Commission.

	The teacher shows students the basic functions of the Easy Java Simulator (EJS) program. Students are notified that their computers have loaded the Easy Java Simulator (EJS) and the systoli_nerou file. Students are invited to run the Easy Java Simulator (EJS) program load the archive and execute it. Students are invited to observe its implementation program and comment on what they see. **STEP 1.** To stimulate the interest of our students, we ask them a question by pointing them out **STEP 2.** We inform students about what technology they will use and how they will proceed with the implementation of the program. **STEP 3.** We inform students about the duration of the course and the teaching objectives **STEP 4.** Place pupils in small groups. Questions are answered. **STEP 5.** Student teams load the finished program on their computer by completing the worksheet **STEP 6.** Conclusion and students are observing an image they are asked to explain these temperatures based on the conclusions of their work. The teacher asks questions about the explanations given by the students. It provides them with more information to improve their initial interpretation. **STEP 7.** Students value their work. Verify their initial assumptions or not. The teacher proceeds with a summary of the results. The best work is selected and published on the school website in the training scenarios section.

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Image or link to the example	***MODULE OF SIMULATION FOR MODULE "WATER TREATMENT UNIT"*** ***DESIGN OF THE MODEL*** This model of simulation describes the contraction abnormality of the water taught in the first grade of the Gymnasium as part of the course of Physics. This model displays a container of water. The water temperature is initially set to 10 ° C. As the simulation progresses, the temperature of the water decreases. The water level changes with respect to the temperature of the water while a graph of this change is also projected. **PERFORMANCE OF SIMULATION** The simulation interface is the one shown in the following figure. The liquid level is at the top of the container (1), the temperature at 10 degrees Celsius. To run the simulation, the user must click on the ► button. As the water level changes in the container, the chart develops according to the values displayed in the textboxes.

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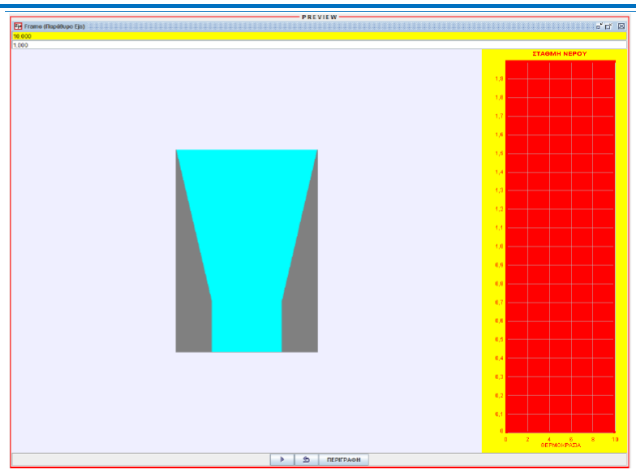

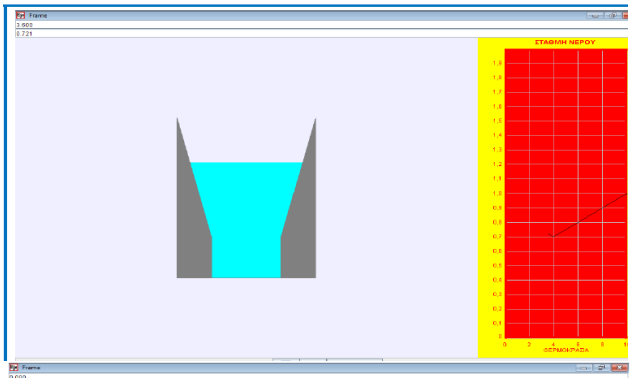

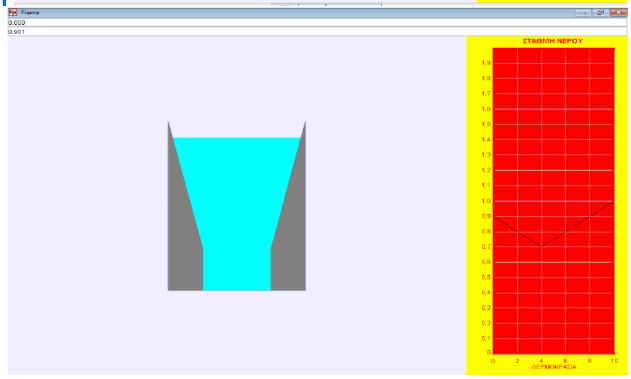

Draft actions to move to the next level

WORK SHEET

Observe the systoli_nerou program in Easy Java Simulator (EJS).

Fill in the below table and chart .

Temperature	10	8	6	4	2	0
Water level						

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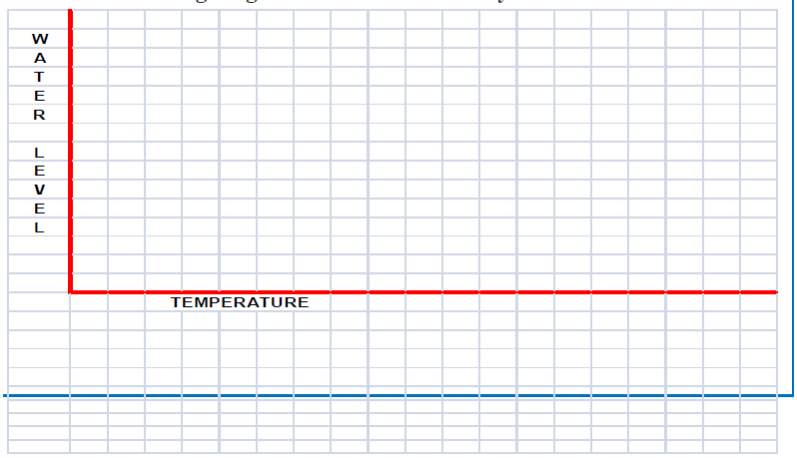
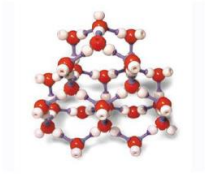
Draw the following diagram based on the table you filled in.



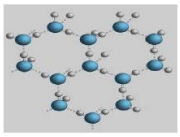
CONNECTION

The teacher asks questions about the explanations given by the students. It provides them with more information to improve their initial interpretation. The teacher shows the following pictures to the students and explains the interpretation of the phenomenon with the positions and movements of the molecules of the microcosm

MOLECULES OF WATER IN LIQUID FORM



ICE MOVEMENTS



The phenomenon of abnormal water expansion is due to the fact that when water becomes ice, its molecules form hexagonal crystals. There are many gaps in the crystal. Therefore, when freezing a quantity of water occupies a larger volume. This is due to the peculiar behaviour of water.

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