**Lesson Plane Table**

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| **Subject:** | **DIGITAL TEACHING IN COMPUTER SCIENCE SUBJECT –** **STARÉ MÉSTO, CZECH REPUBLIC** | | | | |
| **Authors:** | **Teachers:** Mihaela Marian, Alina Savu  **Students:** Darius Sadeghian-Iranzad,Razvan Cristea, Alexandru Orodel | | | | |
| Date: | | | | 29/04/ 2019\_ | |
| Estimated time: | | 50 minutes + 50 minutes |  | |  |
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| Summary: |  | | | | |

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| **Objectives**  (Specify skills information that will be taught) | **Activity/ Information**  **Teacher Guide/ Student guide** | **Materials Needed**  (Other resources - web, book...) | **Assessment Methods**  (steps to check for student understanding) | **Time**  **Where?** |
| \* understanding the notions of theory in the subjects of Informatics and Chemistry studied in romanian high schools  \* solving interdisciplinary applications using programming knowledge  \* understanding natural phenomena and establishing chemistry notions by using them in an interactive and fun way.  Solving interdisciplinary quizz.  \* using the notions of chemistry in an original way through practical experiments  ***Know Concepts or Keywords :***  - basic concepts in C++,Java etc;  - basic concepts in chemistry;  - concepts of computer operation; | **Motivation Activities**  -Do you want to find interesting things in chemistry? Do you want to test your knowledge in this area? Then use the **ReactivePr0ject** applications created by us for Android and Windows systems.  - What do we know about chemistry? What interesting things do we know about each of the countries participating in this Erasmus project?  Solve the quiz created by us in the shortest time and with the best score and receives a special prize  - Do you want to learn chemistry in a different way? Then you will be surprised by the two experiments that we will present to you. | * Phone * Worksheet * PC * Internet * Video-projector * Tools for practical experiment | * Resolve interactive Apps   -Participate in the contest using the applications  - Participate in the experiment | **In Classroom**  25 minutes+  25 minutes+  45 minutes |

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| **Description of the activity 1:** | |
| **Introduction** | Some aspects of water and its role in nature |
| **Main activity** | This app was designed for educational purposes in order to help students who are less trained in chemistry. |
| **Lesson Guide (Step by step)** | -The application is installed by all students using the QR code displayed.  -Students log in to the application to be able to use it  -The application presents general notions about water (chemical composition, role in nature, concepts related to water resource management etc.)  -Schemes and videos are shown. |
| **Exercises (2 or 3 levels of difficulty)** | Students must respond to a test to check whether the main information in the lesson presented was retained by the pupils. the test shows the time at which the question was answered and whether the answers were correct or not |
| **Conclusion and Evaluation** | Students are challenged to solve various problems.  They check the correctness of the result obtained the information learned during the workshop |
| **Notes:** | You can download the app from here:  <https://drive.google.com/file/d/1i9h7Nh0eI0FU-jwe4NQ_wHYH7_v4MX7A/view> |
| **Description of the activity 2:** | |
| **Introduction** | Find interesting things in chemestry and test our knowledge |
| **Main activity** | Interactive solving of a quiz |
| **Lesson Guide (Step by step)** | -Finding out interesting things about the chemestry or about our countries   * solving quizzes; * solving some fun apps; |
| **Exercises (2 or 3 levels of difficulty)** | * solving final quizzes |
| **Conclusion and Evaluation** | Students discover new things.  They have immediate feedback to what they have learned. |
| **Notes:** | We create this quiz using https://www.onlinequizcreator.com/ and you can find the quiz here:  <https://www.onlinequizcreator.com/cz-quiz/quiz-418406> |
| **Description of the activity 3:** | |
| **Introduction** | Exciting experiments that demonstrate how we can use the notion of chemistry in a fun way |
| **Main activity** | We had two experiments: the first experiment was named “Instant ice” and  the other consisted in creating a ferro-fluid |
| **Lesson Guide (Step by step)** | - “Instant ice” - the purpose of this experiment was to create, just like its name, instant ice. As ingredients we used:  -one metallic bowl  -a bottle of unopened tap water  -table salt  -lots of crushed ice  -a glass of salty water  - put some crushed ice in the bowl, then place the bottle of water inside that bowl, after that added 5 tablespoons of salt, then filled the bowl with ice, and finally, poured the salty water over the ice and leave the bottle to cool down for 30 minutes. the entire development of the experiment and the related explanations are in the annex of this lesson plan  - Ferro-fluid - The ingredients needed were:  -30ml of vegetable oil  -50g of ferrum (iron) powder  -an Erlenmeyer flask  -a strong earth magnet  Pour those 30ml of vegetable oil in the Erlenmeyer flask, then add the iron powder in the same glass. After that, stir the composition until you get a nice and homogenous liquid. And only in 5 minutes, you’ll get the magic! Now, funny time, you can play with that liquid with an earth magnet |
| **Exercises (2 or 3 levels of difficulty)** | . students participate in experiments following the guidelines. |
| **Conclusion and Evaluation** | . students were interested in finding out why these phenomena are taking place, giving their own explanations |
| **Notes:** | You can find the the video for each experiment here:  <https://www.youtube.com/watch?v=sBFK5-JvBAc>  <https://www.youtube.com/watch?v=5APHa7vscoI> |

**Bibliography**

* IT and Chemistry books used in our high-school .
* Internet