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LEARNING UNIT PLAN

DALFYS

DAta **L**iteracy competences **F**or **Y**oung students towards **S**TEAM education

2020-1-IT02-KA226-SCH-095305

Title	***Thermal analysis of a pure substance***
Outcome	Create a website of the experience carried out in the chemistry laboratory, inserting the method and the graph of the thermal analysis of the substance on the website and identify the substance
Target **(indicate the age of students)**	14-15
Pre-requisites **(indicate what student should know before starting this learning unit contents)**	• Know and understand the changes of state • Know the Cartesian diagram • Know and know how to use the thermometer • Know the protective equipment in the laboratory • Know and know how to use Excel
Period of application **(indicate when you start and when you end the learning unit)**	October-November
Assessment **(how does this lesson relate to assignments/homework/readings)**	Process evaluation: logbook. Product evaluation: creation of the website
Goals of the unit	Determine the type of substance from the melting temperature value
Competence/s	**Disciplinary competencies:** Mathematical competence and competence in science, technology and engineering

	Digital competence Personal, social competence and the ability to learn to learn. - Knowing how to distinguish the different nature of data, recognizing database architectures based on the problems explored. - Know and know how to use statistical modelling tools and approaches for data analysis. - Know and know how to use tools and approaches for the advanced and interactive construction (webapps) of forms of visualisation of the processed data. - Know and know how to use the opportunities offered by open data as a basis for the generation of services and products. These goals should suggest guidelines for a framework at the basis of school-level literacy and lifelong learning, which can be used both at the level of structuring training interventions, and at the level of impact assessment of projects and programs for development. of data literacy. **DALFYS competencies** Data collection (KNOWLEDGE: Knowing where else (strategic transfer); SKILLS/CAPABILITIES: Developing,constructing, transferring; ATTITUDES/VALUES: Incorporation) Teamwork: Collaboration (KNOWLEDGE: Knowing where else (strategic transfer); SKILLS/CAPABILITIES:Developing, constructing, transferring; ATTITUDES/VALUES: Incorporation)

Evaluation	process evaluations and product evaluations

Description of the steps

1st step

Name of the teacher: Riccobono Gaetano
Subject: Chemistry

Knowledge	**Skills**
States of aggregation of matter and changes of state	Observe, describe and analyse phenomena related to the physical transformations of matter
Solids, liquids, aeriforms and changes of state.	
Physical transformations	

Content:	Heat, temperature, changes of state
Description of the Activity:	Students will have to determine in the laboratory the melting temperature of the unknown substance.
Time (indicate how many hours of lessons are needed)	**2**
Used resources:	Textbook
Students accomplishment:	Identify the melting temperature of the unknown substance
Method	Cooperative Learning, Laboratory teaching
Tools	Chemistry lab

2st step

Name of the teacher: Risico Rosanna
Subject: Mathematics

Knowledge	**Skills**
Knowing how to distinguish the different nature of data, recognizing the architectures of database based on the problems explored. The recognition of data that conflict with the initial collection expectations, and lead to the rethinking of models.	Systematic data analysis
Know and know how to use statistical modelling tools and approaches	Use tools for automated calculation, table generation,

for data analysis.	graphs, the application of statistical models and mathematical calculation to synthesize and show data, to then move on to explore relationships between variables.
Know and know how to use tools and approaches for construction advanced and interactive (webapps) of data visualization forms Processed.	Be able to recognize trends and relationships that require further collection and data exploration.
Know and know how to use the opportunities offered by open data as a basis for the generation of services and products.	Recognize data that conflicts with initial collection expectations, that lead back to the rethinking of models.
	Recognize data that conflicts with initial collection expectations, that lead back to the rethinking of models.

Content:	Cartesian diagram, coordinate XY
Description of the Activity:	Students will have to create a Cartesian diagram with the data collected during the workshop experience
Time (indicate how many hours of lessons are needed)	**2**
Used resources:	Textbook and graph paper
Students accomplishment:	Realization of the Cartesian diagram
Method	Cooperative Learning, Laboratory teaching
Tools	Graphic laboratory

3st step	
Name of the teacher: Risico Rosanna **Subject:** Computer science	
Knowledge	**Skills**
Use of computer tools and networks in study activities	Knowing how to use search engines and find information on the Internet

Content:	internet
Description of the Activity:	Students will have to look for the data in the table on the internet and will have to go back to the type of substance analyzed during the 1st step.
Time (indicate how many hours of lessons are needed)	**1**
Used resources:	internet
Students accomplishment:	identify the substance
Method	cooperative learning
Tools	Pc, internet connection

4st step

Name of the teacher: Risico Rosanna
Subject: Mathematics

Knowledge	**Skills**
Get to know Excel	Knowing how to build a chart with Excel
Know the various types of website	Knowing how to create a website

Content:	electronic spreadsheets, websites' app
Description of the Activity:	Students will have to report on Excel the graph of the thermal analysis. Students will create the website including the method, the photos of the tutorial and the excel chart
Time (indicate how many hours of lessons are needed)	**3**
Used resources:	electronic spreadsheets, websites
Students accomplishment:	Full website, data analysis

Method	Cooperative Learning, Laboratory teaching
Tools	**Computer labs**