
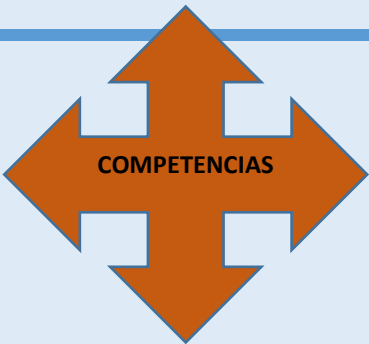




Código: CA-02	<b>CA-02 MALLA DE DESEMPEÑO Y SECUENCIA DE EXPERIENCIAS DE APRENDIZAJE Y EVALUACIÓN 2024</b>	
Versión: 1		
Fecha de revisión: 24/03/2023		

<b>PROJECT'S NAME:</b> Sweet chemistry, the science behind food		
<b>CLASS:</b> Ninth grade	<b>CLASS:</b> A-B	<b>TEACHER/S:</b> Santiago Pulido
<p style="text-align: center;"><b>PERIOD I</b></p> <p><b>FROM:</b> January 17th <b>TO:</b> April 19th</p>	<p><b>KEY SKILLS:</b> Interacting with the natural environments through exploration exercises for analyzing and making a proposal to possible solutions using ICT tools.</p> <p><b>STANDARD KNOWLEDGES:</b> Recognize the properties that affect the solubility of substances and establish quantitative relations between the components of a solution.</p>	
<p style="text-align: center;"><b>WHICH ARE THE COMPREHENSIVE SKILLS WE WANT THE STUDENTS HAVE?</b></p> <p>Identifying the relationship of the proportions of the components of a solution to analyze different situations of daily life.</p> <p>Interpreting solubility curves to analyze the ability of a substance to dissolve in a solvent and the effect of external factors such as temperature.</p> <p>Preparing solutions in the laboratory according to the proper proportions of chemicals to</p>	 <p>CB5: Aprender a aprender y metacognición</p> <p style="text-align: center;"><b>WHAT TO LEARN FROM THE TERESIAN SKILLS?</b></p>	<p style="text-align: center;"><b>WHICH IS THE SCENERY OR PROBLEMATIC SITUATION?</b></p> <p>This year there is the second version of the Teresian Science congress, that's why we want to take another chance to keep promoting the essential and environmental values like, respect, austerity, solidarity, co-responsibility, empathy and coherence to be better living things and find some solutions to protect and take care of our planet from our own environmental relationship.</p>


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<p>determine the concentration of a solution.</p>	<p><b>Conceptual:</b> solution, solute, solvent, temperature, volume, pressure, solubility curves, chemical concentration.</p> <p><b>Procedimental:</b> Analyze the relationship between the proportions of some compounds in a solution and be able to evaluate different situations in everyday life. Interpret solubility curves evaluating the incidence of temperature and pressure as variables that can affect the behavior of the solute and solvent in a solution. Prepare chemical solutions in the laboratory from certain given chemical proportions with the objective of determining the chemical concentration of the solution.</p> <p><b>Attitudinal:</b> CB5 Demonstrates a positive attitude, respect, disposition and interest towards the comprehension and application of scientific principles.</p>	
<b>STUDENT'S ROLE:</b> Food engineering		
<b>CHALLENGE:</b> Have you ever wondered how healthy or nutritious the drinks we drink every day are? What components do they contain or what makes them different from	<b>PRODUCT:</b> Scientific article about a product made in class.	<b>PROMOTION:</b> Science fair.


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<p>others? I invite you to explore the great world of solutions, learning from them and exploring the benefits or harms they can generate in our body in terms of health.</p>		
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LEARNING OUTCOMES			
SUPERIOR (S)	ACCURATE (A)	AVERAGE (B)	LOW (I)
<p>The student proposes methods to visualize the parts that make up a solution (solute and solvent), designing methods to identify homogeneous or heterogeneous solutions, theorizing the reasons why the solubility of a substance is related to temperature in order to calculate the chemical concentration of a solution and develops it in the construction of a scientific article; actively participating during the development of the activities and promoting an environment of learning and</p>	<p>The student understands that solutions are composed of solute and solvent and that from these a homogeneous or heterogeneous mixture can be obtained by arguing the relationship between solubility and temperature through experiments applying concentration formulas and supporting it in a scientific article, demonstrating a good attitude during the development of activities and promoting a good class environment during writing the article and carrying out the experiments.</p>	<p>The student recognizes the parts of a solution by showing homogeneous and heterogeneous solutions, reciting the reasons why temperature is related to solubility and remembers the concentration formulas and supports it in a scientific article, participating in its realization and promoting an optimal environment. of work during the writing of the article and carrying out the experiments.</p>	<p>The student does not recognize the parts that make up a solution nor the differences between a homogeneous solution from a heterogeneous one, nor does he recognize the reasons why temperature is related to solubility and is unable to calculate the concentration of a solution. which means that you cannot develop a scientific article; their participation in group work is low, which generates a less than optimal work environment for writing the</p>

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respect with their colleagues during the writing of the article and carrying out the experiments.			article and carrying out the experiments.
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### SECUENCIA DE EXPERIENCIAS DE APRENDIZAJE Y EVALUACIÓN


**STAGE 1:** Adventures in the World of Solutions

**TIME OF EXECUTION:** Cycle 1 to cycle 6.

**CRITERIUM:** Understand that chemical solutions are composed of solute and solvent and that the solubility of a substance can be affected by temperature and pressure.

**TASK:** Describing the parts that make up a solution, recognizing the type of mixture it is and explaining the impact that temperature and pressure can have on the solubility of a compound.

- The student will do the diagnostic activity compleating diagram that focuses on recapitulating the topic of states of matter and their fundamental properties. Cycle: 1 N° hours: 1
- The student will watch two videos (<https://www.youtube.com/watch?v=i4ITvRNkRP4> / <https://www.youtube.com/watch?v=6WpRELNo7k8> ) that explains the topic of chemical solutions. While the students are watching the videos, they must take notes of the most relevant information in their notebooks. After that, they should do a mind map with the most relevant information from the videos. Cycle: 2 N° hours: 1
- The student performs a laboratory activity that has the purpose of making a review of the most relevant concepts already learned. While they are doing some experiments, they must complete a guide in which they are going to write their observations. Cycle: 3 N° hours: 1
- The student will present a quiz about the topic of chemical solutions. Cycle: 4 N° hours: 1
- The student performs a laboratory practice and activity taking into account the scientific method to solve some experiments that show the relation between temperature and the solubility of the solute in the solvent. The students have to complete a guide in which they will write their observations. Cycle: 5 N° hours: 1
- The student watches a video ( <https://www.youtube.com/watch?v=awMdCCidgOc>) that makes a review about the importance of the temperature to solve a solute and introduces the students to the topic of solubility graphs. Complementing the information supplied by

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the video, the teacher explains in detail what is a solubility graph, what information can we get from them and how can we design one from a given data. The students will solve some exercises proposed by the teacher. Cycle: 6 N° hours: 1

**STAGE 2: Magnificent Blends: Investigating the Science of Concentrations**

**TIME OF EXECUTION:** Cycle 7 to cycle 11.

**CRITERIUM: Explain that chemical concentration can be calculated from the amounts of solute and solvent that interact in a solution.**

**TASKS:** Solve exercises in which you must find the chemical concentration in molarity or molality, as well as the number of moles of solute or solvent involved in the solution.

- Based on the information provided by the teacher, students will solve exercises of Molarity and molality recording the information in their notebooks. Cycle: 7 N° hours: 1
- The student will solve a workshop on chemical concentrations. Cycle: 8 N° hours: 1
- The student will present a quiz about the topic of chemical concentrations (Molarity and molality). Cycle: 9 N° hours: 1
- The student laboratory activity has the purpose of making some experiments that allow the students practice the topic of chemical concentrations. They have to prepare some solutions but with some instructions and calculate the concentration of them. Cycle: 10 N° hours: 1
- The student will present the final exam. Cycle: 11 N° hours: 1