



UNIT GRAPHIC ORGAIZER

SUBJECT: Biology

UNIT: 2

COURSE: Sixth Grade

TEACHER: Isabella Quintana Gutiérrez

DATE: April 9, 2024

TITLE:

CELL: BASIC UNIT OF LIFE

THROUGHLINES:

1. How the cell obtains resources to carry out processes?
2. What mechanisms prevent cells from bursting when they constantly absorb water and nutrients?
3. Why are reproductive cells different from other cells?
4. How many methods of separation exist and which are the most common ones?

GENERATIVE TOPIC

Green Energy: Better Life

UNDERSTANDING GOALS:

Students will identify the structure and functions of the cell membrane, describing the different mechanisms of cellular transport and understanding how cells responds to hypotonic, isotonic and hypertonic media, through the construction of a cell membrane model with recycled materials, labeling its components and mechanisms of transport of substances.	The students will understand the connection between nutrients obtained by the respiratory and circulatory systems with cellular division and cycle processes, through the construction of the "Diary of a Cell" where students will narrate in first person how a cell obtains energy and divides.	Students will understand the methods of separation of mixtures and will identify which methods can be applied in industrial and domestic contexts, through the creation of a mixture separation guide for use in everyday situations.
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	UNDERSTANDING PERFORMANCES	TIME	ASSESSMENT	
	ACTIONS		WAYS	CRITERIA
Exploration Stage	<ul style="list-style-type: none"> To identify the structure and functions of the cell membrane and its mechanisms of cellular transport. To identify the differences of the respiratory system and the circulatory system. To recognize how a mixture can be separated in a correctly way. 	3 weeks	<ul style="list-style-type: none"> Make a round table discussion with the central question "What would happen if cells had no active transport"? in which students with the support of their notes will try to solve this question with their classmates by listening to each other's ideas and supporting or refuting them. Making graphs about the differences between the respiratory and circulatory processes and what nutrients are needed in each process. Debating a stance regarding the benefits and costs of animals living in groups and interacting with other species. Students are encouraged to conduct research and prepare arguments supporting their designated stance. <p>SYNTHESIS PROJECT: stage 1</p> <p>Students will continue with the project started in the first term. For this stage of the project the students will review the prototype drawing and the materials to be used in order to verify if they are the most appropriate. Once this review is completed, the students will start with the construction of the prototype.</p>	<p>Identify and use specific scientific vocabulary.</p> <p>To know concepts related to the topic.</p>

<p>Guided Stage</p>	<p>-To compare the differences and characteristics of the different transport mechanisms of the cell.</p> <p>-To recognize the key stages of mitosis and meiosis as part of the cell cycle.</p> <p>- To comprehend the differences between the most common methods of separation mixtures.</p>	<p>3 weeks</p>	<ul style="list-style-type: none"> • Reading and solving book activities pages 46 to 52 in order to practice and reinforce the knowledge seen in class. • Reading and solving book activities of chapter 5: Cell growth and division in order to practice and reinforce the knowledge seen in class. • Observe in the laboratory simple separation processes applied to the industry in order to identify and understand the use of separation methods applied in domestic and industrial contexts. <p>SYNTHESIS PROJECT: stage 2</p> <p>At this stage, students will test the built prototype writing on the logbook the results and mistakes of this tests. With this information the students will correct mistakes and describe the way to use the prototype in context.</p>	<p>Use of specific vocabulary</p> <p>Register observations and results using diagrams, graphs and tables.</p>
	<p>-To represent through a model the understanding acquired of the functions, structure of the cell membrane and mechanisms of transport of substances.</p> <p>-Analyze how the nutrients of the respiratory and circulatory system relates to each other and demonstrate understanding about the differences about the mitosis and meiosis.</p> <p>-To demonstrate the understanding of what is a method of separation, the applicability of each one and their importance in industry and home.</p> <p>Synthesis Project Green energy, better life</p> <p>To create a prototype of clean energy using recyclable material and taking into account the social context of the country with respect of renewable energy.</p>	<p>2 weeks</p>	<ul style="list-style-type: none"> • Build a cell membrane model with recycled materials, labeling it's components (lipid bilayer, proteins) and explaining the different mechanisms of cell transport of substances. Afterward, students will discuss with the partners in order to make comparisons. • Organize a project titled "Diary of a cell" throughout the classes where students will narrate in first person how a cell obtains energy and makes its process of cell division day after day. • Make a guide of mixture separation for use in everyday situations. The students will analyze and observe how these concepts work are relate to their everyday life. 	<p>Apply new concepts making and finalizing projects.</p>

<p>Learning Evidence</p>			<p>SYNTHESIS PROJECT: stage 3</p> <p>At this stage, students will present the final project by organizing an oral presentation sharing and socializing the results obtained through the semester and demonstrating the correct use and function of the prototype.</p> <p>The project presentation will be conducted collectively with all the students, where they will present their prototype to their classmates.</p>	<p>Suggests answers to questions and compares them with scientific theories.</p>
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