Código: **CA-02**	**CA-02 LEARNING RUBRIC AND LEARNING EXPERIENCE** **LESSON PLAN 2024**	COLEGIO TERESIANO BOGOTÁ COMPAÑÍA DE SANTA TERESA DE JESÚS
Versión: **1**		
Fecha de revisión:		

PROJECT'S NAME: Exploring the Human Maze: Stimulus, Actions, and Homeostasis.		
LEVEL: 8th grade.	**CLASS:** A-B	**TEACHER:** Silvia Fernanda Rodríguez López.
PERIOD II **FROM:** April 22th 2024. **TO:** August 09h 2024.	**KEY SKILLS:** Interacting with the natural environments through exploration exercises for analyzing and making a proposal to possible solutions using ICT tools. **STANDARD KNOWLEDGES:** Analyze and interpret how the nervous tissue and neurons are specialized for the reception, interpretation, generation of responses and maintenance of internal conditions.	
WHICH ARE THE COMPREHENSIVE SKILLS WE WANT THE STUDENTS HAVE? Discuss about the consequences of teen pregnancy in Colombia (selecting and using appropriate tools and technology). Identifies the major structures and functions of the brain and nervous system. Explains how neural communication contributes to homeostasis (using key concepts and establishing logical connections between environment, genetical information, stimulus – response process and	 **CB5: Aprender a aprender y metacognición.** **WHAT TO LEARN FROM THE TERESIAN SKILLS?** **Conceptual:** Body care and pregnancy in Colombia. Functions of the brain and nervous	**WHICH IS THE SCENERY OR PROBLEMATIC SITUATION?** 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.

homeostasis). Argue the difference between conscious and automatic (unconscious) responses to stimuli: reflex or conscious action.	system. Neural communication. Homeostasis. Conscious and automatic responses to stimuli. **Procedural:** Observe, practice, and analyze through practical activities. **Attitudinal:** Increases their aptitude and ability for dialogue, to create, share, consider new ideas, and collectively build upon the area's process through participation and teamwork.	
STUDENT'S ROLE: Researcher.		
CHALLENGE: What aspects of the human mind could we explore? How does our mind look inside? ¡Let's find out!	**PRODUCT:** Human prototype.	**PROMOTION:** Science Fair Congress.

LEARNING OUTCOMES			
SUPERIOR (S)	**ACCURATE (A)**	**AVERAGE (B)**	**LOW (J)**
The student argues based on the representation of the human body, the nervous system, types of stimuli, and homeostasis, emphasizing the main characteristics of these thematic axes. Successfully completes the final product.	The student contrasts based on the representation of the human body, the nervous system, types of stimuli, and homeostasis, emphasizing the main characteristics of these thematic axes. Develops the final product. Additionally, they take on a	The student describes the nervous system, types of stimuli, and homeostasis, emphasizing the main characteristics of these thematic axes. Develops the final product, however, it is necessary to emphasize certain key concepts. Additionally, they stand out some	The student demonstrates difficulty in comparing the nervous system, types of stimuli, and homeostasis, emphasizing the main characteristics of these thematic axes. Don't develop the final product. Additionally, they need to improve their

Assuming the role of a researcher, order, and respect during the practical and conceptual activities of the class, in addition to good teamwork.	consulting role and possess skills such as order and respect during the practical and conceptual activities of the class.	communication skills, as well as skills in organization and respect during the practical and conceptual activities of the class.	disposition and increase their communication and relational skills with others.

LEARNING EXPERIENCE

STAGE 1: Exploring the Brain Maze: A Journey Through the Mind.
EXECUTION: from cycle 1 to cycle 4.
CRITERIUM: Describing concepts related to the nervous system like the anatomical components, its functions, to interpret the purpose of understanding the importance of brain activity in maintaining the functioning of the human body.
TASKS: * The students interact with structures and functions of the nervous system:
- The students construct and design a map, experiential diagram, graphic representation, or human schema illustrating the processes addressed regarding human reproduction and teenage pregnancy in Colombia. In this activity, they are encouraged to incorporate their knowledge, experiences, life events, and customs related to body care. The teacher provides specific instructions to guide the development of the activity. **(Cycle: 1, Hours: 2).**
- The students define and develop the thematic axis based on the **initial presentation of the project** Exploring the Human Maze: Stimulus, Actions, and Homeostasis. The students are responsible for constructing a prototype representing the human being. In this design, they must incorporate different environmental stimuli, conscious and unconscious actions, among other related elements. Additionally, they explain and justify how these stimuli and actions affect the levels of response of the nervous system and how this neuronal process contributes to achieving homeostasis. **(Cycle: 1, Hours: 2).**
- The students explore the anatomy of the brain, including its major structures such as the cerebrum, cerebellum, brainstem, parietal, frontal, occipital, and temporal lobes, among others. This will be facilitated through the creation of an interactive model titled 'What's Inside Your Brain?' Additionally, knowledge will be deepened by associating each brain part with its respective functions. **(Cycle: 2, Hours: 4).**
Activity link: https://ellenjmchenry.com/store/wp-content/uploads/2016/04/Brain-Hat-2.0-download.pdf

- The students delve into the main functions of the brain and nervous system, such as sensory perception, muscle movement, mood regulation, and creativity, through the creation of thematic stations. In teams, they design and develop a station focused on each of these functions. Additionally, there is an in-depth exploration of the conceptual understanding of these neural processes. For the development of this activity, students are required to realize prior research at home on relevant concepts related to each assigned brain function. **(Cycle: 3, Hours: 2).**

*** The students characterized the functions of the central nervous system - peripheral and neurons.**

- The students develop the topics of the central nervous system and the peripheral nervous system through a team drawing activity. In this activity, clues are provided that the teams must use to complete a drawing representing these parts of the systems. Before starting the activity, students study relevant concepts related to the central and peripheral nervous systems. **(Cycle: 3, Hours: 2).**
- The students develop the topic of neurons, synapses, and neuronal transmission through the activity: neuronal simulation. Roles are assigned to them, some will be presynaptic neurons and others will be postsynaptic neurons. They are provided with a series of cards with neurotransmitters and will be asked to 'transmit' them from one neuron to another through an imaginary connection. Afterwards, they will discuss the effects of neuronal transmission and how it affects communication in the nervous system. **(Cycle: 4, Hours: 2).**
- The students engage in solving a test focused on the structures and functions of the nervous system. **(Cycle: 4, Hours: 1).**
- Reading assignment (Book, "Imparables" by Yuval Noah Harari): Students, along with the teacher, create a concept map based on the chapters 1 and 2, previously read at home. Considering the following reading parameters: main ideas, unclear concepts, important reflections.**(Cycle: 4, Hours: 1).**

STAGE 2: Dynamic Balance: Achieving Homeostasis through Stimulus.

EXECUTION: From cycle 5 to cycle 6.

CRITERIUM: Contrast and evaluate the relationship between homeostasis, stimuli, and environmental conditions, to explore how the human body adapts to the environment.

TASKS: * The students integrate the topics of Neuronal Communication and Homeostasis.

- Students delve into the concept of homeostasis, positive and negative feedback, focusing on vital functions such as body temperature and blood pressure. This understanding is developed through a sports activity that allows them to directly experience how the body responds and self-regulates to maintain homeostasis. During a 15-minute period, students will participate in a soccer or volleyball game, followed by a 15-minute break. During this time, data related to vital functions are recorded. Subsequently, these results are analyzed to understand how the body adapts and self-regulates to restore internal balance after physical activity, leading to a deeper understanding of the importance of homeostasis in maintaining health and well-being. **(Cycle: 5, Hours: 3).**

- Students relate the topic of neuronal responses to environmental stimuli and internal balance maintenance through an activity where they observe the behavior of different individuals in response to certain environmental stimuli. They are provided with a series of images or videos representing various situations, such as scenes of environmental pollution, temperature changes, exposure to sunlight, among others. Students analyze and describe the reactions they observe in people, such as changes in facial expression, body movements, changes in breathing, among others. Subsequently, they discuss together the neuronal responses that may be occurring to those stimuli. **(Cycle: 5 - 6, Hours: 2).**
- **Project:** In the first phase of the project, students begin the construction of the cardboard design representing the human being, adding the nervous system, different stimuli, or other relevant elements. To ensure an accurate and comprehensive design, they are required to conduct prior research on the specific characteristics that they should add to their representation. **(Cycle: 6, Hours: 3).**

STAGE 3: Exploring Conscious and Unconscious World.
EXECUTION: From cycle 7 to cycle 8.
CRITERIUM: Practice conscious and unconscious responses to various stimuli, and discuss how the body and mind react in different situations.
TASKS: * The students analyze conscious and automatic (unconscious) responses to stimuli.
- The students engage in a practical activity designed to explore reflexes, define unconscious automatic responses to stimuli, and understand the types and functions in the protection and survival of the human body. This activity includes the identification and experimentation with the patellar reflex, pupillary reflex, and withdrawal reflex, using different materials to stimulate these responses. Students work in teams to observe and record reactions to the stimuli. Subsequently, a conceptual discussion is conducted to deepen the understanding of the phenomena observed during the practical activity. **(Cycle: 7, Hours: 2).**
- **Project:** Students incorporate into their designs stimuli that reflect unconscious responses. Additionally, students conduct additional research to deepen their understanding. **(Cycle: 7, Hours: 1).**
- Students delve into conscious actions, working in teams to stimulate their partner's senses using various objects such as fruits, images, fabrics, flowers, etc. In this way, they develop a sensory experience and reflect on how they consciously respond to it. Additionally, conceptual deepening occurs regarding the neuronal processing behind these stimuli. **(Cycle: 7, Hours: 1).**
- **Project:** In the final stage of the project, students add stimuli related to conscious actions. They then present their completed designs to the rest of the class. During these presentations, each group explains the decisions made in creating their representation, justifies how the different stimulus and actions affect the levels of response of the nervous system, and explains how this neuronal process contributes to achieving homeostasis. **(Cycle: 8, Hours: 2).**

- The students apply the final evaluation in order to demonstrate the development of their competencies on the thematic axes developed during the trimester. **(Cycle: 8, Hours: 2).**

Note: All notes, activities, guides, and assessments are compiled in the science portfolio as an integral part of the learning process.

Book: Imparables by Yuval Noah.