



Brain Awareness Week: “DISCOVERING BRAIN STRUCTURE AND FUNCTION”

-DEFINITIVE PROGRAM-

The **Brain Awareness Week** is a global campaign conducted by the **DANA Foundation** to increase public awareness about the progress and benefits of Brain Research.

<https://www.dana.org/>

The DANA Foundation is a private philanthropic organization that supports brain research through grants, publications, and educational programs.



OBJETIVE: The main objective of the activity is to introduce brain structure and functions to High School students of 14-17 years old. Four practical activities have been specifically designed for them: 1) micro- and macroanatomy of the brain, 2) perception, 3) learning and memory processes, and 4) Drugs effects on the brain.

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TEACHERS from the Neuroscience Division of the University Pablo de Olavide (Seville): Jos3 Mar3a Delgado Garc3a, Agn3s Gruart, Juan Carlos L3pez Ramos, Javier M3rquez Ruiz, Roc3o Leal Campanario, Raudel S3nchez Campusano, Mar3a 3ngeles G3mez Climent, Mar3a Teresa Jurado Parras, Alejandro Carretero Guill3n, Rafael Guerra Narbona, Jos3 Antonio S3nchez Naharro, Leopoldo P3rez Rosendo, Samuel Hern3ndez Gonz3lez, Roc3o Caro Mar3n, Claudia Ammann, Jos3 Manuel Aus3n Azofra and Beatriz Mu3oz Rojas.

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DATE: March 12-14, 2013

The students of each High School of Carmona (Seville, Spain) will participate on one of the selected day, from 10:00 to 13:00. The distribution between Institutions will be as follows:

DATE	HIGH SCHOOL	COURSE	Number of Students
March, 12 th 2013	IES "Losada Villasante"	4º ESO	20
	Colegio Salesiano "Santísimo Sacramento"	4º ESO	18 (N=38)
March, 13 th 2013	IES "Maese Rodrigo"	4º ESO	33
		1º Bachillerato A / B	31 /31 (N=95)
March, 14 th 2012	IES "El Arrabal"	4º ESO 1º / 2º Bachillerato	(N=45)

PROGRAMME: The same program will be followed every day. In general, the session will start with an Introduction about the activities and their general principles. Students will be divided into four groups of 9-12. Every group will spend 40 min in each one of the practical sessions. Some details are included in the following table:

ACTIVITY	TEACHERS	BRIEF DESCRIPTION
Introduction (20 minutes)	-Agnès Gruart -*José María Delgado-García	Introduction to the activity
1. Nervous system structure (40 minutes)	-Javier Márquez Ruiz (responsible) -Claudia Ammann -José Manuel Ausín Azofra -*Juan Carlos López Ramos -*Rafael Guerra Narbona	Macroanatomical study of brains from different species: mouse, rat, and rabbit. With the help of images, students will identify the main parts of the brain. Microanatomical study of the brain observing different slices under optical microscopes. Teachers will prepare drawings and questions to let students think about the brain structure.
2. Sensation and Perception (40 minutes)	-Rocío Leal Campanario (responsible) -*Samuel Hernández González	Students will find the tactile receptive fields distribution in different parts of their body. They will discuss the results in relation to the tactile perception.
	-Beatriz Muñoz Rojas -*Alejandro Carretero Guillén - Leopoldo Pérez Rosendo.	Students will discover the basic properties of the thermo receptors and they will discuss their functioning in relation to temperature perception.
	-Rocío Leal Campanario	Students will discover principles underlying visual illusions: depth, shadows, colors, etc. trying to explain how we see what we see.
3. Learning and memory (Instrumental learning) (40 minutes)	-Raudel Sánchez Campusano (responsible) -Rocío Caro Marín -José Antonio Sánchez Naharro	Using the software <i>Sniffy</i> , students will find out the basic principles of instrumental learning. They will change the parameters in the programs, and they will discover the effects produced in the learned behavior. Students will discuss with the teachers about the possible extrapolation to human every day behavior.
4. Brain action produced by drugs (40 minutes)	-María Teresa Jurado Parras (responsible) -*María Ángeles Gómez Climent*	Teachers will use the material prepared by the National Institute of Drug Abuse (of NIH, USA) to discuss about the effects produced in the brain by different drugs. Some drawings of the synapses will help to think about the possible mechanisms and their effects on overt behaviors.

*Teachers that will join the group on March 13th because it will be double the number of students.