Marietta City Schools

District Unit Planner

IB Psychology Y2

Unit Title/ Topic	*Unit 2: Biological Approach*		**Hours**	*30 Hours*

Mastering Content and Skills through INQUIRY (Establishing the purpose of the Unit): ***What will students learn?***

Unit Description and texts

The biological approach has two sub-units. In the first sub-unit, we look at the role of biological factors in memory, including: localization of function, neurotransmission, and hormones. In the second sub-unit, we look at the role of biological factors, including: neurotransmission, hormones, genetics, evolution and pheromones.
Text: Popov, Alexey, Lee Parker, & Darren Seath (2017). *IB Psychology Course Companion, 2nd Edition*. Oxford, UK: Oxford University Press.

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Transfer goals/Skills	**Approaches to learning (ATL)**
Skills: Students' thinking Research **Details:** Apply and evaluate a reductionist approach to understanding behavior. Evaluate the level to which one has control over one's own behavior. Consider ethical concerns about the way in which psychological research is carried out and applied.	**Category:** Thinking **Cluster:** Critical thinking: Analyzing and evaluating issues and ideas **Skill Indicator:** This unit presents a lot of metacognitive opportunities for students to reflect on their own learning by linking theories and research to their own educational experiences. **Category:** Communication **Cluster:** Working effectively with others **Skill Indicator:** Students will communicate through leading and presentations to peers as they discuss and evaluate key studies throughout this unit. **Category:** Research **Cluster:** Exchanging thoughts, messages and information effectively through interaction **Skill Indicator:** Students will continue to learn how to search for research in order to prepare for the writing of their internal assessments. In addition, students will use technology to design infographics which may become a way that some students feel is more appropriate for developing a study guide for the unit

Content/skills/concepts	Learning process
<u>Students will know the following content:</u> ● techniques used to study the brain and behavior ● Localization of function with regard to behavior ● Neuroplasticity as the interaction between brain and environment ● The effect of neurotransmitters and hormones on human behavior ● The role of pheromones in human behavior ● The extent to which behaviors may be inherited ● Evolution-based explanations of human behavior ● HL: The value of animal models in understanding human behavior ● Ethical considerations in the biological approach ● HL: ethical considerations in animal research ● Research methods in the biological approach **<u>Students will develop the following skills:</u>** ● Evaluating psychological theories and research. ● Predicting outcomes based on past knowledge ● Writing a well-developed response to "discussion" questions. **<u>Students will grasp the following concepts:</u>** ● Correlation vs causation ● Determinism vs autonomy ● Direct vs domino causality ● Ethics ● Gene x environment interaction ● Genetic similarity ● Heritability and inheritance	Lecture Socratic seminar Small group/pair work PowerPoint lecture/notes Individual presentations Group presentations Student lecture/leading Interdisciplinary learning **Details:** email writing - stress and memory, ethics in animal research Socratic seminar (HL), inquiry activity on the genetics, letter to the editor on "Smell dating", neurotransmission skits, presentations on animal models (HL), writing responses with word walls, creating self-tailored revision guides, bio-extension mind maps **Others:** *The brain museum exhibit* *Candy neuron* *Pheromone research grid*

Language and Learning	TOK Connections	CAS connections
Activating background knowledge Scaffolding for new learning Acquisition of new learning through practice Demonstrating proficiency **Details:**	Personal and shared knowledge Ways of knowing Areas of knowledge The knowledge framework **Details:** How biological research has changed attitudes to sexual minorities - and how	Activity **Details:** Discussions of how stress may affect memory is a potential way to link to CAS. A CAS project could be based on educating the community about the effects of stress (or sleep) on learning and providing

The use of word walls to assist students in developing and applying key vocabulary. Revision materials are made available to the students - for example, flash cards - which help them to practice new vocabulary. Classes often begin with a quick review of recently learned vocabulary - in which students are asked to either share with a peer or right down a response that would demonstrate understanding.	morality thus changes over time. The question of universalism vs cultural relativism is explored. Discussion of genetics, ethical considerations and "thought experiments" are discussed as we wonder about the potential implications of genetic screening and manipulation of an individual's genotype. We also discuss the benefits of a reductionist argument over a holistic argument. How biology is a very different area of knowledge from social science - and how these two areas of knowledge interact in psychology is fundamental to understanding the field.	advice for improving learning through understanding the role of biology. In addition, learning about genetics and sexual minorities may also lead to more empathy and compassion for the group and may inspire CAS related activities.

Essential Understandings and Questions

Factual:
Outline two or more brain imaging techniques
Using one or more examples, outline localization of function.
What part of the brain deals with fear?
What is neuroplasticity?
What happens in our brain during neural pruning?
Outline one example of an excitatory or inhibitory neurotransmitter.
What are hormones?
Describe what pheromones are.
What is the difference between monozygotic twin studies and adoption studies?
Outline one research method used to study the brain and behavior

Conceptual:
Explain two or more brain imaging techniques.
How does localization affect behavior?
Explain how one study demonstrates neuroplasticity.
Explain how neural networks are formed.
With reference to one study, explain neural pruning.
Describe how one example illustrates the effect of neurotransmitters on human behavior.
Explain how excitatory or inhibitory neurotransmitters affect human behavior.
Outline one example of how an agonist and/or antagonist may affect a neurotransmitter's influence on behavior
Explain how excitatory and/or inhibitory neurons affect human behavior.
Explain how one hormone affects human behavior.
Explain how genes may affect one behavior.

Describe one evolutionary explanation of behavior.
How and why are animals used to study links between genes and behavior?
How and why is animal welfare an important consideration in animal studies?

Debatable:
Evaluate the use of one technique used to study the brain in relation to behavior.
Discuss two or more techniques used to study the brain in relation to behavior.
Evaluate research related to localization of function.
Evaluate one or more studies related to neuroplasticity.
To what extent does one hormone affect human behavior?
Evaluate one study or theory related to the influence of genes on behavior.
To what extent can evolution explain one behavior?
Discuss the use of one or more research methods used in the biological approach to understanding human behavior.
Discuss the value of animal models in the study of the brain and behavior.

Assessment Tasks
List of common formative and summative assessments.

DP Assessments	Biological terminology quiz - students will demonstrate knowledge and comprehension of specified content for neurons, neurotransmitters, neurotransmission, hormones, genetics, and evolution. Essay Response Question - students will demonstrate an ability to use examples of psychological research and	**Formative Assessments**	Socratic Seminar Brain museum project Study sheets/guides Debate inquiry	**Summative Assessments**	Short Answer Question essays on localization, neuro-transmission, and genetics

	psychological concepts to formulate an argument in response to a specific question with SAQ's.				

Learning Experiences *Add additional rows below as needed*		
Topic or Content	**Learning Experiences**	**Personalized Learning and Differentiation**
Central Nervous System	The Brain Museum	The goal of the activity is for students to become a "specialist" on a specific part of the brain and to include a section on why their part of the brain is the best. (use of manipulatives, and hands-on support) Students will continue to develop their critical thinking skills with regard to the strengths and limitations of different approaches to research. (prior knowledge + scaffolding)
Neuron	Building a Neuron Activity	Students will build their understanding of the relationship between the brain and behavior through the structure of the neuron. Students will continue to develop their critical thinking skills with regard to the strengths and limitations of different approaches to research. (prior knowledge)
Pheromones	Critically thinking about pheromones	Students will continue to develop their critical thinking skills with regard to the strengths and limitations of different approaches to research. (prior knowledge)
Genetics	Discussing genetic arguments	Students will continue to develop their critical thinking skills with regard to the strengths and limitations of different approaches to research. (prior knowledge)
HL Ext: Animal Studies	Socratic Seminar: Animal Research	Students will build on their understanding of how cognitive and sociocultural factors in animal studies help us understand human behavior.. (scaffold learning)

		Students will continue to develop their critical thinking skills with regard to the strengths and limitations of different approaches to research. (prior knowledge)

Content Resources

IB Course Companion
Research Studies
InThinking website
Thematic-education revision guide

Biological Approach - Central Nervous System
Brain and Brain Behavior PowerPoint
Quizlet Localization areas with functions and pictures
Quizlet for BLOA: Localization-labels with pictures only
Brain and Behaviour: Brain Imaging Techniques
Its MAGEC
Brain and Behavior Neuroplasticity
Neurotransmission PowerPoint
Building a Neuron Activity
Draganski et al (2004)
Neurotransmitters PowerPoint
The Endocrine System PowerPoint:
MCGaugh & Cahill
Newcomer et al (2004)
Evolution of Attraction Activity
Evolution of Attraction PowerPoint
Buss 1989
Pheromones and Behaviour Part 1 PowerPoint
Wedekind et al (1995)
Pheromones and Behaviour PowerPoint Part 2
Cornwell et al (2004)
How to Sequence the human genome Tedtalk
Weissman et al (2005)
SAQ Test Prep Worksheet
Animal Research Essay Outline Template