

Neuroscience Core Concepts

THE ESSENTIAL PRINCIPLES OF NEUROSCIENCE



NEUROSCIENCE CORE CONCEPTS: Overview Matrix for K-12 in Accordance with Next Generation Science Standards (NGSS)

	Note: The study of neuroscience is dynamic and ongoing. Appropriate lessons applying the Neuroscience Core Concepts will incorporate relevant Cross Cutting Concepts, Nature of Science, and Science & Engineering Practices.		Nervous System Controls and Responds to Body Functions and Directs Behavior									Nervous System Structure and Function are Determined by Both Genes and Environment Throughout Life									TI	The Brain is the Foundation of the Mind					Research Leads to Essential Understanding for Therapies				
			1. Brain is the body's most complex organ.					Neurons communicate using electrical and chemical signals.					Genetically determined circuits are foundation of the nervous system.				4. Life experiences change the nervous system.					5. Intelligence arises as brain reasons, plans, solves problems.			6. Br knowle and lang	edge,	7. Brain and curiosity about the world. 8. Fundamental promote I			ndamental disc promote healt	
Field	Disciplinary Core Idea (DCI)	a b	C d	l e	f	g	a b	С	d e	f	g	a b	С	d	e f	a	b	С	d e	f	g	a b	С	d	а	b	a	b c	a	b c	d
	K-PS2 Matter and Stability: Forces and Interactions																														
	K-PS3 Energy																														
	1-PS4 Waves and Their Applications in Technologies for Information Transfer																														
	2-PS1 Matter and Its Interactions																														
	3-PS2 Motion and Stability: Forces and Interactions																														
	4-PS3 Energy																														
(PS)	4-PS4 Waves and Their Applications in Technologies for Information Transfer						•					•										•			•	•					
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	5-PS2 Motion and Stability: Forcs and Interactions																														
	5-PS3 Energy																														
	MS-PS1 Matter and Its Interactions																														
Physi	MS-PS2 Motion and Stability: Forces and Interactions																														
4	MS-PS3 Energy							•		•																					
ı	MS-PS4 Waves and Their Applications in Technologies for Information Transfer																														
	HS-PS1 Matter and its Interactions																														
	HS-PS2 Motion and Stability: Forces and Interactions																														
	HS-PS3 Energy									-	•																				
	HS-PS4 Waves and Their Applications in Technologies for Information Transfer																														
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	K-LS1 From Molecules to Organisms: Structures & Processes	•		•														•											•	•	
	1-LS1 From Molecules to Organisms: Structures & Processes																	•	•				•		•	•				•	
	1-LS3 Heredity: Inheritance and Variation of Traits											•				•							•		•	•		•			
	2-LS2 Ecosystems: Interactions, Energy, and Dynamics																														
	2-LS4 Biological Evolution: Unity and Diversity				•											•							•		•	•		•			
Life Sciences (LS)	3-LS1 From Molecules to Organisms: Structures & Processes															•	•	•	• •	•	•		•		•	•		•			
	3-LS2 Ecosystems: Interactions, Energy, and Dynamics																					• •	•		•	•					
	3-LS3 Heredity: Inheritance and Variation of Traits	•										•			•	•	•	•	• •	•	•										
	3-LS4 Biological Evolution: Unity and Diversity				•							•				•	•	•	• •	•	•		•		•	•		•	•	•	•
	4-LS1 From Molecules to Organisms: Structures & Processes	• •	• •	•	•	•				•		•	•	•	• •		•	•	• •			•	•		•	•		•			
	5-LS1 From Molecules to Organisms: Structures & Processes																														
	5-LS2 Ecosystems: Interactions, Energy, and Dynamics																														
	MS-LS1 From Molecules to Organisms: Structures & Processes			•				•	•	•	•	•			•	•						•	•				•				
	MS-LS2 Ecosystems: Interactions, Energy, and Dynamics									•			•	•	• •	•	•	•	• •	•	•	•	•			•		•			
	MS-LS3 Heredity: Inheritance and Variation of Traits				•							•				•			•												
	MS-LS4 Biological Evolution: Unity and Diversity				•							•				•															
	HS-LS1 From Molecules to Organisms: Structures & Processes			•	•	•		•		•	•		•	•		•	•	•	• •	•	•	•	•	•	•	•	•	•			
	HS-LS2 Ecosystems: Interactions, Energy, and Dynamics					•						•			•	•							•		•	•	•		•		•
	HS-LS3 Heredity: Inheritance and Variation of Traits				•							•				•											•				
	HS-LS4 Biological Evolution: Unity and Diversity				•	•							•	•		•															
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Eng	HS-ETS1 Engineering Design																		• •				•	•	•	•	•		•		•