

THE BRAIN: UNDERSTANDING NEUROBIOLOGY THROUGH THE STUDY OF ADDICTION		
Arkansas Biology Standards		
Lesson	Standard	Descriptor
4, 5	EBR.9.B.3	Assess current world issues applying scientific themes (e.g., global changes in climate, epidemics, pandemics, ozone depletion, UV radiation, natural resources, use of technology, and public policy).
2, 3, 4	NS.10.B.4	Summarize the guidelines of science: explanations are based on observations, evidence, and testing, hypotheses must be testable, understandings and/or conclusions may change with additional empirical data, and scientific knowledge must have peer review and verification before acceptance.
3, 4	NS.11.B.1	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.
3	NS.11.B.2	Research and apply appropriate safety precautions (refer to ADE Guidelines) when designing and/or conducting scientific investigations.
3, 4	NS.11.B.3	Identify sources of bias that could affect experimental outcome.
3, 4, 5	NS.11.B.4	Gather and analyze data using appropriate summary statistics.
1, 3, 4, 5	NS.11.B.5	Formulate valid conclusions without bias.
3, 4	NS.11.B.6	Communicate experimental results using appropriate reports, figures, and tables.
3, 4	NS.13.B.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
1, 2, 3	NS.13.B.2	Use appropriate equipment and technology as tools for solving problems (e.g., microscopes, centrifuges, flexible arm cameras, computer software and hardware).
2, 3, 4	NS.14.B.1	Compare and contrast biological concepts in pure science and applied science.
3, 4	NS.14.B.2	Discuss why scientists should work within ethical parameters.
1	NS.14.B.4	Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology.
Arkansas Anatomy and Physiology Standards		
Lesson	Standard	Descriptor
1, 2, 3	OHB.1.AP.1	Infer the relationship between <i>anatomy</i> and <i>physiology</i> .
2, 3	OHB.1.AP.6	Investigate <i>homeostatic</i> control mechanisms and their importance to health and diseases.
2, 3	OHB.1.AP.7	Predict the effect of positive and negative feedback mechanisms on <i>homeostasis</i> .
1, 2, 3	BS.8.AP.1	Identify the components the <i>nervous system</i> .
2, 3	BS.8.AP.2	Discuss the physiological mechanisms of the <i>nervous system</i> .

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1, 2, 3	BS.8.AP.3	Identify the macroscopic, microscopic, and molecular structure of the <i>nervous system</i> .
3, 4	BS.8.AP.4	Describe disorders associated with the <i>nervous system</i> .
1	NS.16.AP.1	Explain why science is limited to natural explanations of how the world works.
1, 3, 4	NS.16.AP.4	Summarize the guidelines of science: explanations are based on observations, evidence, and testing, hypotheses must be testable, understandings and/or conclusions may change with additional empirical data, and scientific knowledge must have peer review and verification before acceptance.
3, 4	NS.17.AP.1	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.
3	NS.17.AP.2	Research and apply appropriate safety precautions (refer to ADE Guidelines) when designing and/or conducting scientific investigations.
3, 4	NS.17.AP.3	Identify sources of bias that could affect experimental outcome.
3, 4, 5	NS.17.AP.4	Gather and analyze data using appropriate summary statistics.
1, 3, 4, 5	NS.17.AP.5	Formulate valid conclusions without bias.
3, 4	NS.17.AP.6	Communicate experimental results using appropriate reports, figures, and tables.
4, 5	NS.18.AP.5	Research current events and topics in human biology.
3, 4	NS.19.AP.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
1, 2, 3	NS.19.AP.2	Use appropriate equipment and technology as tools for solving problems (e.g., microscopes, centrifuges, flexible arm cameras, computer software and hardware).
2, 3, 4	NS.20.AP.1	Compare and contrast human biology concepts in <i>pure science</i> and <i>applied science</i> .
3, 4	NS.20.AP.2	Discuss why scientists should work within ethical parameters.
1	NS.20.AP.3	Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology.

Arkansas Algebra I Standards

Lesson	Standard	Descriptor
3	SEI.2.AI.5	Solve real world problems that involve a combination of rates, <i>proportions</i> and percents.
3, 4	SEI.2.AI.8	Communicate real world problems graphically, algebraically, numerically and verbally.
3, 4	LF.3.AI.4	Identify <i>independent variables</i> and <i>dependent variables</i> in various representational modes: words, symbols, and/or graphs.

Arkansas English Language Arts Standards: Grades 9 & 10

Lesson	Standard	Descriptor
All lessons	OV.1.9.1	Adjust oral language to audience and appropriately apply the rules of standard English.

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	OV.1.10.1	
All lessons	OV.1.9.2 OV.1.10.2	Prepare and participate in structured discussions, such as panel discussion.
All lessons	OV.2.9.4 OV.2.10.4	Demonstrate attentive, reflective, and critical listening skills to respond to and interpret speaker's message.
All lessons	W.4.9.4 W.4.10.3	Write clear and varied sentences.
All lessons	W.4.9.5 W.4.10.4	Elaborate ideas clearly and accurately through word choice, vivid description, and selected information.
All lessons	W.4.9.6 W.4.10.5	Adapt content vocabulary, <i>voice</i> , and <i>tone</i> to audience, purpose, and situation.
All lessons	W.4.9.8 W.4.10.7	Revise content of writing for central idea, elaboration, unity, and organization.
All lessons	W.4.9.9 W.4.10.8	Revise <i>style</i> of writing for selected vocabulary, selected information, sentence variety, <i>tone</i> and <i>voice</i> .
All lessons	W.4.9.12 W.4.10.11	Apply grammatical conventions for capitalization, punctuation, formatting, and spelling.
All lessons	W.5.9.1 W.5.10.1	Adjust levels of formality, <i>style</i> , and <i>tone</i> when composing for different audiences.
All lessons	W.5.9.9 W.5.10.9	Write across the curriculum.
All lessons	W.6.9.8 W.6.10.4	Apply conventional spelling to all pieces.
All lessons	R.9.9.5 R.9.10.5	Draw inferences from a sentence or a paragraph (including conclusions, generalizations, and predictions) and support them with text evidence.
All lessons	R.9.9.8 R.9.10.7	Summarize and paraphrase structures in informational and literary texts, including relationships among concepts and details.
All lessons	R.9.9.13 R.9.10.12	Identify and discuss a position using concepts gained from reading.
All lessons	R.10.9.1 R.10.10.1	Read across the curriculum a variety of such <i>practical texts</i> as advertisements, warranties, manuals, handbooks, agendas, labels, warnings and directions.
All lessons	R.11.9.1 R.11.10.1	Expand vocabulary through reading, listening, and discussing.
4	IR.12.9.12 IR.12.10.12	Create research products such as: oral presentation, reports, and essays.

Arkansas Health and Safety Standards: Grades 9 – 12		
Lesson	Standard	Descriptor
3, 4, 5	DP.2.HW.7	Examine the causes of chronic diseases (e.g., obesity, underweight/underweight, heredity, chemicals, drug use, life-style, sun exposure).
4, 5	DP.2.HW.8	Analyze the relationship between chronic diseases and a healthy lifestyle (e.g., heart disease, obesity, diabetes, cancer).
3, 4	HLSR.4.HW.1	Evaluate positive and negative effects of various relationships on physical and emotional health (e.g., peers, family, and friendships).
3, 4, 5	HLSR.4.HW.3	Develop a variety of strategies and/or skills to demonstrate respect for and responsibility to self and others.
4, 5	HLSR.4.HW.4	Discuss immediate and long-term impacts of health decisions on the individual, family, and community (e.g., sexual activity, teen pregnancy, oral health, immunizations, drug use, addictions, and medical check-ups).
3, 4, 5	ATOD.5.HW.1	Evaluate personal usage and effects of prescription and non-prescription drugs or over-the-counter medicine (e.g., abuse, misuse, combining medications, dependency, side effects, and financial costs).
3, 4, 5	ATOD.5.HW.6	Assess the effects of legal and illegal drugs on the body: short term, long term, physiological, and psychological.
4, 5	ATOD.5.HW.7	Investigate treatment options for alcohol and drug abuse (e.g., AA, resident treatment centers, detoxification centers).