SLEEP, SLEEP DISORDERS, AND BIOLOGICAL RHYTHMS

Arkansas Biology Standards

Lesson	Standard	Descriptor
2	**MC.2.B.11**	Discuss homeostasis using thermoregulation as an example.
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).
1, 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.
1, 3	**NS.11.B.1**	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.
1, 2, 3	**NS.11.B.3**	Identify sources of bias that could affect experimental outcome.
1, 3	**NS.11.B.4**	Gather and analyze data using appropriate summary statistics.
1, 2, 3, 4	**NS.11.B.5**	Formulate valid conclusions without bias.
1, 3	**NS.11.B.6**	Communicate experimental results using appropriate reports, figures, and tables.
4	**NS.12.B.6**	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
1, 3	**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).
1, 2, 3, 4	**NS.14.B.1**	Compare and contrast biological concepts in pure science and applied science.
3	**NS.14.B.2**	Discuss why scientists should work within ethical parameters.
2	**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, 3, 4	**OHB.1.AP.6**	Investigate *homeostatic* control mechanisms and their importance to health and diseases.
1, 3, 4	**OHB.1.AP.7**	Predict the effect of positive and negative feedback mechanisms on *homeostasis.*
2	**BS.8.AP.1**	Identify the components the *nervous system.*
2, 3	**BS.8.AP.2**	Discuss the physiological mechanisms of the *nervous system.*

4	**BS.8.AP.4**	Describe disorders associated with the *nervous system.*
1, 2, 3	**NS.16.AP.1**	Explain why science is limited to natural explanations of how the world works.
1, 2, 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.
1, 3	**NS.17.AP.1**	Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation.
1, 2, 3	**NS.17.AP.3**	Identify sources of bias that could affect experimental outcome.
1, 3	**NS.17.AP.4**	Gather and analyze data using appropriate summary statistics.
1, 2, 3, 4	**NS.17.AP.5**	Formulate valid conclusions without bias.
1, 3	**NS.17.AP.6**	Communicate experimental results using appropriate reports, figures, and tables.
4	**NS.18.AP.4**	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
5	**NS.18.AP.5**	Research current events and topics in human biology.
1, 3	**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).
1, 2, 3, 4	**NS.20.AP.1**	Compare and contrast human biology concepts in *pure science* and *applied science.*
3	**NS.20.AP.2**	Discuss why scientists should work within ethical parameters.
2	**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**
Pre-Lesson, 1, 3	**SEI.2.AI.5**	Solve real world problems that involve a combination of rates, *proportions* and percents.
1, 3	**SEI.2.AI.8**	Communicate real world problems graphically, algebraically, numerically and verbally.
1, 3	**LF.3.AI.4**	Identify *independent variables* and *dependent variables* 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 OV.1.10.1**	Adjust oral language to audience and appropriately apply the rules of standard English.

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, *voice*, and *tone* 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 *style* of writing for selected vocabulary, selected information, sentence variety, *tone* and *voice.*
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, *style*, and *tone* 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 *practical text*s 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.
1, 3	**IR.12.9.2 IR.12.10.2**	Establish a focus for research and design a research plan to answer a specific question (9) / set of questions (10).
1, 3	**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**
1, 2, 3, 4	**HGD.1.HW.1**	Assess the relationship between body systems and stress (e.g., heart disease, weakened immune system, diabetes).
4	**DP.2.HW.4**	Examine practices of early disease prevention and detection measures: regular physical activity, proper diet, self exams, health screenings, and vaccinations.
4	**DP.2.HW.7**	Examine the causes of chronic diseases (e.g., obesity, underweight/underweight, heredity, chemicals, drug use, life-style, sun exposure).
4	**DP.2.HW.8**	Analyze the relationship between chronic diseases and a healthy lifestyle (e.g., heart disease, obesity, diabetes, cancer).
1, 3, 4	**HLSR.4.HW.3**	Develop a variety of strategies and/or skills to demonstrate respect for and responsibility to self and others.
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).
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).