

ARKANSAS ALIGNMENT FOR NIH SUPPLEMENT EMERGING AND RE-EMERGING INFECTIOUS DISEASES

<b>EMERGING AND RE-EMERGING INFECTIOUS DISEASES</b>		
<b>Arkansas Biology Standards</b>		
<b>Activity</b>	<b>Standard</b>	<b>Descriptor</b>
3, 5	HE.5.B.6	Identify effects of changes brought about by mutations: beneficial, harmful, and neutral.
3	HE.6.B.2	Recognize that evolution involves a change in allele frequencies in a population across successive generations.
3	HE.6.B.3	Analyze the effects of mutations and the resulting variations within a population in terms of natural selection.
1, 2, 4, 5	CDL.7.B.7	Evaluate the medical and economic importance of viruses.
1, 3, 4, 5	CDL.7.B.10	Evaluate the medical and economic importance of bacteria.
All activities	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.
2, 3	NS.11.B.3	Identify sources of bias that could affect experimental outcome.
2, 3, 4	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.
2, 3, 4	NS.11.B.6	Communicate experimental results using appropriate reports, figures, and tables.
1, 2, 3, 4	NS.12.B.5	Describe the relationship between the germ theory of disease and our current knowledge of immunology and control of infectious diseases.
3	NS.12.B.6	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
2, 4	NS.13.B.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
3, 4	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, 5	NS.14.B.1	Compare and contrast biological concepts in pure science and applied science.
2, 3, 5	NS.14.B.4	Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology.

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Arkansas Anatomy and Physiology Standards		
Activity	Standard	Descriptor
2, 3	NS.16.AP.1	Explain why science is limited to natural explanations of how the world works.
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.
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.
2, 3	NS.17.AP.3	Identify sources of bias that could affect experimental outcome.
2, 3, 4	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.
2, 3, 4	NS.17.AP.6	Communicate experimental results using appropriate reports, figures, and tables.
1, 2, 3, 4	NS.18.AP.3	Describe the relationship between the germ theory of disease and our current knowledge of immunology and control of infectious diseases.
3	NS.18.AP.4	Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy).
2, 3, 4, 5	NS.18.AP.5	Research current events and topics in human biology.
2, 4	NS.19.AP.1	Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables.
3, 4	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, 5	NS.20.AP.1	Compare and contrast human biology concepts in <i>pure science</i> and <i>applied science</i> .
2, 3, 4, 5	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		
Activity	Standard	Descriptor
4	SEI.2.AI.5	Solve real world problems that involve a combination of rates, <i>proportions</i> and percents.
2, 4	SEI.2.AI.8	Communicate real world problems graphically, algebraically, numerically and verbally.
2, 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.

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Arkansas English Language Arts Standards: Grades 9 & 10		
Activity	Standard	Descriptor
All activities	OV.1.9.1 OV.1.10.1	Adjust oral language to audience and appropriately apply the rules of standard English.
All activities	OV.1.9.2 OV.1.10.2	Prepare and participate in structured discussions, such as panel discussion.
All activities	OV.2.9.4 OV.2.10.4	Demonstrate attentive, reflective, and critical listening skills to respond to and interpret speaker's message.
2, 3, 4, 5	W.4.9.4 W.4.10.3	Write clear and varied sentences.
2, 3, 4, 5	W.4.9.5 W.4.10.4	Elaborate ideas clearly and accurately through word choice, vivid description, and selected information.
2, 3, 4, 5	W.4.9.6 W.4.10.5	Adapt content vocabulary, <i>voice</i> , and <i>tone</i> to audience, purpose, and situation.
2, 3, 4, 5	W.4.9.8 W.4.10.7	Revise content of writing for central idea, elaboration, unity, and organization.
2, 3, 4, 5	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> .
2, 3, 4, 5	W.4.9.12 W.4.10.11	Apply grammatical conventions for capitalization, punctuation, formatting, and spelling.
2, 3, 4, 5	W.5.9.1 W.5.10.1	Adjust levels of formality, <i>style</i> , and <i>tone</i> when composing for different audiences.
2, 3, 4, 5	W.5.9.9 W.5.10.9	Write across the curriculum.
2, 3, 4, 5	W.6.9.8 W.6.10.4	Apply conventional spelling to all pieces.
All activities	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 activities	R.9.9.8 R.9.10.7	Summarize and paraphrase structures in informational and literary texts, including relationships among concepts and details.
All activities	R.9.9.13 R.9.10.12	Identify and discuss a position using concepts gained from reading.
2, 3, 4, 5	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 activities	R.11.9.1	Expand vocabulary through reading, listening, and discussing.

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	<b>R.11.10.1</b>	
<b>2, 3</b>	<b>IR.12.9.2</b> <b>IR.12.10.2</b>	Establish a focus for research and design a research plan to answer a specific question (9) / set of questions (10).
<b>2, 3</b>	<b>IR.12.9.12</b> <b>IR.12.10.12</b>	Create research products such as: oral presentation, reports, and essays.
<b>Arkansas Health and Safety Standards: Grades 9 – 12</b>		
<b>Activity</b>	<b>Standard</b>	<b>Descriptor</b>
<b>1, 3, 4, 5</b>	<b>DP.2.HW.1</b>	Analyze communicable diseases as being viral or bacterial diseases.
<b>All activities</b>	<b>DP.2.HW.2</b>	Identify ways to prevent and treat communicable diseases (e.g., vaccines, medications).
<b>1, 2, 4, 5</b>	<b>DP.2.HW.3</b>	Identify how diseases are transmitted: direct contact, indirect contact, airborne, food-borne, water-borne, animals, and vectors (insects).
<b>3, 4, 5</b>	<b>DP.2.HW.4</b>	Examine practices of early disease prevention and detection measures: regular physical activity, proper diet, self exams, health screenings, and vaccinations.
<b>1, 2, 3</b>	<b>CHP.3.HW.6</b>	Analyze how the environment influences the health of the community: quality of air and water and access to recreational facilities.
<b>3, 4, 5</b>	<b>HLSR.4.HW.4</b>	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).
<b>3, 4</b>	<b>ATOD.5.HW.1</b>	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).