

MAINE ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

<b>HUMAN GENETIC VARIATION</b>		
<b>Maine Science &amp; Technology Performance Indicators: Grades 9 – Diploma</b>		
<b>Activity</b>	<b>Indicator</b>	<b>Descriptor</b>
2, 4	A2	Evaluate the effectiveness of a model by comparing its predictions to actual observations from the physical setting, the living environment, and the technological world.
2	A3	Identify and analyze examples of constancy and change that result from varying types and rates of change in physical, biological, and technological systems with and without counterbalances.
3	B1.a	Identify questions, concepts, and testable hypotheses that guide scientific investigations.
3	B1.b	Design and safely conduct methodical scientific investigations, including experiments with controls.
1, 3	B1.c	Use statistics to summarize, describe, analyze, and interpret results.
1, 2, 3, 4	B1.d	Formulate and revise scientific investigations and models using logic and evidence.
1, 2, 3	B1.e	Use a variety of tools and technologies to improve investigations and communications.
1, 2, 3	B1.f	Recognize and analyze alternative explanations and models using scientific criteria.
1, 2, 3, 4	B1.g	Communicate and defend scientific ideas.
2, 3	C1.a	Describe how hypotheses and past and present knowledge guide and influence scientific investigations.
2, 3	C1.b	Describe how scientists defend their evidence and explanations using logical arguments and verifiable results.
2, 3, 5	C2.a	Provide an example that shows how science advances with the introduction of new technologies and how solving technological problems often impacts new scientific knowledge.
2, 3	C2.b	Provide examples of how creativity, imagination, and a good knowledge base are required to advance scientific ideas and technological design.
2, 3, 5	C2.c	Provide examples that illustrate how technological solutions to problems sometimes lead to new problems or new fields of inquiry.
3, 4, 5	C3.b	Explain how ethical, societal, political, economic, and cultural factors influence personal health, safety, and the quality of the environment.
3, 5	C3.c	Explain how ethical, societal, political, economic, religious, and cultural factors influence the development and use of science and technology.
2	C4.b	Select and describe one of the major episodes in the history of science including how the scientific knowledge changed over time and any important effects on science and society.
1, 2	E1.a	Explain how the variation in structure and behavior of a population of organisms may influence the likelihood that some members of the species will have adaptations that allow them to survive in a changing environment.
2	E1.b	Describe the role of DNA sequences in determining the degree of kinship among organisms and the identification of species.

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5	E3.d	Describe ways in which cells can malfunction and put an organism at risk.
All activities	E4.b	Describe genes as segments of DNA that contain instructions for the cells and include information that leads to the differentiation of cells.
1, 2, 4, 5	E4.d	Describe the possible causes and effects of gene mutations.
2	E5.d	Relate structural and behavioral adaptations of an organism to its survival in the environment.

**Maine Mathematics Performance Indicators: Grade 9 – Diploma**

Activity	Indicator	Descriptor
2	A1.c	Compute using laws of exponents.
2	A1.d	Multiply and divide numbers expressed in scientific notation.
1	B1.b	Represent an approximate measurement using appropriate numbers of significant figures.
1, 3, 4	B2.a	Recognize when correlation has been confused with cause and effect.
1, 2, 4	B4.a	Describe and account for the difference between sample statistics and statistics describing the distribution of the entire population.
1, 2, 4	B4.b	Recognize that sample statistics produce estimates for the distribution of an entire population and recognize that larger sample sizes will produce more reliable results.

**Maine English Language Arts Performance Indicators: Grade 9 – Diploma**

Activity	Indicator	Descriptor
2, 3, 4, 5	A1.a	Use a flexible range of before, during and after reading strategies to deepen understanding of the author’s message.
All activities	A1.b	Demonstrate ownership of appropriate vocabulary by effectively using a word in different contexts and for different reasons.
All activities	A1.c	Determine the meaning of unknown words by analyzing the context in which they are used, using reference sources, and applying knowledge of word parts and their meanings.
2, 3, 5	A1.f	Demonstrate comprehension by evaluating texts using established criteria.
2, 3, 5	A3.a	Evaluate the extent to which the author’s conclusions can be logically drawn from the provided evidence.
1, 2, 3, 4	A3.b	Evaluate the data contained in tables, charts, graphics, etc., for accuracy, credibility, and relevancy.
2	A4.d	Analyze the purpose(s) of a persuasive text; describe the intended audience, and assess the overall effectiveness of text.
2	B1.a	Locate, summarize, and synthesize information from primary and secondary sources, as necessary.
All activities	B1.e	Create legible final drafts.
All activities	B2.a	Use diction, syntax, imagery, and tone to create a distinctive voice.
All activities	B2.b	Organize ideas in a logical sequence with effective transitions.

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All activities	B3.a	Explain and evaluate information from reading, listening, or viewing.
1, 2, 3	B3.b	Write thesis-driven essays that build a logical argument and support assertions with examples and evidence that are accurate, credible, and relevant.
2, 5	B4.a	Employ a variety of persuasive techniques including anticipating, addressing, and refuting potential counterclaims in a thesis-driven logical argument to influence the opinions, beliefs, or positions of others.
All activities	C1.c	Synthesize information from varied sources and/or data gathered from fieldwork and interviews.
All activities	D1.a	Use appropriate diction, syntax, and figurative language to suit purpose, context, and audience.
All activities	D2.a	Use appropriate punctuation, spelling, and sentence and paragraph structure to suit purpose, situation, and audience.
All activities	E1.a	Formulate clarifying questions.
All activities	E1.b	Examine and critique information presented.
All activities	E1.c	Expand on ideas presented by others.
All activities	E2.a	Choose and present appropriate information logically and ethically.
2, 5	F1.b	Explain the similarities and differences between the messages conveyed by print and non-print sources.
2, 5	F1.c	Compare the role of print and non-print sources, including advertising, in shaping public opinion and noting instances of unsupported inferences, or fallacious reasoning.

**Maine Health and Physical Education Performance Indicators: Grade 9 – Diploma**

Activity	Indicator	Descriptor
4, 5	A1.a	Analyze individual responsibility for enhancing health.
4, 5	A1.b	Predict how healthy behaviors can positively impact health status.
4	A1.d	Examine personal susceptibility to, and the potential severity of, injury or illness if engaging in unhealthy behaviors.
4, 5	A2	Analyze the interrelationship of physical, mental/intellectual, emotional, and social health.
2, 4	A3	Explain causes of common diseases, disorders, and other health problems and propose ways to reduce, prevent, or treat them.
4	A4.a	Analyze how environment and personal health are interrelated.
2, 3, 4, 5	A4.b	Describe how genetics and family history can impact personal health.
4	A6	Analyze complex health concepts related to family life; nutrition; personal health; safety and injury prevention; and tobacco, alcohol, and other drug use prevention.
2, 3, 5	B1	Evaluate the validity and accessibility of health information, products, and services.
5	B2.a	Determine when professional health services may be required.
5	B2.b	Access valid and reliable health information.
4, 5	D1.a	Analyze how family, school and community influence the health of individuals.
4, 5	D1.e	Analyze how culture and personal values and beliefs influence individual health behaviors.

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<b>2, 3, 5</b>	<b>D2</b>	Evaluate the impact of technology, including medical technology, on personal, family, and community health.
<b>2, 4, 5</b>	<b>E1.a</b>	Demonstrate effective communication skills including asking for and offering assistance to enhance the health of self and others.
<b>2, 3</b>	<b>E2.b</b>	Adapt health messages and communication techniques for different audiences.
<b>4</b>	<b>E2.c</b>	Demonstrate an ability to work cooperatively as an advocate for improving personal, family, and community health.
<b>2, 4, 5</b>	<b>F1.c</b>	Generate alternative approaches to situations involving health-related decisions and predict the potential short-term and long-term impact for themselves and others for each alternative.
<b>4, 5</b>	<b>F1.d</b>	Defend the healthy choice when making a decision.
<b>5</b>	<b>F1.e</b>	Evaluate the effectiveness of a health-related decision.