

VERMONT ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

HUMAN GENETIC VARIATION		
Vermont Science G.E.s: High School		
Activity	G.E.	Statement
2, 3	S9-12:1:1	Framing testable questions showing evidence of observations and prior knowledge to illustrate cause and effect.
2, 3	S9-12:1:2	Developing a testable question appropriate to the scientific domain being investigated.
2, 3	S9-12:2:1	Developing a testable/guiding hypothesis and predictions based upon evidence of scientific principles.
2, 3	S9-12:2:2	Predicting results (evidence) that support the hypothesis.
2, 3	S9-12:2:3	Clearly distinguishing cause and effect within a testable/guiding hypothesis.
3	S9-12:4:1	Collecting significant data by completing multiple trials
2, 3	S9-12:4:2	Evaluating and revising procedures as investigation progresses.
1, 2, 3	S9-12:5:1	Representing data quantitatively to the appropriate level of precision through the use of mathematical calculations.
2, 3	S9-12:5:3	Recording accurate data, free of bias.
1, 2, 3	S9-12:6:3	Critically examining and explaining the relationship of evidence to the findings of others (e.g., classmates or scientists in the field).
3	S9-12:7:1	Proposing, synthesizing, and evaluating alternative explanations for experimental results.
3	S9-12:7:2	Citing experimental evidence within an explanation.
2, 3	S9-12:7:3	Including logically consistent position to explain observed phenomena.
3	S9-12:7:4	Comparing an experimental conclusion to other proposed explanations by peer review (e.g., students, scientists or local interest groups).
3	S9-12:7:5	Conducting objective scientific analysis and evaluating potential bias in the interpretation of evidence.
3	S9-12:7:6	Identifying and evaluating uncontrolled variables inherent in experimental model.
2, 3, 5	S9-12:8:2	Predicting/recommending how scientific conclusions can be applied to civic, economic or social issues.
3	S9-12:8:3	Proposing and evaluating new questions, predictions, procedures and technology for further investigations.
2	S9-12:39:1	Using evidence to apply the theory of Natural Selection to a scenario depicting change within a given population over time/through many generations (e.g., bacterial resistance to antibiotics, neck length of the giraffe, animal camouflage).
2	S9-12:40:1	Modeling and explaining how the structure of DNA is maintained and relates to genes and chromosomes, which code for specific protein molecules within a cell.
2, 3, 4, 5	S9-12:40:3	Explaining how alteration of a DNA sequence may affect physical/chemical characteristics of the human body (e.g., sickle-cell anemia, cancer genetic engineering).
3, 4	S9-12:41:2	Explaining examples of how the human body may be affected by the state of the internal or external environment and

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		by heredity and by life experience (e.g., effects of malnutrition).
2, 3, 4, 5	S9-12:41:3	Using evidence to predict and explain how the effect of various environmental or hereditary factors influence the continuation of the human species (reproductive success) (e.g., anorexia and/or steroid use, radiation/toxic wastes/drug use, mutagenic agents and/or improper diet/obesity).

Vermont Mathematics G.E.s: High School

Activity	G.E.	Statement
2, 4	MHS:1	Accurately solves problems involving conceptual understanding and magnitude of real numbers, or simple vectors.
2, 4	MHS:7	Estimates and evaluates the reasonableness of numerical computations and solutions, including those carried out with technology.
1	MHS:15	Measures and uses units of measures appropriately and consistently when solving problems across the content strands. Makes conversions within or across systems and makes decisions concerning an appropriate degree of accuracy in problem situations involving measurement. Uses measurement conversion strategies, such as unit/dimensional analysis or uses quotient measures, such as speed and density that give per unit amounts or uses product measures, such as person hours to solve problems.
1, 2	MHS:25	Organizes and displays data using scatter plots, histograms, or frequency distributions to answer questions related to the data, to analyze the data or to solve problems; or identifies representations or elements of representations that best display a given set of data or situation, consistent with the representations required in MHS: 23.
2, 3	MHS:30	Demonstrate understanding of mathematical problem solving and communication by: <ul style="list-style-type: none"> • Approach and Reasoning—The strategies and skills used to solve the problem, and the reasoning that supports the approach; • Execution—The answer and the mathematical work that supports it; • Observations and Extensions—Demonstration of observation, connections, application, extensions, and generalizations; • Mathematical Communication—The use of mathematical vocabulary and representation to communicate the solution; and • Presentation—Effective communication of how the problem was solved, and of the reasoning used.

Vermont Reading G.E.s: High School

Activity	G.E.	Statement
All activities	RHS:3	Identifying multisyllabic words by using knowledge of sounds, syllables, derivational roots and affixes, including foreign language derivations.
All activities	RHS:6:2	Selecting appropriate words or explaining the use of words in context, including connotation and denotation; or use of precise or technical vocabulary, including content-specific vocabulary; or use of words with multiple meanings.
All activities	RHS:7	Uses comprehension strategies (flexibly and as needed) while reading literary and informational text.
All activities	RHS:12:1	Obtaining information from text features (e.g., transitional devices, table of contents, glossary, index, bold or italicized

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		text, headings, graphic organizers, charts and graphs, illustrations, or subheadings).
All activities	RHS:12:2	Using information from the text to answer questions or to state the central idea or provide supporting key details.
All activities	RHS:12:3	Organizing information to show understanding or relationships among facts, ideas, and events (e.g., representing key points within text through charting, mapping, paraphrasing, summarizing, comparing/contrasting, or outlining).
All activities	RHS:16:1	Explaining connections about information within a text, across texts, or to related ideas.
All activities	RHS:16:2	Synthesizing and evaluating information within or across text(s) (e.g., constructing appropriate titles; or formulating assertions or controlling ideas).
All activities	RHS:16:5	Making inferences about causes or effects.
All activities	RHS:19	Demonstrates participation in a literate community by... <ul style="list-style-type: none"> • Self-selecting reading materials in line with reading ability and personal interests • Participating in in-depth discussions about text, ideas, and student writing by offering comments and supporting evidence, recommending books and other materials, and responding to the comments and recommendations of peers, librarians, teachers, and others.

Vermont Writing G.E.s: High School

Activity	G.E.	Statement
All activities	WHS:2:1	Applying rules of standard English usage to correct grammatical errors.
All activities	WHS:2:2	Applying capitalization rules.
All activities	WHS:2:3	Applying appropriate punctuation rules to various sentence patterns.
All activities	WHS:3:1	Independently applying spelling knowledge in proofreading and editing of writing.
All activities	WHS:4:2	Using the paragraph form: indenting, main idea, supporting details.
All activities	WHS:4:4	Using a format and text structure appropriate to the purpose of the writing.
All activities	WHS:5:1	Selecting key ideas to set context appropriate to audience.
All activities	WHS:5:2	Making thematic connections between texts, prior knowledge, or the broader world of ideas.
All activities	WHS:7:3	Using effective voice and tone (word choice and sentence patterns) for desired effect on reader.
All activities	WHS:7:4	Excluding loosely related or extraneous information.
2, 3	WHS:8:1	Using an organizational text structure appropriate to focus/controlling idea.
2, 3	WHS:8:2	Selecting appropriate information to set context throughout the report; may include a lead/hook.
2, 3	WHS:8:4	Drawing a conclusion by synthesizing information from report and relating it to broader ideas/concepts.
2, 3	WHS:9:1	Stating and maintaining a focus/controlling idea/thesis (purpose).
2, 3	WHS:9:2	Writing with a sense of audience, if appropriate.
All activities	WHS:10:1	Including facts and details relevant to focus/controlling idea, and excluding extraneous information.
All activities	WHS:10:2	Including sufficient details or facts for appropriate depth: naming, describing, explaining, comparing, use of visual

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		images.
5	WHS:15:2	Stating and maintaining a clear position on the problem or issue (purpose) in persuasive writing.
5	WHS:16:3	Providing convincing and relevant arguments and/or reasons.
5	WHS:16:5	Addressing the reader's potential concerns or counterarguments.
5	WHS:16:6	Writing an effective conclusion.

Vermont Health Education G.E.s: High School

Activity	G.E.	Statement
4	ATOD:HE2:b	Evaluating the short and long-term effects of alcohol, tobacco, and other drugs on health.
2, 5	FSSH:HE4:a	Demonstrating the ability to access appropriate sources of support and treatment available for a variety of health issues.
2, 3, 5	FSSH:HE4:c	Demonstrating the ability to evaluate resources from home, school, and/or community that provide valid health information.
2, 5	FSSH:HE5:c	Demonstrating the ability to advocate for health promoting opportunities for self and others.
4	PHW:HE2:a	Analyzing how behavior can impact health maintenance and disease prevention, including the short and long-term consequences of safe, risky, and harmful behaviors.
4, 5	PHW:HE2:b	Analyzing the impact of personal health behaviors on body systems, (e.g., regular health examinations and screenings, importance of rest and sleep, sun safety, self-examinations, early treatment of diseases).
5	PHW:HE2:d	Analyzing how public health policies and laws influence health promotion and disease prevention.
2, 3, 5	PHW:HE4:c	Demonstrating the ability to evaluate resources from home, school, and/or community that provide valid health information.
5	PHW:HE5:a	Demonstrating the ability to advocate for health promoting opportunities for self and others, (e.g., assisting in the development of public health policies and laws, or becoming actively engaged in issues that affect health).
5	PHW:HE7:b	Analyzing the immediate and long-term impact of health decisions on the individual, family, and community, including environmental issues, public health policies, and government regulations.