

**USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY**

**Vermont Science G.E.s: High School**

<b>Lesson</b>	<b>G.E.</b>	<b>Statement</b>
3	S9-12:1:1	Framing testable questions showing evidence of observations and prior knowledge to illustrate cause and effect.
3	S9-12:1:2	Developing a testable question appropriate to the scientific domain being investigated.
3	S9-12:2:1	Developing a testable/guiding hypothesis and predictions based upon evidence of scientific principles.
3	S9-12:2:2	Predicting results (evidence) that support the hypothesis.
3	S9-12:2:3	Clearly distinguishing cause and effect within a testable/guiding hypothesis.
3	S9-12:3:1	Writing a plan related to the question and prediction that includes: a. Procedures that incorporate appropriate protection (e.g., no food in lab area). b. Appropriate tools, units of measurement and degree of accuracy. c. Components that reflect current scientific knowledge and available technology. d. Use of scientific terminology that supports the identified procedures
3	S9-12:4:1	Collecting significant data by completing multiple trials
3	S9-12:4:2	Evaluating and revising procedures as investigation progresses.
1	S9-12:5:1	Representing data quantitatively to the appropriate level of precision through the use of mathematical calculations.
1, 2, 3	S9-12:5:3	Recording accurate data, free of bias.
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.
2, 3	S9-12:7:4	Comparing an experimental conclusion to other proposed explanations by peer review (e.g., students, scientists or local interest groups).
2, 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.

**Vermont Mathematics G.E.s: High School**

<b>Lesson</b>	<b>G.E.</b>	<b>Statement</b>
1	MHS:1	Accurately solves problems involving conceptual understanding and magnitude of real numbers, or simple vectors.
1	MHS:7	Estimates and evaluates the reasonableness of numerical computations and solutions, including those carried out

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		with technology.
1	<b>MHS:15</b>	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	<b>MHS:19:2</b>	And makes connections among representations of functions/relations (equations, tables, graphs, symbolic notation, text).
1	<b>MHS:30</b>	Demonstrate understanding of mathematical problem solving and communication by: <ul style="list-style-type: none"> <li>• Approach and Reasoning—The strategies and skills used to solve the problem, and the reasoning that supports the approach;</li> <li>• Execution—The answer and the mathematical work that supports it;</li> <li>• Observations and Extensions—Demonstration of observation, connections, application, extensions, and generalizations;</li> <li>• Mathematical Communication—The use of mathematical vocabulary and representation to communicate the solution; and</li> <li>• Presentation—Effective communication of how the problem was solved, and of the reasoning used.</li> </ul>
<b>Vermont Reading G.E.s: High School</b>		
<b>Lesson</b>	<b>G.E.</b>	<b>Statement</b>
<b>All lessons</b>	<b>RHS:3</b>	Identifying multisyllabic words by using knowledge of sounds, syllables, derivational roots and affixes, including foreign language derivations.
<b>All lessons</b>	<b>RHS:6:2</b>	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.
<b>All lessons</b>	<b>RHS:7</b>	Uses comprehension strategies (flexibly and as needed) while reading literary and informational text.
<b>3, 4</b>	<b>RHS:12:1</b>	Obtaining information from text features (e.g., transitional devices, table of contents, glossary, index, bold or italicized text, headings, graphic organizers, charts and graphs, illustrations, or subheadings).
<b>1, 3, 4</b>	<b>RHS:12:2</b>	Using information from the text to answer questions or to state the central idea or provide supporting key details.
<b>4</b>	<b>RHS:12:3</b>	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).
<b>1, 3, 4</b>	<b>RHS:16:1</b>	Explaining connections about information within a text, across texts, or to related ideas.
<b>1, 3, 5</b>	<b>RHS:16:2</b>	Synthesizing and evaluating information within or across text(s) (e.g., constructing appropriate titles; or formulating assertions or controlling ideas).
<b>1, 3, 4</b>	<b>RHS:16:5</b>	Making inferences about causes or effects.
<b>1, 3, 4</b>	<b>RHS:19</b>	Demonstrates participation in a literate community by... <ul style="list-style-type: none"> <li>• Self-selecting reading materials in line with reading ability and personal interests</li> </ul>

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		<ul style="list-style-type: none"> <li>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.</li> </ul>
<b>Vermont Writing G.E.s: High School</b>		
<b>Lesson</b>	<b>G.E.</b>	<b>Statement</b>
3, 4	<b>WHS:2:1</b>	Applying rules of standard English usage to correct grammatical errors.
3, 4	<b>WHS:2:2</b>	Applying capitalization rules.
3, 4	<b>WHS:2:3</b>	Applying appropriate punctuation rules to various sentence patterns.
3, 4	<b>WHS:3:1</b>	Independently applying spelling knowledge in proofreading and editing of writing.
3, 4	<b>WHS:4:2</b>	Using the paragraph form: indenting, main idea, supporting details.
3, 4	<b>WHS:4:4</b>	Using a format and text structure appropriate to the purpose of the writing.
3, 4	<b>WHS:5:1</b>	Selecting key ideas to set context appropriate to audience.
3, 4	<b>WHS:5:2</b>	Making thematic connections between texts, prior knowledge, or the broader world of ideas.
3, 4	<b>WHS:7:3</b>	Using effective voice and tone (word choice and sentence patterns) for desired effect on reader.
3, 4	<b>WHS:7:4</b>	Excluding loosely related or extraneous information.
3, 4	<b>WHS:8:1</b>	Using an organizational text structure appropriate to focus/controlling idea.
3, 4	<b>WHS:8:2</b>	Selecting appropriate information to set context throughout the report; may include a lead/hook.
3, 4	<b>WHS:8:4</b>	Drawing a conclusion by synthesizing information from report and relating it to broader ideas/concepts.
3, 4	<b>WHS:9:1</b>	Stating and maintaining a focus/controlling idea/thesis (purpose).
3, 4	<b>WHS:9:2</b>	Writing with a sense of audience, if appropriate.
3, 4	<b>WHS:10:1</b>	Including facts and details relevant to focus/controlling idea, and excluding extraneous information.
3, 4	<b>WHS:10:2</b>	Including sufficient details or facts for appropriate depth: naming, describing, explaining, comparing, use of visual images.
3, 4	<b>WHS:13:2</b>	Using and defining specific technical vocabulary, appropriate to audience and purpose.
3, 4	<b>WHS:13:4</b>	Using details and examples to help the reader understand and visualize the process.
3, 4	<b>WHS:13:6</b>	Providing a conclusion that advances the reader's understanding or appreciation of the process.
3, 4	<b>WHS:15:2</b>	Stating and maintaining a clear position on the problem or issue (purpose) in persuasive writing.
3, 4	<b>WHS:16:3</b>	Providing convincing and relevant arguments and/or reasons.
3, 4	<b>WHS:16:5</b>	Addressing the reader's potential concerns or counterarguments.
3, 4	<b>WHS:16:6</b>	Writing an effective conclusion.

<b>Vermont Health Education G.E.s: High School</b>		
<b>Lesson</b>	<b>G.E.</b>	<b>Statement</b>
<b>3</b>	<b>PHW:HE4:c</b>	Demonstrating the ability to evaluate resources from home, school, and/or community that provide valid health information.