

DELAWARE ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

<b>HUMAN GENETIC VARIATION</b>		
<b>Delaware Science GLEs: Grades 9 – 12</b>		
<b>Activity</b>	<b>GLE</b>	<b>Descriptor</b>
2, 3	1.1	Identify and form questions that generate a specific testable hypothesis that guide the design and breadth of the scientific investigation.
3	1.2	Design and conduct valid scientific investigations to control all but the testable variable in order to test a specific hypothesis.
1, 2, 3	1.3	Collect accurate and precise data through the selection and use of tools and technologies appropriate to the investigations. Display and organize data through the use of tables, diagrams, graphs, and other organizers that allow analysis and comparison with known information and allow for replication of results.
2, 3, 4	1.4	Construct logical scientific explanations and present arguments which defend proposed explanations through the use of closely examined evidence.
2, 3, 4	1.5	Communicate and defend the results of scientific investigations using logical arguments and connections with the known body of scientific information.
2, 3, 4	1.6	Use mathematics, reading, writing and technology when conducting scientific inquiries.
4	7	Describe how exposure to radiation, chemicals and pathogens can increase mutations.
2	7	Describe the relationship between DNA, genes, chromosomes, proteins and the genome.
2, 3, 4	7	Explain that mutations in the DNA sequence of a gene may or may not affect the expression of the gene. Recognize that mutations may be harmful, beneficial, or have no impact on the survival of the organism.
2	7	Explain how the type of cell (gamete or somatic) in which a mutation occurs determines heritability of the mutation.
2	7	Predict the possible consequences of a somatic cell mutation.
2, 3, 5	7	Investigate how the human ability to manipulate genetic material and reproductive processes (e.g., genetic engineering, cloning, stem-cell research) can be applied to many areas of medicine, biology, and agriculture. Evaluate the risks and benefits of various ethical, social and legal scenarios that arise from this ability.
2, 3, 5	7	Explain how developments in technology (e.g., gel electrophoresis, gene sequencing, bioinformatics, DNA fingerprinting) have been used to identify individuals based on DNA as well as to improve the ability to diagnose genetic disorders.
<b>Delaware Mathematics GLEs: Grades 9 &amp; 10</b>		
<b>Activity</b>	<b>GLE</b>	<b>Descriptor</b>
1, 2	1	Determine the appropriateness of an answer by using number sense or estimation.
2	1	Represent and operate with very large and very small numbers.
2	1	Use properties of the real number system to simplify expressions (Associative, Commutative, Identity, Inverse, and

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		Distributive).
2, 4	1	Select and use appropriate methods and tools for computing from among mental computation, estimation, calculators, paper and pencil, and computers according to the context and nature of the computation.
4	2	Demonstrate a conceptual understanding of correlation.
1	4	Select and interpret the most appropriate display for a given purpose and set(s) of data (e.g., histograms, parallel box plots, stem-and-leaf plots, scatter plots).
2	6	Select and use various types of reasoning and methods of proof.
2, 4	7	Communicate mathematical thinking coherently and clearly to peers, teachers, and others.
2, 4	7	Use the language of mathematics to express mathematical ideas precisely.
2, 4	8	Recognize and use connections among mathematical ideas.
2, 4	8	Recognize and apply mathematics in contexts outside of mathematics.

**Delaware Reading and Research GLEs: Grade 10**

Activity	GLE	Descriptor
2, 3, 4, 5	2.1	Apply and use the meanings of high frequency Greek and Latin derived roots and affixes to determine the meaning of unknown words.
2, 3, 4, 5	2.3a	Use “During Reading” strategies by assimilating prior knowledge, making and revising predictions, generating and answering questions, summarizing, rereading to clarify information, adjusting reading rate, inferring information, using mental imagery, seeking the meaning of unknown words, and analyzing story/literary elements and text structure.
2, 3, 4, 5	2.3c	Explain personal connections to the ideas or information in the text(s).
2, 3, 4, 5	2.3c	Restate in own words the main events in the text.
All activities	2.3c	Using a graphic organizer or other note taking technique to record important ideas or information.
2, 3, 4, 5	2.4bI/T	Apply essential information from text features (e.g., title, author, cover, pictures, captions, maps, chapter headings, information from charts and graphs, illustrations, glossaries, indices) to enhance understanding of text.
2, 3, 4, 5	2.4bI/T	Analyze text structures in informative/technical texts (sequence/chronological order, classification, definition, process, description, comparison, problem/solution, simple cause/effect) to make meaning of text.
2, 3, 5	2.4bI/T	Analyze the unique features of various informative texts (e.g., newspapers, magazines, product information, consumer materials, manuals, editorials) to enhance understanding of the text.
2, 3, 4, 5	2.4d	Summarize the main ideas and supporting details in an informative/technical text.
All activities	2.4d	Restate in order the steps of a task in an informative/technical text.
2, 3, 5	2.4f	Create meaning from a variety of media.
2, 3, 4, 5	2.4h	Discriminate between facts and/or subtle opinions in text(s).
2, 3, 4, 5	2.4h	Identify facts in a text and determine their relevance to the issue.

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2, 3, 4, 5	2.4h	Question information in a text to determine if it is factual.
2, 3, 4, 5	2.4i	Make strongly implied inferences about content and concrete ideas in a text and identify appropriate text support.
2, 3, 4, 5	2.4i	Use the combination of background knowledge and explicitly stated information from the text to answer questions they have as they read.
2, 3, 4, 5	2.4i	Make connections between conclusions they draw and other beliefs or knowledge.
2, 3, 4, 5	2.4k	Draw on prior knowledge and experience to connect personally to text (text-to-self connections).
2, 3, 4, 5	2.4k	Draw on prior knowledge of the world (other books, television, movies) to make text-to-world connections.
2, 3, 4, 5	2.5a	Connect and synthesize information from increasingly different sources to generate new information/new ideas or expand prior knowledge (text-to-text and text-to-self connections).
2, 3, 4, 5	2.5b	Analyze information in a text to develop a logical opinion.
2, 3, 4, 5	2.5d	Draw conclusions (including implied main ideas) that require analysis and/or evaluation.
3, 5	2.5f	Evaluate how persuasive techniques and author's choices (e.g., word choices) shape readers' understandings.
2, 3, 4, 5	2.5f	Analyze the completeness, accuracy and/or clarity of the information in a complex text.
2, 3, 5	2.5f	Identify and evaluate information that needs to be checked for accuracy (e.g., data, statistics, and sources) and evaluate the credibility of sources.
2, 3, 5	3.1a1	Use multiple sources of information (books, television, videos/DVDs, resource people, cassettes, dictionaries, recordings, encyclopedias, and available databases).
2, 3, 5	3.1a1	Use teacher-selected Internet sites and databases to access information.
All activities	3.1a2	Organize and interpret gathered information using various graphic organizers.
All activities	3.1a2	Relay facts from research.
All activities	3.2b	Present gathered information in an oral or written format, which uses sentences organized in paragraph form to tell about a designated topic, incorporates information from more than one source, includes information relevant to topic and purpose, identifies source of information, fulfills the identified purpose as clearly indicated in the thesis statement, utilizes an organizational plan for combining paragraphs to address a designated purpose and topic, incorporates information from multiple sources, and summarizes and/or paraphrases information from sources.
All activities	3.3b2	Draw conclusions (including implied main ideas) that require analysis and/or evaluation.

**Delaware Writing and Oral Communication GLEs: Grade 10**

Activity	GLE	Descriptor
2, 3, 4, 5	1.1	Writers will produce texts that exhibit the following text features, all of which are consistent with the genre and purpose of the writing: development, organization, style, and word choice.
2, 3, 4, 5	1.2	Writers will produce texts that exhibit the following language conventions at all grade levels: sentence formation, conventions.
2, 3, 4, 5	1.3	Writers will produce examples that illustrate the following classifications: by the completion of the grade, writers will be able to write persuasive, informative, and expressive pieces.

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5	1	Students understand that persuasive writing is audience-centered; the needs of the intended audience are the most important consideration. Students understand that persuasive writing involves taking a position on a debatable issue to convince an audience.
2, 3, 4	1	Students understand that informative writing is subject-centered; the need to communicate information clearly so that the audience can understand the content/subject is the most important consideration.
2, 3, 4, 5	1	Acknowledge reader's positions or beliefs about ideas or issues, understand implications for the writer, and adjust content accordingly.
5	1	Write to audiences that can be increasingly distant and abstract (e.g., unknown audiences such as politicians, leaders/owners of businesses [CEOs], in addition to more familiar "others" from previous grades).
2, 3, 4, 5	1	Students self-select appropriate forms and/or respond to assignments for a variety of occasions.
5	1	Present a clear defensible position that supports, opposes, or qualifies the issue/question.
2, 3, 4, 5	1	Support position with reasons that could include relevant facts, statistics, credible personal and expert opinions, examples, and/or insightful commentary.
2, 3, 4	1	Text-based writing: combine information from text and prior knowledge to elaborate upon ideas in writing (text-to-self, text-to-text, text-to-world connections) that reveal to the reader the writer's depth of understanding of the issue.
5	1	Provide relevant information, reasons, and/or details to elaborate or clarify the subject (e.g., personal opinion based on experience/ observation, verifiable facts, examples, explanations, definitions).
2, 3, 4, 5	1	Text-based writing: combine information from text and prior knowledge to elaborate upon ideas in writing (text-to-self, text-to-text, text-to-world connections) that reveal to the reader the writer's depth of understanding of the topic.
5	1	Persuasive writing: Develop a conclusion that moves beyond summary (e.g., "call to action" or "next step," answers the "so what?" question about the significance of the issue, raises related issues or consequence of non-action, provides perspective).
2, 3, 4	1	Informative writing: Develop a conclusion that moves beyond summary (e.g., reinforcing the importance of the information, raising related issues, and/or generating a new hypothesis).
2, 3, 4, 5	1	Use Standard Written English conventions (and when appropriate, variations thereof) to achieve purpose and create effective style and voice. Deviations from SWE (e.g., dialect, slang) should have a specific rhetorical function.
2, 3, 4, 5	1	Use active and passive voice appropriately and consistently.
2, 3, 4, 5	1	Spell frequently used words correctly, and use effective strategies for spelling unfamiliar words.
All activities	1.4	Orally communicate information, opinions, and ideas effectively to different audiences for a variety of purposes.
All activities	1.4	Choose words and use voice appropriate to audience and purpose (e.g., inform, persuade, entertain).
All activities	1.4	Speak and listen for a variety of audiences (e.g., classroom, real-life) and purposes (e.g., awareness, enjoyment, information, problem solving).
All activities	1.4	Share impromptu remarks about topics of interest to oneself and others.
All activities	1.5	Listen to and comprehend oral communications.
All activities	1.5	Follow basic directions

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All activities	1.5	Listen attentively by making eye contact, facing the speaker, asking questions, and paraphrasing what is said.
All activities	1.5	Ask and respond to questions from teachers and other group members.
All activities	1.5	Summarize and explain information conveyed in an oral communication accounting for key ideas, structure, and relationship of parts to the whole.
All activities	1.5	Distinguish among purposes for listening (e.g., gaining information, being entertained) and take notes as appropriate.
All activities	1.6	Develop vocabulary and the ability to use words, phrases, idioms, and various grammatical structures and means of improving communication.
All activities	1.6	Give and follow oral directions.
All activities	1.6	Use complex sentence structure.
All activities	1.7	Participate effectively in a discussion.
All activities	1.7	Participate in a variety of roles in group discussions (e.g., active listener, contributor, discussion leader).
All activities	1.7	Listen attentively, demonstrating respect for the opinion of others.
All activities	1.7	Explain opinions by citing evidence and referring to sources.
All activities	1.7	Participate in discussion without dominating.

**Delaware Health Education GLEs: High School**

Activity	GLE	Descriptor
4	TOB:1.2	Know the short-term and long-term effects of tobacco use.
4	TOB:4.1	Know the long-term and short-term health benefits of being tobacco free.
4	PA:1.2	Know the benefits of exercise: frequency, intensity, duration and type.
4	PA:1.9	Know the importance of healthful eating and physical activity.
4	EH:1.4	Know how to accept personal responsibility for behavior.
All activities	EH:3.3	Know skills for effective speaking (e.g., I-statements, eye contact, assertiveness), listening (e.g., reflective listening) and non-verbal communication.
5	EH:5.5	Know valid sources of information and help.
5	PCH:1.1	Know the benefits of regular medical and dental check-ups, including BSE, TSE, and Pap smear.
2, 3, 4, 5	PCH:2.2	Know the role of genetics in the family history of disease.