USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

Alaska Science PSGLE: Grades 9 & 10

Grade 9

Lesson	PSGLE	Descriptor
1, 2, 3	[9] SA1.1	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring and communicating.
2, 3	[9] SA1.2	Hypothesizing, designing a controlled experiment, making qualitative and quantitative observations, interpreting data, and using this information to communicate conclusions.
1, 2, 3	[9] SA2.1	Formulating conclusions that are logical and supported by evidence.
1, 4	[9] SE1.1	Recognizing that the value of any given technology may be different for different groups of people and at different points in time (e.g., different uses of snow machines in different regions of Alaska).
1, 4	[9] SE3.1	Predicting and evaluating the possible effects of a recent scientific discovery, invention, or scientific breakthrough.
1, 4	[9] SG1.1	Identifying those perspectives (i.e., cultural, political, religious, philosophical) that have impacted the advancement of science.
1, 4	[9] SG2.1	Explaining the importance of innovations (i.e., microscope, immunization, computer).

Grade 10

Lesson	PSGLE	Descriptor
1, 2, 3	[10] SA1.1	Asking questions, predicting, observing, describing, measuring, classifying, making generalizations, analyzing data, developing models, inferring and communicating.
2	[10] SA 2.1	Examining methodology and conclusions to identify bias and determining if evidence logically supports the conclusions.
1, 4	[10] SE1.1	Identifying that progress in science and invention is highly interrelated to what else is happening in society.
1, 4	[10] SG1.1	Describing how those perspectives (i.e., cultural, political, religious, philosophical) have impacted the advancement of science.
2, 3	[10] SG3.1	Using experimental or observational data to evaluate a hypothesis.
All lessons	[10] SG4.1	Recognizing the role of curiosity, creativity, imagination, and a broad knowledge base on scientific advancements.

Alaska Mathematics PSGLE: Grades 9 & 10

Grade 9

Lesson	PSGLE	Descriptor
1	[9] N-1	Converting between a rational number in scientific notation and standard form.
1	[9] N-3	Using models, explanations, number lines, real-life situations, describing or illustrating the effects of arithmetic operations on real numbers.

1	**[9] N-5**	Applying the rules for order of operations to real numbers and variables.
1	**[9] E&C-2**	Adding or subtracting rational numbers including integers with whole number exponents.
1	**[9] E&C-5**	Multiplying or dividing numbers in scientific notation.
1, 2	**[9] S&P-1**	Designing, collecting, organizing, displaying, or explaining the classification of data in real-world problems (e.g., science or humanities, peers, community, or careers) using information from tables or graphs that display two sets of data (with or without technology).
1	**[9] PS-1**	Selecting, modifying, and applying a variety of problem-solving strategies (e.g., charts, graphing, inductive and deductive reasoning, Venn diagrams) and verifying the results.
1	**[9] PS-3**	Representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representation; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions.
1	**[9] PS-5**	Using real-world contexts such as science, humanities, peers, community, careers, and national issues.
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1	**[10] N-4**	Describing or illustrating the effects of arithmetic operations on real numbers.
1	**[10] E&C-2**	Applying basic operations with real numbers using powers and scientific notation.
1, 2	**[10] S&P-1**	Designing, collecting, organizing, displaying, or explaining the classification of data in real-world problems (e.g., science or humanities, peers, community, or careers) using information from tables or graphs that display two sets of data (with or without technology).
1	**[10] S&P-2**	Using information from a display to solve a problem or analyzing the validity of statistical conclusions.
1	**[10] PS-1**	Applying multi-step, integrated, mathematical problems-solving techniques.
1	**[10] PS-3**	Representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representation; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions.
1	**[10] PS-5**	Using real-world contexts such as global issues and careers.

Alaska Reading PSGLE: Grades 9 & 10

Lesson	**PSGLE**	**Descriptor**
All lessons	**[9] 4.1.1** **[10] 4.1.1**	Determining meanings of unfamiliar words in context using knowledge of sounds, syllables, derivational roots and affixes, including cultural derivations (e.g., the root of photography and photosynthesis; kayak).
All lessons	**[9] 4.1.4** **[10] 4.1.4**	Determining the meaning of words in context including [connotation/denotation L], use of precise or technical vocabulary, content-specific vocabulary (symbiosis, suffrage, apartheid), or multiple meanings.
2, 3, 4	**[9] 4.2.1** **[10] 4.2.1**	Restating and summarizing main ideas or events, in correct sequence, after reading a text (e.g., paraphrasing, constructing a topic outline, charting or mapping main ideas or events) or identifies accurate restatements and summaries of main ideas or events or generalizations of a text.

2, 3, 4	[9] 4.2.2 [10] 4.2.2	Connecting information by making inferences and/or drawing conclusions within a text (e.g., why is the information in the chart included), across texts or other summarized information.
2, 3, 4	[9] 4.3.1 [10] 4.3.7	Identifying or explaining the main ideas in various types of texts (i.e., recognizing or developing appropriate titles, generalizations, assertions).
2, 3, 4	[9] 4.3.2 [10] 4.3.2	Locating information in narrative and informative text to answer questions related to main ideas or key details.
2, 3, 4	[9] 4.3.4 [10] 4.3.4	Explaining connections among main ideas/concepts (text to self, text to text, text to world).
All lessons	[9] 4.4.1 [10] 4.4.1	Reading, understanding, and applying multi-step directions to perform complex procedures and tasks (e.g., filling out a catalog order [9]; filling out a sample income tax return or permanent fund dividend application [10]).
2, 3, 4	[9] 4.8.3 [10] 4.8.3	Analyzing and evaluating thematic connections between texts related to personal experiences, the experience of others, prior knowledge, and the broader world of ideas.

Alaska Writing PSGLE: Grades 9 & 10

Lesson	PSGLE	Descriptor
3, 4	[9] 4.1.1 [10] 4.1.1	Incorporating the thesis statement, which identifies the focus or controlling idea for the entire composition, into an introductory paragraph (the introductory paragraph may include a lead or hook, such as an anecdote, startling statistic or quotation).
3, 4	[9] 4.1.2 [10] 4.1.2	Writing in paragraphs that include relevant details and evidence that support the main idea of the paragraph and thesis statement, grouping ideas logically within the paragraph, placing paragraph breaks logically.
3, 4	[9] 4.2.2 [10] 4.2.2	Writing in a variety of nonfiction forms (e.g., letter, report, biography, autobiography, and/or essay) to inform, describe or persuade.
3, 4	[9] 4.2.4 [10] 4.2.4	Using research-based information and/or analysis in research projects or extended reports.
3, 4	[9] 4.3.1 [10] 4.3.1	Varying beginnings, lengths, and patterns of sentences to improve flow and to enhance meaning and style of writing.
3, 4	[9] 4.3.2 [10] 4.3.2	Applying rules of spelling (e.g., homophones, irregular plurals, and contractions).
3, 4	[9] 4.3.3 [10] 4.3.3	Applying rules of punctuation (i.e., comma, quotation marks, apostrophes, semicolons, colons, hyphens, and parentheses).
3, 4	[9] 4.3.4 [10] 4.3.4	Applying rules of capitalization (e.g., titles and proper nouns).
3, 4	[9] 4.3.5 [10] 4.3.5	Applying rules of usage (i.e., verb tense, subject/verb agreement, possessives, pronouns, adjectives, adverbs, and sentence structure).

ALASKA ALIGNMENT FOR NIH SUPPLEMENT USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

National Health Education Standards – Grades 9 – 12 Cited from National Health Education Standards, Pre K-12, American Cancer Society, 2nd Edition, 2007		
Lesson	**Standard**	**Performance Indicator**
3	3.12.1	Evaluate the validity of health information, products, and services.