

Vessel Workshop Standards

2nd Grade

Alaska State Speaking & Listening Standards

SL. 2.1.a-c: Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.

SL.2.2: Retell or describe key ideas or details from a text read aloud or information presented orally or through other media.

SL.2.3: Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.

SL.2.4: Tell a story or retell an experience with relevant facts and relevant, descriptive details, speaking audibly in coherent sentences.

SL.2.6: Tell a story or retell an experience with relevant facts and relevant, descriptive details, speaking audibly in coherent sentences.

Alaska State Reading Informative Text Standards

RI.2.1: Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of informational texts using key details from the text.

RI.2.8: Describe how reasons given support specific opinions the author states in a text.

NGSS Engineering Standards:

K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.

K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3rd Grade

Alaska State Speaking & Listening Standards

SL.3.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.

SL.3.3: Ask and answer questions about information from a speaker, offering appropriate elaboration or explanations and detail.

SL.3.4: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

SL.3.6: Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification. (See grade 3 Language standards 1 and 3 for specific expectations.)

Alaska State Reading Informative Texts Standards

RI.3.1: Ask and answer questions to demonstrate understanding of a text, (e.g., explaining what the text says explicitly, making basic inferences and predictions), referring explicitly to the text as the basis for the answers.

RI.3.3: Describe the relationship or connection among a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.

RI.3.4: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

RI.3.5: Use text features and search tools (e.g., table of contents, index, key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently.

RI.3.6: Determine author's purpose; distinguish own point of view from that of the author of a text.

RI.3.7: Use information gained from illustrations (e.g., maps, photographs), and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

RI.3.10: By the end of the year, read and comprehend a range of informational texts, including history/social studies, science, and technical texts within a complexity band appropriate to grade 3 (from upper grade 2 to grade 4), with scaffolding as needed at the high end of the range.

Alaska State Language Standards

L.3.1.a-i: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.3.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

NGSS Engineering Design Standards:

3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of that problem.

3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or stereotype that can be improved.

NGSS Physical Science:

3-PS2-2: Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

4th Grade

Alaska State Reading Informative Texts Standards

RI.4.1: Locate explicit information in the text to explain what the text says explicitly and to support inferences drawn from the text.

RI.4.2: Determine the main idea of a text and explain how it is supported by key details; paraphrase or summarize key ideas, events, or procedures including correct sequence when appropriate.

RI.4.3: Explain relationships (e.g., cause-effect) among events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

RI.4.4: Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

RI.4.5: Describe the overall structure (e.g., sequence, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.

RI.4.6: Determine author's purpose; compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided.

RI.4.7: Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.

RI.4.8: Explain how an author uses reasons and evidence to support particular points in a text.

RI.4.10: By the end of the year, read and comprehend a range of informational texts, including history/social studies, science, and technical texts within a complexity band appropriate to grade 4 (from upper grade 3 to grade 5), with scaffolding as needed at the high end of the range.

Alaska State Speaking and Listening Standards

SL.4.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.

SL.4.2: Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

SL.4.4: Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

SL.4.6: Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 and 3 for specific expectations.)

State of Alaska Language Standards

L.4.1.a-g: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.4.2.a-d: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.4.3.a-c: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

NGSS Engineering Design Standards

3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of that problem.

3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or stereotype that can be improved.

NGSS Physical Science Standards:

4-PS3-1: Use evidence to construct an explanation relating the speed of an object to the energy of that object.

Grade 5

Alaska State Reading Informational Text Standards

RI.5.1: Locate explicit information in the text to explain what the text says explicitly and to support inferences drawn from the text.

RI.5.2: Determine the main idea and subtopics of a text and explain how they are supported by key details; paraphrase or summarize key ideas, events, or procedures including correct sequence when appropriate.

RI.5.3: Explain the relationships (e.g., cause-effect) or interactions among two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

RI.5.7: Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

RI.5.10: By the end of the year, read and comprehend a range of informational texts, including history/social studies, science, and technical texts within a complexity band appropriate to grade 5 (from upper grade 4 to grade 6), with scaffolding as needed at the high end of the range.

Alaska State Listening and Speaking Standards

SL.5.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

SL.5.2: Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.

SL.5.3: Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence (e.g., use a graphic organizer or note cards completed while listening to summarize or paraphrase key ideas presented by a speaker).

SL.5.4: Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

SL.5.6: Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation.

Alaska State Language Standards

L.5.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking

L.5.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing;

L.5.3: Use knowledge of language and its conventions when writing, speaking, reading, or listening;

L.5.6: Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other

logical relationships (e.g., however, although, nevertheless, similarly, moreover, in addition).

NGSS Engineering Design Standards

3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of that problem.

3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or stereotype that can be improved.

6th Grade

Common Core Math Standards

6.RP: “Understand ratio concepts and use ratio reasoning to solve problems.”

6.EE: “Solve real-life and mathematical problems using numerical and algebraic expressions and equations.” (pg. 149)

6.RP.1-3: “Analyze proportional relationships and use them to solve real-world and mathematical problems.”

6.G.3: “Solve real world and mathematical problems involving area, surface area, and volume.”

State of Alaska Language Arts Standards

RL.6.1: “Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.”

State of Alaska Writing Standards

W.6.2: Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

State of Alaska Speaking and Listening Standards

SL.6.1: Engage effectively in a range of collaborative discussions with diverse partners on grade appropriate topics, texts, and issues, building on others’ ideas and expressing their own clearly.

SL.6.2: Interpret information presented in diverse media (including but not limited to podcasts) and formats (e.g., visually, quantitatively/ data-related, orally) and explain how it contributes to a topic, text, or issue under study.

SL.6.4: Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.

SL.6.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Alaska State Standards for Literacy in Science and Technical Subjects

RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

RST.6-8.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

RST.6-8.10: By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

NGSS Engineering Design

MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS.ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved

7th Grade

Alaska State Standards for Literacy in Science and Technical Subjects

RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

RST.6-8.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

RST.6-8.10: By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Alaska State Listening and Speaking Standards

SL.7.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly;

SL.7.2: Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively/data-related, orally) and explain how the ideas clarify a topic, text, or issue under study.

SL.7.3: Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.

SL.7.4: Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

SL.7.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Alaska State Language Standards

L.7.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking;

L.7.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.7.3: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

L.7.6: Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

NGSS Engineering Design

MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS.ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved

Common Core Math Standards:

7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

7.EE.4: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.

7.G.1: Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

8th Grade

Alaska State Standards for Literacy in Science and Technical Subjects

RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts.

RST.6-8.2: Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.4: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

RST.6-8.6: Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text.

RST.6-8.7: Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9: Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

RST.6-8.10: By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Alaska State Speaking and Listening Standards

SL.8.1: Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly

SL.8.2: Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively/data-related, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.

SL.8.3: Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

SL.8.4: Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.

SL.8.6: Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.

Alaska State Language Standards

L.8.1: Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.

L.8.2: Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.

L.8.3: Use knowledge of language and its conventions when writing, speaking, reading, or listening.

L.8.6: Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.

Common Core Math Standards

8.G.6-8: Understand and apply the Pythagorean Theorem.

NGSS Engineering Design

MS-ETS1-1: Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS.ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

MS-ETS1-3: Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

MS-ETS1-4: Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved

Middle School Standards

Science Standards (NGSS)

- **MS.ETS1-1: Engineering Design:** “Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.”
- **MS-PS2-1: Motion and Stability:** Apply Newton’s 3rd Law to design a solution to a problem involving the motion of two colliding objects.”
- **MS-PS2-2: Motion and Stability:** “Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of forces on the object and the mass of the object.”
- **MS-PS3-1: Energy:** “Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.”
- **MS-PS3-5: Energy:** “Construct, use and present arguments to support the claim that when the kinetic energy of an object changes energy is transferred to or from object.”

Alaska State Geography Standards

A: A student should be able to make and use maps, globes, and graphs to gather, analyze, and report spatial (geographic) information.

- 1) use maps and globes to locate places and regions
- 2) make maps, globes, and graphs
- 3) understand how and why maps are changing documents
- 4) use graphic tools and technologies to depict and interpret the world's human and physical systems
- 5) evaluate the importance of the locations of human and physical features in interpreting geographic patterns
- 6) use spatial (geographic) tools and technologies to analyze and develop explanations and solutions to geographic problems.