

MAINE ALIGNMENT FOR NIH SUPPLEMENT DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY		
Maine Science & Technology Performance Indicators: Grades 6 – 8		
Lesson	Indicator	Descriptor
1, 2, 3	A2.a	Compare different types of models that can be used to represent the same thing (including models of chemical reactions, motion, or cells) in order to match the purpose and complexity of a model to its use.
1, 2, 3	A2.b	Propose changes to models and explain how those changes may better reflect the real thing.
All lessons	B1.a	Identify questions that can be answered through scientific investigations.
2, 3	B1.b	Design and safely conduct scientific investigations including experiments with controlled variables.
1, 3, 4	B1.c	Use appropriate tools, metric units, and techniques to gather, analyze, and interpret data.
3, 4	B1.d	Use mathematics to gather, organize, and present data and structure convincing explanations.
All lessons	B1.e	Use logic, critical reasoning and evidence to develop descriptions, explanations, predictions, and models.
All lessons	B1.f	Communicate, critique, and analyze their own scientific work and the work of other students.
All lessons	C1.a	Explain how the type of question informs the type of investigation.
2, 3, 4	C1.b	Explain why it is important to identify and control variables and replicate trials in experiments.
All lessons	C1.c	Describe how scientists' analyses of findings can lead to new investigations.
3, 4	C3.a	Describe how science and technology can help address societal challenges including population, natural hazards, sustainability, personal health and safety, and environmental quality.
3, 4	C3.b	Identify personal choices that can either positively or negatively impact society including population, ecosystem sustainability, personal health, and environmental quality.
All lessons	C4.c	Describe and provide examples that illustrate that science is a human endeavor that generates explanations based on verifiable evidence that are subject to change when new evidence does not match existing explanations.
Maine Mathematics Performance Indicators: Grades 6 – 8		
Grade 6		
Lesson	Indicator	Descriptor
3, 4	A3	Add, subtract, multiply, and divide numbers expressed as fractions and as decimals including mixed numbers.
3	A4.a	Use ratios to describe relationships between quantities.
3, 4	A4.b	Use decimals, fractions, and percentages to express relative quantities.
3, 4	A4.c	Interpret relative quantities expressed as decimals, fractions, and percentages.
3	D3.a	Use tables, formulas, and graphs to analyze constant difference (additive) relationships.

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Grade 7		
3, 4	A2.b	Follow conventions of order of operations including exponents.
3	A3.a	Use ratios to compare quantities and use comparison to solve problems.
3, 4	A4.b	Solve practical problems involving percents.
3	B2.a	Create tables, pictograms, bar graphs, line graphs, pie charts, stem and leaf plots, box and whisker plots, and histograms using pencil and paper and electronic technologies.
3	B2.b	Draw conclusions based on graphs and charts including tables, pictograms, bar graphs, line graphs, pie charts, stem and leaf plots, box and whiskers plots, and histograms.
Grade 8		
3, 4	D1.a	Create and evaluate expressions using real numbers.
Maine English Language Arts Performance Indicators: Grades 6 – 8		
Lesson	Indicator	Descriptor
All lessons	A1.a	Use a flexible range of before, during and after reading strategies to deepen understanding of the author’s message.
All lessons	A1.b	Demonstrate ownership of appropriate vocabulary by effectively using a word in different contexts and for different reasons.
All lessons	A1.c	Determine the meaning of unknown words by using a variety of strategies including: <i>context cues</i> , definition, example, restatement, and compare/contrast (6); understanding and explaining that similar and related words can express different shades of meaning (7); the connotative and denotative meaning of the word (8).
All lessons	A1.f	Demonstrate comprehension by: summarizing and making generalizations of whole texts, parts of text, and across texts (6); summarizing, generalizing, drawing conclusions, making judgments, and making connections between prior knowledge and multiple texts (7); summarizing, generalizing, drawing conclusions, making judgments, interpreting text, and synthesizing information within and across texts (8).
All lessons	A3.a	Create and revise questions that can be answered by using text structures and information found within texts.
All lessons	A3.b	Identify the text structures of informational publications including newspapers, magazines, and online sources and use them to obtain information (6); Analyze the amount of coverage and organization of ideas in varied informational materials (7); Analyze differences in the structures and purposes of varied informational materials (8).
All lessons	A3.d	Make reasonable statements and draw conclusions that are supported with evidence from the text (6); Make comparisons about information from several passages or articles from different texts (7); Draw conclusions about information from multiple texts and support them with evidence from the texts (8).
All lessons	A3.e	Follow multi-step instructions related to a content area text or technical manual (6) to complete a task or use a simple device (7), or to complete an application or a complex task (8).
3, 4	A4.a	Recognize arguments for and against issues (6); Recognize organizational patterns of compare/contrast, proposition/support, and problem/solution in an argument to aid comprehension (7); Evaluate positions presented in

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		text(s) and take a supported stand (8).
All lessons	B1.a	Determine a purpose for writing.
All lessons	B1.b	Decide which information is included to achieve the desired purpose.
All lessons	B1.e	Write to achieve a specific purpose.
All lessons	B1.f	Create legible final drafts.
All lessons	B3.a	Summarize and paraphrase and/or explain information from reading, listening, or viewing.
All lessons	B3.b	Write essays that support an idea and build a logical argument excluding extraneous information and differentiating between facts and opinion.
3	B4.a	Employ a variety of persuasive techniques, including presenting alternate views objectively or addressing potential counterclaims, in an essay that supports an idea using facts, supported inferences, and/or opinions appropriate to the audience and purpose and is intended to influence the opinions, beliefs, or positions of others.
All lessons	B5.a	Write information purposefully and succinctly to meet the needs of the audience.
2, 3, 4	B5.d	Write multi-step directions, with annotation where appropriate, for completing a task.
All lessons	C1.a	Determine the nature and extent of information needed.
All lessons	C1.b	Locate and access relevant information.
All lessons	C1.e	Evaluate and verify the credibility of the information found in print and non-print sources.
All lessons	C1.g	Summarize and interpret information presented in varied sources, and/or from fieldwork, experiments, and interviews.
All lessons	D1.a	Use forms of nouns, pronouns, verbs, adjectives and their modifiers, adverbs, prepositions, transitions, conjunctions, and interjections correctly.
All lessons	D2.a	Use correct capitalization and punctuation including commas and semi-colons.
All lessons	D2.b	Correctly spell frequently misspelled words and common homophones.
All lessons	E1.a	Ask appropriate clarifying questions.
All lessons	E1.b	Summarize and apply information presented.
All lessons	E1.c	Acknowledge and build upon the ideas of others.
All lessons	E2.a	Organize and present information logically.
All lessons	F1.a	Describe and evaluate the text features of visual and non-visual media.
Maine Health and Physical Education Performance Indicators: Grades 6 – 8		
Lesson	Indicator	Descriptor
3, 4	A1.a	Explain the importance of assuming responsibility for personal health.
3, 4	A1.b	Examine the relationship between healthy and unhealthy behaviors.
3	A4.a	Analyze how environment impacts personal health.

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3, 4	A4.c	Explain how appropriate health care can promote personal health.
3, 4	A6	Explain essential health concepts related to family life; nutrition; personal health; safety and injury prevention; and tobacco, alcohol, and other drug use prevention.
3, 4	B2.a	Explain situations requiring the use of valid and reliable health information, products, and services.
3, 4	B2.b	Locate valid and reliable health information.
3	D1.a	Examine how the family, school and community influence the health behaviors of adolescents.
3	D1.b	Describe how peers influence healthy and unhealthy behaviors.
3	F1.b	Determine when individual or collaborative decision-making is appropriate.
4	F1.c	Distinguish between healthy and unhealthy alternatives to health-related issues or problems and predict the short-term impact of alternative decisions for themselves and others.
4	F1.e	Analyze the outcomes of a health-related decision.