

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

<b>DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY</b>		
<b>Nebraska Science Standards– Grade 8</b>		
<b>Lesson</b>	<b>Standard</b>	<b>Example Indicator</b>
1, 3, 4	8.1.2.a	Collect, manipulate, and analyze data from an experiment.
1, 3, 4	8.1.2.b	Observe and develop models (e.g., physical, mathematical, mental, and computer simulations).
1, 3, 4	8.1.2.c	Interpret and explain results of experimentation.
All lessons	8.1.2.d	Analyze whether or not investigative procedures and conclusions are reasonable.
1	8.1.3.a	Select and use appropriate measurement units.
1	8.1.3.c	Apply English and metric systems of measurement.
All lessons	8.2.1.a	Identify questions and identify concepts that guide scientific investigations.
1, 3, 4	8.2.1.b	Design and conduct a scientific investigation.
All lessons	8.2.1.c	Use appropriate tools and techniques to gather, analyze, and interpret data.
1, 3, 4	8.2.1.d	Given evidence, develop descriptions, explanations, predictions, and models.
1, 3, 4	8.2.1.e	Show the relationship between evidence and explanations.
1, 3, 4	8.2.1.f	Recognize and analyze alternative explanations and predictions.
All lessons	8.2.1.g	Communicate scientific procedures and explanations.
3, 4	8.2.1.h	Use mathematics in scientific inquiry.
3, 4	8.4.1.f	Investigate and explain how disease affects the structure and/or function of an organism.
3, 4	8.2.a	Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems).
3, 4	8.6.2.b	Describe how science and technology are reciprocal.
4	8.6.2.d	Recognize that solutions have intended and unintended consequences.
3, 4	8.7.1.b	Investigate and explain how personal choices can directly affect a person’s health (e.g., exercise, nutrition, and use of drugs).
4	8.7.4.a	Analyze a type of hazard (e.g., natural, chemical, or biological) to evaluate the options for reducing or eliminating human risk.
3, 4	8.7.4.b	Describe how perceptions of risks and benefits influence personal and social decisions (e.g., seat belt

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		usage and waste disposal procedures).
<b>1, 4</b>	<b>8.7.5.a</b>	Explain that the effect of science on society is neither entirely beneficial nor entirely detrimental.
<b>All lessons</b>	<b>8.8.1.b</b>	Investigate and understand that science requires different abilities based on the type of inquiry and relies upon basic human qualities and scientific habits of mind.
<b>4</b>	<b>8.8.1.c</b>	Explain the need for ethical codes followed by scientists (e.g., humane treatment of animals and truth in reporting).
<b>All lessons</b>	<b>8.8.2.a</b>	Formulate and test a hypothesis using observations, experiments, and models.
<b>All lessons</b>	<b>8.8.2.b</b>	Use questioning, response to criticism, and open communication when defending a conclusion.
<b>All lessons</b>	<b>8.8.2.c</b>	Evaluate the results of scientific investigations, experiments, observations, theoretical models, and the explanations proposed by other scientists.
<b>All lessons</b>	<b>8.8.2.d</b>	Understand that scientific theories are based on observations, governed by rules of reasoning, and used to predict events.

**Nebraska Mathematics Standards – Grades 5 – 8**

<b>Lesson</b>	<b>Standard</b>	<b>Description</b>
<b>3</b>	<b>8.1.2.a</b>	Find the equivalencies among fractions, decimals, and percents.
<b>3, 4</b>	<b>8.2.2</b>	Identify the appropriate operation and do the correct calculations when solving word problems.
<b>3, 4</b>	<b>8.2.3</b>	Solve problems involving whole numbers, integers, and rational numbers (fractions, decimals, ratios, proportions, and percents) with and without the use of technology.
<b>1</b>	<b>8.3.1</b>	Select measurement tools and measure quantities for temperature, time, money, distance, angles, area, perimeter, volume, capacity, and weight/mass in standard and metric units at the designated level of precision.
<b>3, 4</b>	<b>8.5.1.a</b>	Select appropriate representations of data when construction data displays (graphs, tables, or charts).
<b>1, 3, 4</b>	<b>8.5.2</b>	Read and interpret tables, charts, and graphs to make comparisons and predictions.

**Nebraska Reading / Writing Standards – Grade 8**

<b>Lesson</b>	<b>Standard</b>	<b>Example Indicator</b>
<b>All lessons</b>	<b>8.1.1.a</b>	Monitor understanding during reading.

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All lessons	8.1.1.b	Interpret information from diagrams, charts, and graphs.
All lessons	8.1.1.c	Answer literal, inferential/interpretive, and critical questions.
3, 4	8.1.2.b	Use electronic resources (CD-ROM, software, online resources).
2, 3, 4	8.1.5.c	Generate how, why, and what-if questions in interpreting nonfiction text.
3, 4	8.1.5.d	Follow written directions in technical reading.
All lessons	8.2.1	Write using standard English (conventions) for sentence structure, usage, punctuation, capitalization, and spelling.
All lessons	8.2.4.a	Develop narrative, persuasive, descriptive, technical, and/or expository writing for a designated audience and purpose.
All lessons	8.2.4.b	Write to describe, explain, and inform.
All lessons	8.3.1.a	Contribute knowledge and ask questions relevant to the topic discussed.
All lessons	8.3.1.b	Use subject-related vocabulary in discussions.
All lessons	8.3.1.d	Use discussion skills to assume leadership and participant roles.
All lessons	8.4.1.a	Listen to take notes and process information.
All lessons	8.4.1.b	Follow multi-step oral directions.
All lessons	8.4.1.c	Use listening skills in practical settings.
<b>National Health Education Standards – Grades 6 – 8: cited from pre-publication document of National Health Education Standards, Pre K-12, American Cancer Society, December 2005 – August 2006</b>		
<b>Lesson</b>	<b>Standard</b>	<b>Performance Indicator</b>
3, 4	1.8.1	Analyze the relationship between healthy behaviors and personal health.
3	1.8.3	Analyze how the environment impacts personal health.
4	1.8.5	Describe ways to reduce or prevent injuries and other adolescent health problems.
3, 4	1.8.7	Describe the benefits and barriers to practicing healthy behaviors.
3, 4	1.8.8	Examine the likelihood of injury or illness if engaging in unhealthy behaviors.
3, 4	1.8.9	Examine the potential seriousness of injury or illness if engaging in unhealthy behaviors.
3	2.8.3	Describe how peers influence healthy and unhealthy behaviors.

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<b>3</b>	<b>2.8.8</b>	Explain the influence of personal values and beliefs on individual health practices and behaviors.
<b>3, 4</b>	<b>2.8.9</b>	Describe how some health risk behaviors can influence the likelihood of engaging in unhealthy behaviors.
<b>3, 4</b>	<b>2.8.10</b>	Explain how school and public health policies can influence health promotion and disease prevention.
<b>3, 4</b>	<b>3.8.1</b>	Analyze the validity of health information, products, and services.
<b>3, 4</b>	<b>3.8.4</b>	Describe situations that may require professional health services.
<b>3, 4</b>	<b>4.8.1</b>	Apply effective verbal and nonverbal communication skills to enhance health.
<b>3</b>	<b>5.8.1</b>	Identify circumstances that can help or hinder healthy decision-making.
<b>3, 4</b>	<b>5.8.2</b>	Determine when health-related situations require the application of a thoughtful decision-making process.
<b>3, 4</b>	<b>5.8.3</b>	Distinguish when individual or collaborative decision-making is appropriate.
<b>3, 4</b>	<b>5.8.5</b>	Predict the potential short and long-term impact of each alternative on self and others.
<b>4</b>	<b>5.8.6</b>	Choose healthy alternatives over unhealthy alternatives when making a decision.
<b>3, 4</b>	<b>5.8.7</b>	Analyze the outcomes of a health-related decision.
<b>3, 4</b>	<b>7.8.3</b>	Demonstrate behaviors to avoid or reduce health risks to self and others.
<b>3, 4</b>	<b>8.8.1</b>	State a health enhancing position on a topic and support it with accurate information.
<b>4</b>	<b>8.8.2</b>	Demonstrate how to influence and support others to make positive health choices.
<b>4</b>	<b>8.8.4</b>	Identify ways that health messages and communication techniques can be altered for different audiences.