

NORTH DAKOTA ALIGNMENT FOR NIH SUPPLEMENT HUMAN GENETIC VARIATION

<b>HUMAN GENETIC VARIATION</b>		
<b>North Dakota Science Content Standards: Grades 9 – 10</b>		
<b>Activity</b>	<b>Standard</b>	<b>Benchmark Expectations</b>
3	9-10.1.1.	Explain how models can be used to illustrate scientific principles.
2, 3, 4	9-10.1.2.	Describe the interaction of components within a system (e.g., interactions between living and nonliving components of an ecosystem, interaction between organelles of a cell).
2, 3	9-10.1.6.	Identify principles governing evolution and equilibrium within systems (e.g., cause and effect, positive and negative feedback).
2, 3, 4	9-10.2.1.	Explain how scientific investigations can result in new ideas.
2, 3, 4	9-10.2.3.	Identify questions and concepts that guide scientific investigations.
2, 3	9-10.2.4.	Formulate a testable hypothesis for a simple investigation.
3	9-10.2.5.	Identify the independent and dependent variables, the control, and the constants when conducting an experiment.
3	9-10.2.6.	Design and conduct a guided investigation.
2, 3	9-10.2.7.	Maintain clear and accurate records of scientific investigations.
1, 2, 3, 4	9-10.2.8.	Analyze data found in tables, charts, and graphs to formulate conclusions.
2, 3	9-10.4.4.	Relate DNA, genes, and chromosomes.
1, 2, 3	9-10.4.5.	Explain the relationship between spontaneous changes in DNA and a source of genetic variation.
2, 3	9-10.6.1.	Use appropriate technologies and techniques to solve a problem (e.g., computer-assisted tools, Internet, research skills).
2, 3, 5	9-10.6.3.	Explain how emerging technologies (e.g., genetic manipulation, biofuels, and hydrogen fuels) may impact society and the environment.
4	9-10.7.1.	Explain how personal health is related to fitness, substance abuse, sexual activity, and nutrition.
2, 3, 5	9-10.8.1.	Identify the role of scientists in theoretical and applied science (e.g., careers, employment possibilities).
2, 3	9-10.8.3.	Explain how individuals and groups, from different disciplines in and outside of science, contribute to science at different levels of complexity.
<b>North Dakota Mathematics Content Standards: Grades 9 – 10</b>		
<b>Activity</b>	<b>Standard</b>	<b>Benchmark Expectations</b>
2	9-10.1.1.	Express numbers between one-billionth and one billion in fraction, decimal, and verbal form; express numbers of all magnitudes in scientific notation.
2	9-10.1.8.	Apply estimation skills to predict realistic solutions to problems.

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2, 3, 4	9-10.1.9.	Select and use a computational technique (i.e., mental calculation, paper-and-pencil, or technology) to solve problems involving real numbers.
2, 3, 4	9-10.1.10.	Explain the reasonableness of a problem's solution and the process used to obtain it.
1, 4	9-10.3.1.	Construct appropriate displays of given data, i.e., circle graphs, bar graphs, histograms, stem-and-leaf plots, box-and-whisker plots, and scatter plots.
1	9-10.3.2.	Interpret a given visual representation (i.e., circle graphs, bar graphs, histograms, stem-and-leaf plots, box-and-whisker plots, and scatter plots) of a set of data.
1	9-10.4.1.	Select appropriate units and scales for problem situations involving measurement.
1	9-10.4.5.	Use methods necessary to achieve a specified degree of precision and accuracy (i.e., appropriate number of significant digits) in measurement situations.
3	9-10.5.13.	Interpret a graphical representation of a real-world situation.
3	9-10.5.14.	Draw conclusions about a situation being modeled.

**North Dakota ELA Content Standards: Grades 9 – 10**

**Grade 9**

Activity	Standard	Benchmark Expectations
All activities	9.2.7.	Access prior knowledge to interpret meaning.
All activities	9.2.8.	Read for a variety of purposes and intents e.g., to become life-long readers, to model forms of writing.
All activities	9.2.15.	Build vocabulary by reading a variety of grade-level texts and applying new vocabulary.
2, 3, 4	9.3.1.	Write expository texts e.g., essays, directions, and letters.
5	9.3.3.	Develop a composition detailing an opinion.
All activities	9.3.6.	Elaborate ideas through word choice and description using grade-level vocabulary.
2, 3, 4, 5	9.3.8.	Use supporting details.
2, 3, 4, 5	9.3.10.	Edit and revise compositions for proper mechanics and grammar, syntax, diction, and order.
2, 3, 4, 5	9.3.11.	Arrange paragraphs in a logical progression.
All activities	9.4.4.	Engage in a group discussion.
All activities	9.4.5.	Use critical listening skills i.e., reflection.
2, 3, 5	9.5.2.	Access media (e.g., television, film, music, electronic databases, videos, DVDs, comics, visual and performing arts, newspapers, and periodicals) for a variety of purposes.
All activities	9.6.3.	Use conventions of punctuation.

**Grade 10**

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All activities	10.2.1.	Summarize information from nonfiction genres.
All activities	10.2.3.	Read for a variety of purposes and intents e.g., to become life-long readers, to model forms of writing.
2, 3, 4	10.3.1.	Write expository texts including research papers.
5	10.3.2.	Defend a personal opinion using facts as support.
2, 3, 4, 5	10.3.4.	Organize the ideas and details of a composition according to purpose.
All activities	10.3.5.	Elaborate ideas through word choice and description using grade-level vocabulary.
2, 3, 4, 5	10.3.7.	Use a variety of supporting details.
2, 3, 4, 5	10.3.8.	Use language appropriate to the format of the composition.
2, 3, 4, 5	10.3.11.	Edit and revise compositions with attention to content.
All activities	10.4.3.	Formulate questions in response to a verbal message.
2, 3, 5	10.5.2.	Use media (e.g., television, film, music, electronic databases, videos, DVDs, comics, visual and performing arts, newspapers, and periodicals) for a variety of purposes.

**North Dakota Health Content Standards: Grades 9 – 12**

Activity	Standard	Benchmark
4	9-12.1.4.	Explain the impact of personal health behaviors on the functioning of body systems (e.g., stress weakens the immune system, lack of exercise may lead to obesity, tobacco use may lead to cancer, risky behaviors may lead to HIV/AIDS or STDS).
4	9-12.2.1.	Assess healthy versus unhealthy behaviors and their relationships to health promotion and disease prevention (e.g., active lifestyle vs. sedentary lifestyle, healthy diet vs. fad diets).
4	9-12.2.3.	Explain ways individuals can take responsibility for enhancing their own health (e.g., personal responsibility for dietary choices and reading labels, participating in physical activities, stress reduction, abstinence).
2, 3, 4, 5	9-12.2.5.	Describe how prevention and treatment of health problems are influenced by research and medical advances (e.g., recent improvements in the treatment of cancer, diabetes, and heart disease; advanced surgical techniques; HIV/AIDS).
All activities	9-12.4.1.	Demonstrate effective verbal and nonverbal communication skills to enhance health.
2, 3, 4, 5	9-12.5.3.	Apply the decision-making process (e.g., gathering facts, assessing the alternatives, implementing a decision, evaluating the outcome) as it relates to a healthy lifestyle.
4	9-12.5.5.	Compare the short and long term impacts of alternative choices (e.g., pop vs. water, smoking vs. non-smoking, seatbelt vs. not wearing a seatbelt, abstinence vs. sexual activity) in health-related situations.
4	9-12.5.6.	Explain consequences regarding the use, misuse, and abuse of alcohol, tobacco, and other drugs (e.g., adverse consequences for individuals, families, and the community).
2, 3, 5	9-12.6.1.	Describe situations (e.g., diabetes, chronic depression, prenatal and postnatal care, alcohol or drug-related problems, child abuse) that require professional health services in the areas of prevention, treatment, and rehabilitation.

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<b>All activities</b>	<b>9-12.6.2.</b>	Describe resources (e.g., reputable Internet sites such as Centers for Disease Control, Attorney General, and National Institute of Health, Chamber of Commerce, or public health organizations) to access valid and reliable health information, products, and services both in and outside of the community.
<b>2, 3, 4, 5</b>	<b>9-12.7.4.</b>	Apply strategies (e.g., utilizing peer and societal norms, data, surveys) to express information and opinions about health issues.