

LOOKING GOOD, FEELING GOOD: FROM THE INSIDE OUT – EXPLORING BONE, MUSCLE, AND SKIN

North Dakota Science Content Standards: Grades 6 – 8

Grade 6

Lesson	Standard	Benchmark Expectations
2, 4, 6	6.1.1.	Construct a model to represent concepts, features, or phenomena in the real world (e.g., solar system, earth’s interior).
All lessons	6.1.2.	Identify systems that are composed of subsystems (e.g., solar system, cell, ecosystems.).
2, 3, 4, 5, 6	6.1.3.	Explain the connection between cause and effect in a system.
2, 4, 5, 6	6.2.1.	Explain the components of a scientific investigation (e.g., hypothesis, observation, data collection, data interpretation, communication of results, replicable).
2, 3, 4, 5, 6	6.2.2.	Select alternative methods of scientific investigations (e.g., library, internet, field work) to address different kinds of questions.
2, 4, 5, 6	6.2.4.	Use appropriate tools and techniques to gather and analyze data.
2, 4, 5, 6	6.2.5.	Use data from scientific investigations to determine relationships and patterns.
4, 5, 6	6.6.3.	Explain the relationship between science and technology.
2, 4, 5, 6	6.8.1.	Identify various settings in which scientists may work alone or in a team (e.g., industries, laboratories, field work).
2, 4, 5, 6	6.8.2.	Identify scientific advances that have resulted in new ideas and further advance.

Grade 7

2, 4, 6	7.1.1.	Explain how models can be used to illustrate scientific principles (e.g., osmosis, cell division).
All lessons	7.1.2.	Identify the components (e.g., tissues, organs, living and nonliving things) within a system (e.g., body systems, ecosystems).
3	7.1.4.	Identify the relationship between form and function (e.g., wings, fins and feet).
2, 3, 4, 5, 6	7.2.1.	Communicate the results of scientific investigations using an appropriate format (e.g., journals, lab reports, diagrams, presentations, discussions).
All lessons	7.4.2.	Identify levels of organization in living systems (e.g., cells, tissues, organs, organ systems, organisms, ecosystems).
6	7.6.3.	Identify intended benefits and unintended consequences that result from the development and use of technologies.
4, 5, 6	7.7.1	Explain how science affects personal health (e.g., injury prevention, immunization, organ transplant, medical scanning devices).
2, 5, 6	7.7.2.	Identify the factors (e.g., pollution, heredity, diet, virus, bacteria, parasite) that may result in disease.
2, 4, 5, 6	7.8.1.	Explain how science is influenced by human qualities (e.g., reasoning, insightfulness, creativity, life-long learning).

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Grade 8		
2, 3, 4, 5, 6	8.2.2.	Use evidence to generate descriptions, explanations, predictions, and models.
4, 5, 6	8.2.3.	Use basic mathematics and statistics (e.g., operations, mean, median, mode, range, and estimation) to interpret quantitative data.
2, 4, 5, 6	8.2.4.	Design and conduct a scientific investigation (e.g., making systematic observations, making accurate measurements, identifying and controlling variables).
6	8.7.1.	Explain the interaction of science and technology with social issues (e.g., mining, natural disasters).
North Dakota Mathematics Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark Expectations
4, 5, 6	6.1.1.	Use a fraction to represent parts of a whole, division, or a ratio.
4, 5, 6	6.1.7.	Explain the effects of arithmetic operations on fractions and decimals.
4, 5, 6	6.1.9.	Use order of operations, i.e., multiplication, division, addition and subtraction, to simplify numeric expressions.
4, 5, 6	6.1.10.	Multiply and divide decimals.
4, 5, 6	6.1.13.	Use problem solving strategies to solve and verify the results of problems.
2, 4, 5, 6	6.3.1.	Collect and organize data, select and use an appropriate display, i.e., a frequency table, a line and bar graph.
4, 5, 6	6.3.6.	Make predictions based on trends identified in tables and graphs.
2, 6	6.4.1.	Measure length to the nearest sixteenth of an inch.
6	6.4.3.	Convert unit measurements within the same system (metric and standard).
4, 5, 6	6.5.1.	Identify and describe patterns represented by tables, graphs, and sequences.
6	6.5.2.	Use a variable to represent an unknown quantity.
Grade 7		
Lesson	Standard	Benchmark Expectations
6	7.1.1.	Use ratios and proportions to represent relationships.
2, 4, 5, 6	7.1.4.	Use integers to represent and compare quantities.
4, 5, 6	7.1.5.	Explain the effects of arithmetic operations on fractions, decimals, and integers.
4, 5, 6	7.1.6.	Use order of operations (i.e., parentheses and operations) to simplify numeric expressions.
4, 5, 6	7.1.8.	Solve real-world problems using integers, fractions, decimals, and percents.
4, 5, 6	7.1.9.	Estimate the results of problems involving fractions, decimals, and percents.
6	7.1.10.	Use proportions to solve problems.

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4, 5, 6	7.3.1.	Formulate a question; collect, organize, and display data using a bar, line, and circle graph.
6	7.3.7.	Explain inferences made from statistical information.
2, 6	7.4.1.	Estimate a measurement to the degree of precision that the tool provides.
6	7.4.2.	Convert unit measurements within the same system (metric and standard) when solving problems.
6	7.4.5.	Solve problems involving scale factors, using ratio and proportion.
4, 5, 6	7.5.1.	Create tables and graphs to analyze and describe patterns.
6	7.5.4.	Use inverse operations and properties of equality to solve one-step equations and inequalities in one variable.
Grade 8		
Lesson	Standard	Benchmark Expectations
4, 5, 6	8.1.2.	Solve real-world problems involving ratio, proportion, and percent.
4, 5, 6	8.1.5.	Apply operation properties to simplify computations and solve problems, i.e., commutative, associative, and distributive.
4, 5, 6	8.1.6.	Apply the order of operations to simplify numeric expressions and solve problems.
4, 5, 6	8.1.7.	Add, subtract, multiply, and divide integers.
4, 5, 6	8.1.8.	Select and use a computational technique (e.g., mental calculation, paper-and-pencil, technology) to solve problems.
4, 5, 6	8.1.9.	Determine when an estimate is sufficient and an exact answer is needed in problem situations.
6	8.2.7.	Use scale, proportion, and congruency to solve problems involving similar figures.
6	8.3.1.	Formulate a question and select a random or representative sample.
4, 5, 6	8.3.7.	Make inferences based on analysis of data and interpretation of graphs.
2, 6	8.4.1.	Select an appropriate degree of precision when using measurements for calculations.
4, 5, 6	8.5.2.	Use variables, expressions, and equations to represent problem situations.
North Dakota ELA Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark Expectations
6	6.1.1.	Pose relevant research questions.
6	6.1.2.	Use sources that are appropriate for the research purpose.
6	6.1.4.	Use information from several sources.
6	6.1.5.	Write a research report.
All lessons	6.2.3.	Use word recognition skills and vocabulary building strategies to determine the meaning of unfamiliar words and make sense of text e.g., synonyms/antonyms, prefixes/suffixes, multiple meaning words, context clues, and word reference aids – dictionary, glossary, thesaurus, base words.

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All lessons	6.2.5.	Use prior knowledge and experiences to aid text comprehension.
All lessons	6.2.6.	Read to be informed, entertained, and persuaded.
All lessons	6.3.1.	Produce informative writing e.g., research-based report, instructions.
	6.3.3.	Produce persuasive writing e.g., opinion, essay, business letter.
All lessons	6.3.5.	Use strategies to write for different audiences and purposes.
All lessons	6.3.7.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	6.3.10.	Edit for grammar, mechanics, usage, and spelling.
4, 5, 6, 7	6.3.11.	Incorporate visual aids into written work.
All lessons	6.4.4.	Summarize key ideas of a speaker.
All lessons	6.4.5.	Use appropriate volume and eye contact when speaking.
3, 6	6.5.2.	Use technology according to the district's appropriate use policy.
All lessons	6.6.1.	Use grade-appropriate conventions of sentence structure i.e., simple, compound sentences, fragments, run-ons and declarative, interrogative, imperative, exclamatory.
All lessons	6.6.3	Use grade-appropriate mechanics and usage i.e., Capitalization: I, Proper Nouns, Proper Adjectives, and in sentences; Punctuation; end marks, quotation marks in dialogue, comma in a compound sentence, items in series, apostrophe, Usage: homonyms, spelling strategies for grade appropriate conventions of spelling.
Grade 7		
6	7.1.1.	Generate and evaluate questions relevant to research topic.
6	7.1.2.	Use a variety of sources, such as a computer, catalogues, magazines, and newspapers, to access information.
6	7.1.7.	Write a research report using a thesis statement.
All lessons	7.2.2.	Use graphic organizers, summarizing, paraphrasing, and vocabulary building strategies, including context clues, to enhance understanding and aid comprehension of the meaning of texts.
All lessons	7.2.4.	Use prior knowledge and experiences to aid text comprehension.
All lessons	7.2.5.	Read to be informed, entertained, and persuaded.
All lessons	7.2.11.	Use vocabulary building skills and strategies e.g., synonyms/antonyms, prefixes/suffixes, analogies, multiple meaning words context clues, word reference aids – dictionary, glossary, thesaurus, to determine the meaning of unfamiliar words and make sense of text.
3, 4, 5, 6, 7	7.3.1.	Produce research-based writing e.g., news article, book reports, essay.
All lessons	7.3.4.	Use strategies to write for different audiences and purposes e.g., informative, narrative, persuasive.
All lessons	7.3.6.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	7.3.9.	Edit for grammar, mechanics, usage, and spelling.
4, 5, 6	7.3.10.	Incorporate visual aids in publications.
All lessons	7.4.4.	Construct questions in response to a speaker.

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3, 6	7.5.3.	Assess the relevancy and accuracy of information in media messages.
All lessons	7.6.1.	Use grade-appropriate conventions of grammar i.e., capitalization: dialogue, title of people and things; punctuation: commas, quotation marks, apostrophes, colons/business letters and in time, underlining/italicizing; usage: double negatives.
All lessons	7.6.3.	Use grade-appropriate mechanics and usage i.e., capitalization.
Grade 8		
6	8.1.1.	Use questions to narrow research topic.
6	8.1.5.	Write a research report using a thesis.
All lessons	8.2.2.	Use prior knowledge and experiences to aid text comprehension.
All lessons	8.2.3.	Use a variety of strategies to construct meaning from text e.g., vocabulary building strategies, skimming, paraphrasing, summarizing, brainstorming, discussing.
All lessons	8.2.4.	Read for a variety of purposes to develop lifetime reading skills and habits, e.g., for personal recreation, to model forms of writing.
All lessons	8.2.9.	Use vocabulary building skills and strategies e.g., synonyms/antonyms, prefixes/suffixes, multiple meaning words context clues, word reference aids – dictionary, glossary, thesaurus, to determine the meaning of unfamiliar words and make sense of text.
All lessons	8.2.10.	Build vocabulary e.g., Greek and Latin roots, dictionary information, content area terminology.
All lessons	8.3.1.	Compose informative writing, e.g., research, biographies, autobiographies, news articles, interviews.
All lessons	8.3.5.	Use language and format appropriate for intended audience and purpose.
All lessons	8.3.7.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	8.3.8.	Use organizational patterns e.g., introduction, body, conclusion or exposition/body/resolution.
All lessons	8.3.11.	Edit for grammar, mechanics, usage, and spelling.
All lessons	8.3.12.	Incorporate a variety of visual aids in publications.
All lessons	8.4.3.	Speak for different purposes e.g., group discussions, research presentations and demonstrations.
3, 6	8.5.2.	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 lessons	8.6.3.	Use grade-appropriate mechanics and usage i.e., capitalization: publications and in letters; punctuation: commas, semi colons, colons, quotation marks, underlining, hyphens, apostrophes; usage: misplaced modifiers.
North Dakota Health Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark
4, 5, 6	6.1.3.	Explain how body systems are affected by health behaviors (e.g., the effect of physical activity on the cardiovascular

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		system).
5, 6	6.2.3.	Identify the causes and prevention of common diseases and other health problems (e.g., asthma, diabetes, obesity, allergies, sexually transmitted disease/infection [STD/STI], cardio-vascular disease).
4, 5, 6	6.2.4.	Explain the relationship between healthy behaviors (e.g., riding bikes, skateboards, rollerblades) and health risks (with or without protective equipment).
6	6.3.1.	Describe ways external factors (e.g., family, peers, culture, media, technology) affect health in positive and negative ways (e.g., advertisements that promote or discourage tobacco and alcohol use; effects of TV, the internet and video games on physical activity).
6	6.3.2.	Explain how the environment can affect personal health (e.g., second-hand smoke, available health care).
4, 5, 6	6.5.2.	Describe the consequences of decisions regarding health behaviors (e.g., tobacco, alcohol, drugs, nutrition and physical activity) for oneself and others.
6, 7	6.7.2.	Describe ways to convey (e.g., power point presentation, group projects, posters) health information and ideas to individuals and groups.
Grades 7 & 8		
4, 5, 6	7-8.2.3.	Explain how personal values and beliefs influence individual health practices (e.g., nutrition, personal hygiene, abstinence) and behaviors.
6	7-8.2.4.	Describe ways in which family history can have an impact on personal health (e.g., hereditary diseases).
4, 5, 6	7-8.2.7.	Explain ways in which school and public health policies can influence health promotion and disease prevention (e.g., tobacco and wellness policies).
2, 4, 5, 6, 7	7-8.2.8.	Explain the benefits of nutrition and physical activity as they relate to the overall well-being of individuals (e.g., obesity).
4, 5, 6	7-8.3.1.	Analyze how external factors (e.g., family, peers, culture, media, technology) affect physical, mental, and social health in positive and negative ways (e.g., the effect of advertising on food choices, peer influences on internet usage).
6, 7	7-8.3.2.	Identify ways that physical environment (e.g., natural and man-made disasters, pollutants) influences the health of individuals.
4, 5, 6	7-8.5.1.	Identify ways in which personal health goals can be influenced by abilities, priorities, and responsibilities (e.g., maturation, peers, values, and family).
6, 7	7-8.7.1.	Describe strategies (e.g., compromise, active listening, knowledge of facts, assertiveness) to influence and work cooperatively with others to advocate for healthy individuals, families, and communities.