

CHEMICALS, THE ENVIRONMENT, AND YOU**Pennsylvania Academic Standards for Science and Technology – Grade 7**

Lesson	Standard	Description
1, 3	3.1.7.C.1	Identify different forms of patterns and use them to group and classify specific objects.
2, 3, 4	3.1.7.B.2	Apply models to predict specific results and observations.
2, 3, 4	3.1.7.E.3	Describe the effect of making a change in one part of a system on the system as a whole.
2, 3, 4, 6	3.2.7.A.2	Answer “What if” questions based on observation, inference, or prior knowledge or experience.
2, 3, 4, 5	3.2.7.B	Apply process knowledge to make and interpret observations: measure materials using a variety of scales; describe relationships by making inferences and predictions; communicate, use space / time relationships, define operationally, raise questions, formulate hypotheses, test and experiment; design controlled experiments, recognize variables, and manipulate variables; interpret data, formulate models, design models, and produce solutions.
2, 3, 4, 5	3.2.7.C	Identify and use the elements of scientific inquiry to solve problems: Generate questions about object, organisms, and/or events that can be answered through scientific investigations; evaluate the appropriateness of questions; design an investigation with limited variables to investigate a question; conduct a two-part experiment; judge the significance of experimental information in answering the question; communicate appropriate conclusions from the experiment.
4, 5, 6	3.2.7.D.2	Define all aspects of the problem, necessary information and questions that must be answered.
5, 6	3.2.7.D.3	Propose the best solution.
4, 5	3.2.7.D.6	Explain the results, present improvements, identify and infer the impacts of the solution.
4, 5	3.8.7.A.1	Identify and describe the unavoidable constraints of technological design.
4, 5, 6	3.8.7.A.2	Identify changes in society as a result of a technological development.
5, 6	3.8.7.B.2	Identify and describe the resources necessary to solve a selected problem in a community and improve the quality of life.
4, 5	3.8.7.C.1	Describe the positive and negative expected and unexpected effects of specific technological developments.
Pennsylvania Academic Standards for Environment and Ecology – Grade 7		
1, 5, 6	4.3.7.A	Identify environmental health issues.
1, 5, 6	4.3.7.B	Describe how human actions affect the health of the environment.

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5, 6	4.9.7.A.1	Explain the role of local and state agencies in enforcing environmental laws and regulations.
Pennsylvania Academic Standards for Reading, Writing, Speaking, and Listening – Grade 8		
Lesson	Standard	Description
1, 2, 3	1.1.8.C	Use knowledge of root words as well as context clues and glossaries to understand specialized vocabulary in the content areas during reading. Use these words accurately in speaking and writing.
1, 2, 3	1.1.8.D	Identify basic facts and ideas in text using specific strategies (e.g., recall genre characteristics, set a purpose for reading, generate essential questions as aids to comprehension and clarify understanding through rereading and discussion).
1, 2, 3	1.1.8.F	Understand the meaning of and apply key vocabulary across the various subject areas.
1, 2, 4, 5, 6	1.1.8.G.1	Make, and support with evidence, assertions about texts.
All lessons	1.1.8.G.3	Make extensions to related ideas, topics or information.
1, 5, 6	1.1.8.G.5	Analyze the positions, arguments and evidence in public documents.
All lessons	1.1.8.H.5	Demonstrate comprehension
1, 4, 5, 6	1.2.8.A.1	Differentiate fact from opinion utilizing resources that go beyond traditional text (e.g., newspapers, magazines and periodicals) to electronic media.
1, 4, 5, 6	1.2.8.A.2	Distinguish between essential and nonessential information across texts and going beyond texts to a variety of media; identify bias and propaganda where present.
All lessons	1.2.8.A.3	Draw inferences based on a variety of information sources.
2, 5, 6	1.5.8.A	Write with a sharp, distinct focus.
2, 5, 6	1.5.8.B	Write using well-developed content appropriate for the topic.
All lessons	1.6.8.A	Listen to others: ask probing questions; analyze information, ideas, and opinions to determine relevancy; take notes when needed.
All lessons	1.6.8.D	Contribute to discussions: ask relevant, probing questions; respond with relevant information, ideas, or reasons in support of opinions expressed; listen to and acknowledge the contributions of others; adjust tone and involvement to encourage equitable participation; clarify, illustrate, or expand on a response when asked; present support for opinions; paraphrase an summarize, when prompted.
1, 4, 5, 6	1.6.8.F	Use media for learning purposes.

Pennsylvania Academic Standards for Mathematics – Grade 8		
Lesson	Standard	Description
2, 3, 4	2.1.8.A	Represent and use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, exponents, scientific notation, square roots).
2, 3, 4	2.2.8.A	Complete calculations by applying the order of operations.
2, 3, 4	2.2.8.B	Add, subtract, multiply and divide different kinds and forms of rational numbers including integers, decimal fractions, percents and proper and improper fractions.
2, 3, 4	2.4.8.B	Combine numeric relationships to arrive at a conclusion.
3, 4	2.4.8.F	Use measurements and statistics to quantify issues (e.g., in family, consumer science situations).
2, 3, 4	2.5.8.B	Verify and interpret results using precise mathematical language, notation and representations, including numerical tables and equations, simple algebraic equations and formulas, charts, graphs and diagrams.
3, 4	2.5.8.C	Justify strategies and defend approaches used and conclusions reached.
3, 4	2.5.8.D	Determine pertinent information in problem situations and whether any further information is needed for solution.
3, 4	2.7.8.B	Present the results of an experiment using visual representations (e.g., tables, charts, graphs).
3, 4	2.7.8.D	Compare and contrast results from observations and mathematical models.
3, 4	2.7.8.E	Make valid inferences, predictions and arguments based on probability.
3, 4	2.8.8.G	Represent relationships with tables or graphs in the coordinate plane and verbal or symbolic rules.
Pennsylvania Academic Standards for Health, Safety, and Physical Education – Grade 6		
3, 4, 5, 6	10.2.6.D	Describe and apply the steps of a decision-making process to health and safety issues.
All lessons	10.2.6.E	Analyze environmental factors that impact health: indoor air quality; chemicals, metals, gases (e.g., lead, radon, carbon monoxide); radiation; natural disasters.
6	10.3.6.B	Know and apply appropriate emergency responses: basic first aid; Heimlich maneuver; universal precautions.