Grade 6 – Addendum

Pennsylvania State Standards

Science and Technology and Engineering

3.2.6.B1 Explain how changes in motion require a force.

3.4.6.A2 Describe how systems thinking involves considering how every part relates to others.
3.4.6.A3 Explain how knowledge from other fields of study (STEM) integrate to create new technologies.
3.4.6.B4 Demonstrate how new technologies are developed based on people’s needs, wants, values, and/or interests.

3.4.6.C1 Recognize that requirements for a design include such factors as the desired elements and features of a product or system or the limits that are placed on the design.
3.4.6.C2 Show how models are used to communicate and test design ideas and processes.
3.4.6.C3 Explain why some technological problems are best solved through experimentation.
3.4.6.D1 Apply a design process to solve problems beyond the laboratory classroom.
3.4.6.D2 Use computers appropriately to access and organize and apply information.
3.4.6.D3 Design and use instruments to evaluate data.
3.4.6.E4 Illustrate how communication systems are made up of a source, encoder, transmitter, receiver, decoder, and destination. Examine how communications information technologies are used to help humans make decisions and solve problems.
3.4.6.E5 Demonstrate how transporting people and goods involves a combination of individuals and sub-systems, such as structural, propulsion, suspension, guidance, control, and support.
3.4.6.E7 Explain how the type of structure determines the way the parts are put together.
3.4.7.C1 Describe how design, as a creative planning process, leads to useful products and systems.
3.4.7.D2 Select and safely use appropriate tools, products and systems for specific tasks.
3.4.8.C1 Evaluate the criteria and constraints of a design.
3.4.8.D1 Test and evaluate the solutions for a design problem.
3.4.8.D2 Operate and maintain systems in order to achieve a given purpose.
3.4.8.D3 Interpret and evaluate the accuracy of the information obtained and determine its usefulness.
3.4.8.E4 Describe how the design of the message is influenced by such factors as the intended audience, medium, purpose, and nature of the message.
3.4.8.E6 Analyze the steps involved in the manufacturing process (e.g., design, development, production, marketing and servicing of products and systems).

**Reading, Writing, Speaking**

1.1.8.F Understand the meaning of and apply key vocabulary across the various subject areas
1.2.8.A Read and understand essential content of informational texts and documents in all academic areas.
1.2.8.B Use and understand a variety of media and evaluate the quality of material produced.
1.5.8.A Write with a sharp, distinct focus. 1.5.8.B - Write using well-developed content appropriate for the topic.
1.5.8.B Write using well-developed content appropriate for the topic.
1.6.8.A Listen to others.
1.6.8.C Speak using skills appropriate to formal speech situations.
1.6.8.D Contribute to discussions.
1.8.8. B Locate information using appropriate sources and strategies.
1.8.8. C Organize, summarize and present the main ideas from research.

**Mathematics**

2.1.8.A Represent and use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, exponents, scientific notation, square roots).
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.
2.2.11.A Develop and use computation concepts, operations and procedures with real numbers in problem-solving situations.
2.3.8. A Develop formulas and procedures for determining measurements
2.3.8.B Develop formulas and procedures for determining measurements (e.g., area, volume, distance)
2.3.8.C Measure angles in degrees and determine relations of angles.
2.3.8.D Estimate, use and describe measures of distance, rate, perimeter, area, volume, weight, mass and angles.
2.3.8.E Describe how a change in linear dimension of an object affects its perimeter, area and volume.
2.3.8.F Use scale measurements to interpret maps or drawings.
2.4.8.F Use measurements and statistics to quantify issues

2.5.8.A Invent, select, use and justify the appropriate methods, materials and strategies to solve problems.
2.7.8. B Present the results of an experiment using visual representations (e.g., tables, charts, graphs).
2.9.8.A Construct figures incorporating perpendicular and parallel lines, the perpendicular bisector of a line segment and an angle bisector using computer software.

2.9.8.H Use simple geometric figures (e.g., triangles, squares) to create, through rotation, transformational figures in three dimensions.

2.3.11.A Select and use appropriate units and tools to measure to the degree of accuracy required in particular measurement situations.

2.3.11.C Demonstrate the ability to produce measures with specified levels of precision.

**Career Education and Work**

13.1.8.A Relate careers to individual interests, abilities, and aptitudes.

13.3.8.E Identify and apply time management strategies as they relate to both personal and work situations.
Common Core Standards

RST.6-8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

RST.6-8.9 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

WHST.6-8.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

WHST.6-8.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.6-8.6 Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

WHST.6-8.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.

SL.6.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.

SL.6.2 Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.

SL.6.3 Delineate a speaker’s argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.