Science and Technology and Engineering

3.2.7.B1 Describe how unbalanced forces acting on an object change its velocity. Analyze how observations of displacement, velocity, and acceleration provide necessary and sufficient evidence for the existence of forces.

3.2.7.B2 Describe how energy can be changed from one form to another (transformed) as it moves through a system or transferred from one system to another system.

3.4.6.D2 Use computers appropriately to access and organize and apply information.

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.

3.4.7.A1 Explain how technology is closely linked to creativity, which has resulted in innovation and invention.

3.4.7.A2 Explain how different technologies involve different sets of processes.

3.4.7.A3 Explain how knowledge gained from other fields of study has a direct effect on the development of technological products and systems.

3.4.7.B1 Explain how the use of technology can have consequences that affect humans in many ways.

3.4.7.B2 Explain how decisions to develop and use technologies may be influenced by environmental and economic concerns.

3.4.7.C1 Describe how design, as a creative planning process, leads to useful products and systems.

3.4.7.C2 Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.

3.4.7.C3 Describe how troubleshooting as a problem-solving method may identify the cause of a malfunction in a technological system.

3.4.7.D2 Select and safely use appropriate tools, products and systems for specific tasks.

3.4.7.D3 Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology.

3.4.7.E4 Illustrate how information can be acquired and sent through a variety of technological sources, including print and electronic media.

3.4.7.E5 Explain how processes, such as receiving, holding, storing, loading, moving, unloading, delivering, evaluating, marketing, managing and communicating are necessary for the entire system to operate efficiently.
3.4.7.E7 Examine subsystems found in the construction of a building.
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.E7 Analyze factors that determine structural design (e.g., building laws and codes, style, convenience, cost, climate, and function).

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.
1.6.8.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.A Complete calculations by applying the order of operations.
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.
2.2.8.F Identify the difference between exact value and approximation and determine which is appropriate for a given situation.
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.
2.3.8.G Create and use scale models.
2.4.8.F Use measurements and statistics to quantify issues
2.4.11.E Demonstrate mathematical solutions to problems

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.B Draw, label, measure and list the properties of complementary, supplementary and vertical angles.
2.9.8.D Identify, name, draw and list all properties of squares, cubes, pyramids, parallelograms, quadrilaterals, trapezoids, polygons, rectangles, rhombi, circles, spheres, triangles, prisms and cylinders.
2.9.8.E Construct parallel lines, draw a transversal and measure and compare angles formed
2.9.8.H Use simple geometric figures (e.g., triangles, squares) to create, through rotation, transformational figures in three dimensions.

**Career Education and Work**
13.1.8.A Relate careers to individual interests, abilities, and aptitudes.
13.1.8.D Explain the relationship of career training programs to employment opportunities.
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.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

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.7.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 7 topics, texts, and issues, building on others’ ideas and expressing their own clearly.

SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.