Main Criteria: Forward

Secondary Criteria: Pennsylvania Core and Academic Standards, Rhode Island World-Class Standards, South Carolina Standards & Learning, South Dakota Content Standards, Tennessee Academic Standards, Texas Essential Knowledge and Skills (TEKS), Utah Core Standards, Vermont Content Standards, Virginia Standards of Learning, Washington State K-12 Learning Standards and Guidelines, Washington DC Academic Standards, West Virginia College and Career Readiness Standards, Wisconsin Academic Standards, Wyoming Content and Performance Standards

Subjects: Mathematics, Science, Technology Education

Grades: 5, 6, 7, 8, Key Stage 2, Key Stage 3

Forward

Solar Water Disinfection (SODIS)

Pennsylvania Core and Academic Standards

Mathematics

Grade **5** - Adopted: **2014**

SUBJECT / STANDARD AREA	PA.CC.MP.	Standards for Mathematical Practice
STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.
STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.

SUBJECT / STANDARD AREA	PA.CC.2.4.5.	Measurement, Data, and Probability
STANDARD AREA / STATEMENT	**CC.2.4.5.A.**	**Measurement and Data**
STANDARD	CC.2.4.5.A.5.	Apply concepts of volume to solve problems and relate volume to multiplication and to addition.

Pennsylvania Core and Academic Standards

Mathematics

Grade **6** - Adopted: **2014**

SUBJECT / STANDARD AREA	PA.CC.MP.	Standards for Mathematical Practice

STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.
STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.

Pennsylvania Core and Academic Standards

Mathematics

Grade **7** - Adopted: **2014**

SUBJECT / STANDARD AREA	PA.CC.MP.	Standards for Mathematical Practice
STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.
STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.

Mathematics

Grade **8** - Adopted: **2014**

SUBJECT / STANDARD AREA	PA.CC.MP.	Standards for Mathematical Practice
STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.
STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.

SUBJECT / STANDARD AREA	PA.CC.2.3.8.	Geometry
STANDARD AREA / STATEMENT	**CC.2.3.8.A.**	**Geometry**
STANDARD	CC.2.3.8.A.1.	Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.

Pennsylvania Core and Academic Standards

Science

Grade **5** - Adopted: **2010**

SUBJECT / STANDARD AREA	PA.SI.	Science as Inquiry
STANDARD AREA / STATEMENT	SI.5.	Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
STANDARD AREA / STATEMENT	SI.6.	Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**
DESCRIPTOR / STANDARD	3.4.5.A1.	Explain how people use tools and techniques to help them do things.
DESCRIPTOR / STANDARD	3.4.5.A2.	Understand that a subsystem is a system that operates as part of a larger system.
DESCRIPTOR / STANDARD	3.4.5.A3.	Describe how technologies are often combined.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.B.**	**Technology and Society**
DESCRIPTOR / STANDARD	3.4.5.B1.	Explain how the use of technology can have unintended consequences.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	3.4.5.C1.	Explain how the design process is a purposeful method of planning practical solutions to problems.
DESCRIPTOR / STANDARD	3.4.5.C2.	Describe how design, as a dynamic process of steps, can be performed in different sequences and repeated.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.D.**	**Abilities for a Technological World**
DESCRIPTOR / STANDARD	3.4.5.D1.	Identify ways to improve a design solution.
DESCRIPTOR / STANDARD	3.4.5.D3.	Determine if the human use of a product or system creates positive or negative results.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.E.**	**The Designed World**
DESCRIPTOR / STANDARD	3.4.5.E3.	Explain how tools, machines, products, and systems use energy in order to do work.

SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.2.**	**Watersheds and Wetlands**
STANDARD	4.2.5.C.	Identify physical, chemical, and biological factors that affect water quality.

SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.5.**	**Humans and the Environment**
STANDARD	4.5.5.C.	Explain the difference between point and non-point source pollution.

Pennsylvania Core and Academic Standards

Science

Grade **6** - Adopted: **2010**

SUBJECT / STANDARD AREA	**PA.SI.**	**Science as Inquiry**
STANDARD AREA / STATEMENT	SI.5.	Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
STANDARD AREA / STATEMENT	SI.6.	Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**
DESCRIPTOR / STANDARD	3.4.6.A2.	Describe how systems thinking involves considering how every part relates to others.

DESCRIPTOR / STANDARD	3.4.6.A3.	Explain how knowledge from other fields of study (STEM) integrate to create new technologies.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.B.**	**Technology and Society**
DESCRIPTOR / STANDARD	3.4.6.B2.	Describe how technologies can be used to repair damage caused by natural disasters and to break down waste from the use of various products and systems.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	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.
DESCRIPTOR / STANDARD	3.4.6.C2.	Show how models are used to communicate and test design ideas and processes.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.D.**	**Abilities for a Technological World**
DESCRIPTOR / STANDARD	3.4.6.D1.	Apply a design process to solve problems beyond the laboratory classroom.
DESCRIPTOR / STANDARD	3.4.6.D2.	Use computers appropriately to access and organize and apply information.

SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.2.**	**Watersheds and Wetlands**
STANDARD	4.2.6.C.	Identify natural and human-made factors that affect water quality.

Grade **6** - Adopted: **2014**

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**

STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	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.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**
STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**

STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Science

Grade **7** - Adopted: **2010**

SUBJECT / STANDARD AREA	**PA.SI.**	**Science as Inquiry**
STANDARD AREA / STATEMENT	SI.5.	Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
STANDARD AREA / STATEMENT	SI.6.	Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**
DESCRIPTOR / STANDARD	3.4.7.A2.	Explain how different technologies involve different sets of processes.
DESCRIPTOR / STANDARD	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.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.B.**	**Technology and Society**
DESCRIPTOR / STANDARD	3.4.7.B1.	Explain how the use of technology can have consequences that affect humans in many ways.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**

STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	3.4.7.C1.	Describe how design, as a creative planning process, leads to useful products and systems.
DESCRIPTOR / STANDARD	3.4.7.C2.	Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.
DESCRIPTOR / STANDARD	3.4.7.C3.	Describe how troubleshooting as a problem-solving method may identify the cause of a malfunction in a technological system.
SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.D.**	**Abilities for a Technological World**
DESCRIPTOR / STANDARD	3.4.7.D1.	Identify and collect information about everyday problems that can be solved by technology and generate ideas and requirements for solving a problem.
DESCRIPTOR / STANDARD	3.4.7.D2.	Select and safely use appropriate tools, products and systems for specific tasks.
DESCRIPTOR / STANDARD	3.4.7.D3.	Use data collected to analyze and interpret trends in order to identify the positive or negative effects of a technology.
SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.5.**	**Humans and the Environment**
STANDARD	**4.5.7.A.**	**Describe how the development of civilization affects the use of natural resources.**
DESCRIPTOR / STANDARD	4.5.7.A.1.	Compare and contrast how people use natural resources in sustainable and nonsustainable ways throughout the world.
SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.5.**	**Humans and the Environment**
STANDARD	**4.5.7.C.**	**Explain how human actions affect the health of the environment.**
DESCRIPTOR / STANDARD	4.5.7.C.1.	Identify residential and industrial sources of pollution and their effects on environmental health.

Grade **7** - Adopted: **2014**

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**

STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	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.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**
STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**

STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Science

Grade **8** - Adopted: **2010**

SUBJECT / STANDARD AREA	**PA.SI.**	**Science as Inquiry**
STANDARD AREA / STATEMENT	SI.4.	Formulate and revise explanations and models using logic and evidence.
STANDARD AREA / STATEMENT	SI.5.	Recognize and analyze alternative explanations and models.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.B.**	**Technology and Society**
DESCRIPTOR / STANDARD	3.4.8.B3.	Explain how throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies.
DESCRIPTOR / STANDARD	3.4.8.B4.	Explain how societal and cultural priorities and values are reflected in technological devices.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	3.4.8.C1.	Evaluate the criteria and constraints of a design.
DESCRIPTOR / STANDARD	3.4.8.C3.	Analyze how a multidisciplinary (STEM) approach to problem solving will yield greater results.

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**

STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.D.**	**Abilities for a Technological World**
DESCRIPTOR / STANDARD	3.4.8.D1.	Test and evaluate the solutions for a design problem.
DESCRIPTOR / STANDARD	3.4.8.D2.	Operate and maintain systems in order to achieve a given purpose.
DESCRIPTOR / STANDARD	3.4.8.D3.	Interpret and evaluate the accuracy of the information obtained and determine its usefulness.
SUBJECT / STANDARD AREA	**PA.4.**	**Environment and Ecology**
STANDARD AREA / STATEMENT	**4.2.**	**Watersheds and Wetlands**
STANDARD	4.2.8.A.	Describe factors that affect the quality of ground and surface waters.

Grade **8** - Adopted: **2014**

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	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.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**

STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Technology Education

Grade **5** - Adopted: **2017**

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-AP.**	**Algorithms & Programming**
STANDARD		**Program Development**
DESCRIPTOR / STANDARD	1B-AP-13.	Use an iterative process to plan the development of a program by including others'' perspectives and considering user preferences. (P1.1, P5.1)
DESCRIPTOR / STANDARD	1B-AP-16.	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. (P2.2)

DESCRIPTOR / STANDARD	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-IC.**	**Impacts of Computing**
STANDARD		**Culture**

DESCRIPTOR / STANDARD	1B-IC-19.	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P1.2)

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**

DESCRIPTOR / STANDARD	1B-IC-20.	Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

Pennsylvania Core and Academic Standards

Technology Education

Grade **6** - Adopted: **2017**

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Algorithms**

DESCRIPTOR / STANDARD	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Modularity**

DESCRIPTOR / STANDARD	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**

STANDARD		**Program Development**
DESCRIPTOR / STANDARD	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**
DESCRIPTOR / STANDARD	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

Pennsylvania Core and Academic Standards

Technology Education

Grade **7** - Adopted: **2017**

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Algorithms**
DESCRIPTOR / STANDARD	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Modularity**
DESCRIPTOR / STANDARD	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Program Development**
DESCRIPTOR / STANDARD	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**

STANDARD AREA / STATEMENT	**2-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**
DESCRIPTOR / STANDARD	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

Pennsylvania Core and Academic Standards

Technology Education

Grade **8** - Adopted: **2017**

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Algorithms**
DESCRIPTOR / STANDARD	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Modularity**
DESCRIPTOR / STANDARD	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-AP.**	**Algorithms & Programming**
STANDARD		**Program Development**
DESCRIPTOR / STANDARD	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**
DESCRIPTOR / STANDARD	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

Rhode Island World-Class Standards

Mathematics

Grade **5** - Adopted: **2021**

DOMAIN		The Standards for Mathematical Practice
STATEMENT OF ENDURING KNOWLEDGE	MP1	Make sense of problems and persevere in solving them.
STATEMENT OF ENDURING KNOWLEDGE	MP2	Reason abstractly and quantitatively.
STATEMENT OF ENDURING KNOWLEDGE	MP3	Construct viable arguments and critique the reasoning of others.
STATEMENT OF ENDURING KNOWLEDGE	MP4	Model with mathematics.
STATEMENT OF ENDURING KNOWLEDGE	MP5	Use appropriate tools strategically.
STATEMENT OF ENDURING KNOWLEDGE	MP7	Look for and make use of structure.

DOMAIN		Grade 5 Content Standards
STATEMENT OF ENDURING KNOWLEDGE	**5.MD.**	**Measurement and Data**
GSE STEM	**5.MD.C.**	**Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.**
SPECIFIC INDICATOR	**5.MD.C.5.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**
INDICATOR	5.MD.C.5.a.	Find the volume of a right rectangular prism with whole-number edge lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
INDICATOR	5.MD.C.5.b.	Apply the formula V = l × w × h and V = B × h (where B stands for the area of the base) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.

Rhode Island World-Class Standards

Mathematics

Grade **6** - Adopted: **2021**

DOMAIN		The Standards for Mathematical Practice
STATEMENT OF ENDURING KNOWLEDGE	MP1	Make sense of problems and persevere in solving them.

STATEMENT OF ENDURING KNOWLEDGE	MP2	Reason abstractly and quantitatively.
STATEMENT OF ENDURING KNOWLEDGE	MP3	Construct viable arguments and critique the reasoning of others.
STATEMENT OF ENDURING KNOWLEDGE	MP4	Model with mathematics.
STATEMENT OF ENDURING KNOWLEDGE	MP5	Use appropriate tools strategically.
STATEMENT OF ENDURING KNOWLEDGE	MP7	Look for and make use of structure.

DOMAIN		Grade 6 Content Standards
STATEMENT OF ENDURING KNOWLEDGE	**6.G.**	**Geometry**
GSE STEM	**6.G.A.**	**Solve real-world and mathematical problems involving area, surface area, and volume.**
SPECIFIC INDICATOR	6.G.A.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Rhode Island World-Class Standards

Mathematics

Grade **7** - Adopted: **2021**

DOMAIN		The Standards for Mathematical Practice
STATEMENT OF ENDURING KNOWLEDGE	MP1	Make sense of problems and persevere in solving them.
STATEMENT OF ENDURING KNOWLEDGE	MP2	Reason abstractly and quantitatively.
STATEMENT OF ENDURING KNOWLEDGE	MP3	Construct viable arguments and critique the reasoning of others.
STATEMENT OF ENDURING KNOWLEDGE	MP4	Model with mathematics.

STATEMENT OF ENDURING KNOWLEDGE	MP5	Use appropriate tools strategically.
STATEMENT OF ENDURING KNOWLEDGE	MP7	Look for and make use of structure.

Rhode Island World-Class Standards

Mathematics

Grade **8** - Adopted: **2021**

DOMAIN		The Standards for Mathematical Practice
STATEMENT OF ENDURING KNOWLEDGE	MP1	Make sense of problems and persevere in solving them.
STATEMENT OF ENDURING KNOWLEDGE	MP2	Reason abstractly and quantitatively.
STATEMENT OF ENDURING KNOWLEDGE	MP3	Construct viable arguments and critique the reasoning of others.
STATEMENT OF ENDURING KNOWLEDGE	MP4	Model with mathematics.
STATEMENT OF ENDURING KNOWLEDGE	MP5	Use appropriate tools strategically.
STATEMENT OF ENDURING KNOWLEDGE	MP7	Look for and make use of structure.

DOMAIN		Grade 8 Content Standards
STATEMENT OF ENDURING KNOWLEDGE	**8.G.**	**Geometry**
GSE STEM	**8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
SPECIFIC INDICATOR	8.G.C.9.	Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

Rhode Island World-Class Standards

Science

Grade **5** - Adopted: **2013**

DOMAIN	NGSS.3-5-ETS.	ENGINEERING DESIGN
STATEMENT OF ENDURING KNOWLEDGE	**3-5-ETS1.**	**Engineering Design**

GSE STEM		Students who demonstrate understanding can:
SPECIFIC INDICATOR	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
SPECIFIC INDICATOR	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
SPECIFIC INDICATOR	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Rhode Island World-Class Standards

Science

Grade **6** - Adopted: **2013**

DOMAIN	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STATEMENT OF ENDURING KNOWLEDGE	MS-ESS3.	Earth and Human Activity
GSE STEM		Students who demonstrate understanding can:
SPECIFIC INDICATOR	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

DOMAIN	NGSS.MS-ETS.	ENGINEERING DESIGN
STATEMENT OF ENDURING KNOWLEDGE	MS-ETS1.	Engineering Design
GSE STEM		Students who demonstrate understanding can:
SPECIFIC INDICATOR	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
SPECIFIC INDICATOR	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
SPECIFIC INDICATOR	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **6** - Adopted: **2010**

DOMAIN	RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
STATEMENT OF ENDURING KNOWLEDGE		Key Ideas and Details
GSE STEM	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GSE STEM	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
DOMAIN	RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects

STATEMENT OF ENDURING KNOWLEDGE		**Craft and Structure**
GSE STEM	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.
GSE STEM	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Integration of Knowledge and Ideas**
GSE STEM	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Range of Reading and Level of Text Complexity**
GSE STEM	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Text Types and Purposes**
GSE STEM	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
SPECIFIC INDICATOR	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Production and Distribution of Writing**
GSE STEM	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GSE STEM	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.

Rhode Island World-Class Standards

Science

Grade **7** - Adopted: **2013**

DOMAIN	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**

STATEMENT OF ENDURING KNOWLEDGE	**MS-ESS3.**	**Earth and Human Activity**
GSE STEM		**Students who demonstrate understanding can:**
SPECIFIC INDICATOR	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

DOMAIN	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
STATEMENT OF ENDURING KNOWLEDGE	**MS-ETS1.**	**Engineering Design**
GSE STEM		**Students who demonstrate understanding can:**
SPECIFIC INDICATOR	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
SPECIFIC INDICATOR	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
SPECIFIC INDICATOR	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **7** - Adopted: **2010**

DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Key Ideas and Details**
GSE STEM	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GSE STEM	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Craft and Structure**
GSE STEM	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.
GSE STEM	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Integration of Knowledge and Ideas**

GSE STEM	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Range of Reading and Level of Text Complexity**
GSE STEM	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Text Types and Purposes**
GSE STEM	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
SPECIFIC INDICATOR	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Production and Distribution of Writing**
GSE STEM	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GSE STEM	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.

Rhode Island World-Class Standards

Science

Grade **8** - Adopted: **2013**

DOMAIN	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STATEMENT OF ENDURING KNOWLEDGE	**MS-ESS3.**	**Earth and Human Activity**
GSE STEM		**Students who demonstrate understanding can:**
SPECIFIC INDICATOR	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
DOMAIN	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
STATEMENT OF ENDURING KNOWLEDGE	**MS-ETS1.**	**Engineering Design**
GSE STEM		**Students who demonstrate understanding can:**

SPECIFIC INDICATOR	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
SPECIFIC INDICATOR	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
SPECIFIC INDICATOR	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **8** - Adopted: **2010**

DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Key Ideas and Details**
GSE STEM	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GSE STEM	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Craft and Structure**
GSE STEM	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.
GSE STEM	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Integration of Knowledge and Ideas**
GSE STEM	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
DOMAIN	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Range of Reading and Level of Text Complexity**
GSE STEM	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Text Types and Purposes**

GSE STEM	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
SPECIFIC INDICATOR	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
DOMAIN	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STATEMENT OF ENDURING KNOWLEDGE		**Production and Distribution of Writing**
GSE STEM	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GSE STEM	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.

Rhode Island World-Class Standards

Technology Education

Grade **5** - Adopted: **2016**

DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
GSE STEM	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
GSE STEM	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
GSE STEM	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
GSE STEM	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
GSE STEM	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
GSE STEM	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Grade **5** - Adopted: **2018**

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	1B-RC.	Responsible Computing & Society
GSE STEM	1B-RC-CU.	Culture
SPECIFIC INDICATOR	1B-RC-CU-2.	Identify ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.

Rhode Island World-Class Standards

Technology Education

Grade **6** - Adopted: **2016**

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	RI.ISTE-S.3.	Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
GSE STEM	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	RI.ISTE-S.4.	Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
GSE STEM	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
GSE STEM	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	RI.ISTE-S.5.	Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
GSE STEM	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
GSE STEM	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
GSE STEM	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Grade **6** - Adopted: **2018**

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-CT.	Computational Thinking & Programming
GSE STEM	2-CT-A.	Algorithms

SPECIFIC INDICATOR	2-CT-A-1.	Use diagrams and/or pseudocode to plan, analyze, solve and/or code complex problems as algorithms.

Rhode Island World-Class Standards

Technology Education

Grade **7** - Adopted: **2016**

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
GSE STEM	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
GSE STEM	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
GSE STEM	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN		ISTE Standards for Students
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
GSE STEM	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
GSE STEM	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
GSE STEM	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Grade **7** - Adopted: **2018**

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	**2-CT.**	**Computational Thinking & Programming**
GSE STEM	**2-CT-A.**	**Algorithms**
SPECIFIC INDICATOR	2-CT-A-1.	Use diagrams and/or pseudocode to plan, analyze, solve and/or code complex problems as algorithms.

Rhode Island World-Class Standards

Technology Education

Grade **8** - Adopted: **2016**

DOMAIN		ISTE Standards for Students

STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
GSE STEM	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
GSE STEM	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
GSE STEM	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
GSE STEM	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
GSE STEM	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
GSE STEM	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Grade **8** - Adopted: **2018**

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**2-CT.**	**Computational Thinking & Programming**
GSE STEM	**2-CT-A.**	**Algorithms**
SPECIFIC INDICATOR	2-CT-A-1.	Use diagrams and/or pseudocode to plan, analyze, solve and/or code complex problems as algorithms.

South Carolina Standards & Learning

Mathematics

Grade **5** - Adopted: **2015**

STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.1.**	**Make sense of problems and persevere in solving them.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.2.**	**Reason both contextually and abstractly.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.3.**	**Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.4.**	**Connect mathematical ideas and real-world situations through modeling.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.5.**	**Use a variety of mathematical tools effectively and strategically.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.5a.	Select and use appropriate tools when solving a mathematical problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.5b.	Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.7.**	**Identify and utilize structure and patterns.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.7a.	Recognize complex mathematical objects as being composed of more than one simple object.
PERFORMANCE DESCRIPTOR / STANDARD	PS.7c.	Look for structures to interpret meaning and develop solution strategies.

STANDARD / COURSE	SC.5.MDA.	Measurement and Data Analysis
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**5.MDA.3.**	**Understand the concept of volume measurement.**
PERFORMANCE DESCRIPTOR / STANDARD	5.MDA.3a.	Recognize volume as an attribute of right rectangular prisms.
PERFORMANCE DESCRIPTOR / STANDARD	5.MDA.3c.	Determine the volume of right rectangular prisms using the formula derived from packing right rectangular prisms and counting the layers of standard unit cubes.

South Carolina Standards & Learning

Mathematics

Grade **6** - Adopted: **2015**

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.1.**	**Make sense of problems and persevere in solving them.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.2.**	**Reason both contextually and abstractly.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.3.**	**Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.4.**	**Connect mathematical ideas and real-world situations through modeling.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.5.**	**Use a variety of mathematical tools effectively and strategically.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.5a.	Select and use appropriate tools when solving a mathematical problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.5b.	Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.7.**	**Identify and utilize structure and patterns.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.7a.	Recognize complex mathematical objects as being composed of more than one simple object.
PERFORMANCE DESCRIPTOR / STANDARD	PS.7c.	Look for structures to interpret meaning and develop solution strategies.

STANDARD / COURSE	SC.6.GM.	Geometry and Measurement
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	6.GM.2.	Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism (V=lwh, V=Bh) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems.

South Carolina Standards & Learning

Mathematics

Grade **7** - Adopted: **2015**

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.1.**	**Make sense of problems and persevere in solving them.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.2.**	**Reason both contextually and abstractly.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.3.**	**Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.4.**	**Connect mathematical ideas and real-world situations through modeling.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.5.**	**Use a variety of mathematical tools effectively and strategically.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.5a.	Select and use appropriate tools when solving a mathematical problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.5b.	Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.7.**	**Identify and utilize structure and patterns.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.7a.	Recognize complex mathematical objects as being composed of more than one simple object.
PERFORMANCE DESCRIPTOR / STANDARD	PS.7c.	Look for structures to interpret meaning and develop solution strategies.
STANDARD / COURSE	**SC.7.GM.**	**Geometry and Measurement**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**7.GM.6.**	**Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations.**
PERFORMANCE DESCRIPTOR / STANDARD	7.GM.6b.	Understand that the concepts of volume and surface area are applied to three-dimensional figures such as cubes, right rectangular prisms, and right triangular prisms.

South Carolina Standards & Learning

Mathematics

Grade **8** - Adopted: **2015**

STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.1.**	**Make sense of problems and persevere in solving them.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.1b.	Recognize there may be multiple entry points to a problem and more than one path to a solution.
PERFORMANCE DESCRIPTOR / STANDARD	PS.1c.	Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem.

PERFORMANCE DESCRIPTOR / STANDARD	PS.1d.	Evaluate the success of an approach to solve a problem and refine it if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.2.**	**Reason both contextually and abstractly.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.2d.	Connect the meaning of mathematical operations to the context of a given situation.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.3.**	**Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.3a.	Construct and justify a solution to a problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3b.	Compare and discuss the validity of various reasoning strategies.
PERFORMANCE DESCRIPTOR / STANDARD	PS.3d.	Reflect on and provide thoughtful responses to the reasoning of others.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.4.**	**Connect mathematical ideas and real-world situations through modeling.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.4a.	Identify relevant quantities and develop a model to describe their relationships.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4b.	Interpret mathematical models in the context of the situation.
PERFORMANCE DESCRIPTOR / STANDARD	PS.4d.	Evaluate the reasonableness of a model and refine if necessary.

STANDARD / COURSE	SC.PS.	South Carolina College- and Career-Ready Mathematical Process Standards

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.5.**	**Use a variety of mathematical tools effectively and strategically.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.5a.	Select and use appropriate tools when solving a mathematical problem.
PERFORMANCE DESCRIPTOR / STANDARD	PS.5b.	Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.
STANDARD / COURSE	**SC.PS.**	**South Carolina College- and Career-Ready Mathematical Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**PS.7.**	**Identify and utilize structure and patterns.**
PERFORMANCE DESCRIPTOR / STANDARD	PS.7a.	Recognize complex mathematical objects as being composed of more than one simple object.
PERFORMANCE DESCRIPTOR / STANDARD	PS.7c.	Look for structures to interpret meaning and develop solution strategies.
STANDARD / COURSE	**SC.8.GM.**	**Geometry and Measurement**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	8.GM.9.	Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres and the surface area of cylinders.

South Carolina Standards & Learning

Science

Grade **7** - Adopted: **2021**

STANDARD / COURSE		**Earth and Space Science (ESS)**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**Earth and Human Activity (ESS3)**
PERFORMANCE DESCRIPTOR / STANDARD	7-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

South Carolina Standards & Learning

Technology Education

Grade **5** - Adopted: **2017**

STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**

PERFORMANCE DESCRIPTOR / STANDARD	**3**	**Recognize, define, and analyze computational problems.**
GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.
GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.
GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.
GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.
GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**4**	**Create, test, and refine computational artifacts.**
GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.
GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**5**	**Communicate about computing.**
GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Recognize that many daily tasks can be described as step-by-step instructions (i.e., algorithms).**
PERFORMANCE DESCRIPTOR / STANDARD	5.AP.1.1.	Execute a sequence of instructions (i.e., algorithm) that mimic a daily task.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 3.**	**Explore how tasks can be decomposed into simple tasks and simple tasks can be composed to form complex tasks.**
PERFORMANCE DESCRIPTOR / STANDARD	5.AP.3.1.	Compose multiple levels of simple tasks (e.g., eating breakfast can include going to the table, sitting down in a chair, and picking up a spoon; brushing your teeth; walking to the bus stop) to make a more complex task.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 4.**	**Develop a program to express an idea or address a problem.**
PERFORMANCE DESCRIPTOR / STANDARD	5.AP.4.1.	Use a visual language to design and test a program that solves a simple task (e.g., online coding activity).

STANDARD / COURSE		**Impact of Computing**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Discuss how computing has impacted society.**
PERFORMANCE DESCRIPTOR / STANDARD	5.IC.1.1.	Discuss the positive and negative impacts of computing on society.

South Carolina Standards & Learning

Technology Education

Grade **6** - Adopted: **2017**

STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**3**	**Recognize, define, and analyze computational problems.**

GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.
GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.
GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.
GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.
GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**4**	**Create, test, and refine computational artifacts.**
GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.
GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**5**	**Communicate about computing.**
GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.
STANDARD / COURSE		**Algorithms and Programming**

KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).**
PERFORMANCE DESCRIPTOR / STANDARD	6.AP.1.1.	Recognize that there are multiple ways to sequence instructions that can lead to the same result.
STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 4.**	**Design and code programs to solve problems.**
PERFORMANCE DESCRIPTOR / STANDARD	6.AP.4.1.	Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a simple program that solves a problem.
STANDARD / COURSE		**Impact of Computing**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Evaluate the tradeoffs of computing in everyday activities.**
PERFORMANCE DESCRIPTOR / STANDARD	6.IC.1.2.	Discover positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).

South Carolina Standards & Learning

Technology Education

Grade **7** - Adopted: **2017**

STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**3**	**Recognize, define, and analyze computational problems.**
GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.
GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.
GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.

GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.
GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**4**	**Create, test, and refine computational artifacts.**
GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.
GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**5**	**Communicate about computing.**
GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.
STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).**
PERFORMANCE DESCRIPTOR / STANDARD	7.AP.1.1.	Write sequences of instructions for others to perform tasks.
PERFORMANCE DESCRIPTOR / STANDARD	7.AP.1.2.	Suggest changes to the sequence of instructions that can lead to the same result (e.g., explore different ways to tying shoes).

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 3.**	**Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).**
PERFORMANCE DESCRIPTOR / STANDARD	7.AP.3.2.	Identify the parts of a program (e.g., components of creating a video game include keeping score, determining winners/losers, moving characters, designing game art, and advancing level).

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 4.**	**Design and code programs to solve problems.**
PERFORMANCE DESCRIPTOR / STANDARD	7.AP.4.1.	Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a moderately complex program that solves a problem.

STANDARD / COURSE		**Impact of Computing**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Evaluate the tradeoffs of computing in everyday activities.**
PERFORMANCE DESCRIPTOR / STANDARD	7.IC.1.1.	Understand how computer science is and can be used to solve problems in students' daily lives (e.g., voter identification website, online tax filing).
PERFORMANCE DESCRIPTOR / STANDARD	7.IC.1.2.	Compare positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).

South Carolina Standards & Learning

Technology Education

Grade **8** - Adopted: **2017**

STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**3**	**Recognize, define, and analyze computational problems.**
GRADE LEVEL EXAMPLE / STAGE	3.a.	Recognize when it is appropriate to solve a problem computationally.
GRADE LEVEL EXAMPLE / STAGE	3.b.	Make sense of computational problems and persevere in solving them.

GRADE LEVEL EXAMPLE / STAGE	3.c.	Relate computational problems to prior knowledge.
GRADE LEVEL EXAMPLE / STAGE	3.d.	Recognize that there may be multiple approaches to solving a problem.
GRADE LEVEL EXAMPLE / STAGE	3.e.	Approach problem solving iteratively, using a cyclical process.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**4**	**Create, test, and refine computational artifacts.**
GRADE LEVEL EXAMPLE / STAGE	4.b.	Recognize when to use the same solution for multiple problems.
GRADE LEVEL EXAMPLE / STAGE	4.c.	Test computational artifacts systematically by considering multiple scenarios and using test cases.
STANDARD / COURSE		**Process Standards**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION		**A computer science literate student can:**
PERFORMANCE DESCRIPTOR / STANDARD	**5**	**Communicate about computing.**
GRADE LEVEL EXAMPLE / STAGE	5.a.	Select and use appropriate technological tools to convey solutions to computing problems.
STANDARD / COURSE		**Data and Analysis**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 3.**	**Analyze various ways to visually represent data.**
PERFORMANCE DESCRIPTOR / STANDARD	8.DA.3.3.	Explain how models are used to predict specific behaviors and/or outcomes (e.g., weather data presented in a model used to predict future weather conditions and activity).

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Design, evaluate, and modify simple algorithms (e.g., steps to make a sandwich; steps to a popular dance; steps for sending an email).**
PERFORMANCE DESCRIPTOR / STANDARD	8.AP.1.1.	Modify a sequence of instructions to solve problems.
PERFORMANCE DESCRIPTOR / STANDARD	8.AP.1.2.	Make changes to the sequence of instructions that can lead to the same result.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 3.**	**Decompose problems into subproblems and write code to solve the subproblems (i.e., break down a problem into smaller parts).**
PERFORMANCE DESCRIPTOR / STANDARD	8.AP.3.2.	Compose a program with multiple parts.

STANDARD / COURSE		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 4.**	**Design and code programs to solve problems.**
PERFORMANCE DESCRIPTOR / STANDARD	8.AP.4.1.	Use a beginner coding language (e.g., drag-and-drop, block-based) to design and code a complex program that solves a problem.

STANDARD / COURSE		**Impact of Computing**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 1.**	**Evaluate the tradeoffs of computing in everyday activities.**
PERFORMANCE DESCRIPTOR / STANDARD	8.IC.1.2.	Analyze positive and negative impacts of computing on society (e.g., personal, health, workforce, economy, education, culture, environment).

South Dakota Content Standards

Mathematics

Grade **5** - Adopted: **2018**

GOAL/STRAND		**Standards for Mathematical Practice**
INDICATOR/BENCHMARK	1	Make sense of problems and persevere in solving them.

INDICATOR/BENCHMARK	2	Reason abstractly and quantitatively.
INDICATOR/BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
INDICATOR/BENCHMARK	4	Model with mathematics.
INDICATOR/BENCHMARK	5	Use appropriate tools strategically.
INDICATOR/BENCHMARK	7	Look for and make use of structure.
GOAL/STRAND	**5.MD.**	**Measurement and Data**
INDICATOR/BENCHMARK	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
STANDARD	5.MD.C.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
GOAL/STRAND	**5.MD.**	**Measurement and Data**
INDICATOR/BENCHMARK	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
STANDARD	**5.MD.C.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
SUPPORTING SKILLS	5.MD.C.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base.
SUPPORTING SKILLS	5.MD.C.5.b.	Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
SUPPORTING SKILLS	5.MD.C.5.c.	Apply the formulas V = l × w × h and V = B × h (where B is the area of the base) for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.

South Dakota Content Standards

Mathematics

Grade **6** - Adopted: **2018**

GOAL/STRAND		**Standards for Mathematical Practice**
INDICATOR/BENCHMARK	1	Make sense of problems and persevere in solving them.
INDICATOR/BENCHMARK	2	Reason abstractly and quantitatively.
INDICATOR/BENCHMARK	3	Construct viable arguments and critique the reasoning of others.

INDICATOR/BENCHMARK	4	Model with mathematics.
INDICATOR/BENCHMARK	5	Use appropriate tools strategically.
INDICATOR/BENCHMARK	7	Look for and make use of structure.
GOAL/STRAND	**6.G.**	**Geometry**
INDICATOR/BENCHMARK	**6.G.A.**	**Solve real-world and mathematical problems involved area, surface area, and volume.**
STANDARD	6.G.A.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh where B is the area of the base to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

South Dakota Content Standards

Mathematics

Grade **7** - Adopted: **2018**

GOAL/STRAND		**Standards for Mathematical Practice**
INDICATOR/BENCHMARK	1	Make sense of problems and persevere in solving them.
INDICATOR/BENCHMARK	2	Reason abstractly and quantitatively.
INDICATOR/BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
INDICATOR/BENCHMARK	4	Model with mathematics.
INDICATOR/BENCHMARK	5	Use appropriate tools strategically.
INDICATOR/BENCHMARK	7	Look for and make use of structure.

South Dakota Content Standards

Mathematics

Grade **8** - Adopted: **2018**

GOAL/STRAND		**Standards for Mathematical Practice**
INDICATOR/BENCHMARK	1	Make sense of problems and persevere in solving them.
INDICATOR/BENCHMARK	2	Reason abstractly and quantitatively.

INDICATOR/BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
INDICATOR/BENCHMARK	4	Model with mathematics.
INDICATOR/BENCHMARK	5	Use appropriate tools strategically.
INDICATOR/BENCHMARK	7	Look for and make use of structure.
GOAL/STRAND	**8.G.**	**Geometry**
INDICATOR/BENCHMARK	**8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.**
STANDARD	8.G.C.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

South Dakota Content Standards

Science

Grade **6** - Adopted: **2015**

GOAL/STRAND	**SD.6-8.PSS.**	**Middle School Physical Science Standards**
INDICATOR/BENCHMARK	MS-PS4-3.	Obtain, evaluate and communicate information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. (SEP: 8; DCI: PS4.C; CCC: Structure, Technology)
GOAL/STRAND	**SD.6-8.ESS.**	**Middle School Earth and Space Science Standards**
INDICATOR/BENCHMARK	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (SEP: 7; DCI: ESS3.C; CCC: Cause/Effect, Technology, Nature Science/Consequence-Actions)

Grade **6** - Adopted: **2010**

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Key Ideas and Details**
STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Craft and Structure**

STANDARD	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.
STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Integration of Knowledge and Ideas**
STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Range of Reading and Level of Text Complexity**
STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Text Types and Purposes**
STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
SUPPORTING SKILLS	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Production and Distribution of Writing**
STANDARD	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	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.

South Dakota Content Standards

Science

Grade **7** - Adopted: **2015**

GOAL/STRAND	**SD.6-8.PSS.**	**Middle School Physical Science Standards**
INDICATOR/BENCHMARK	MS-PS4-3.	Obtain, evaluate and communicate information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. (SEP: 8; DCI: PS4.C; CCC: Structure, Technology)
GOAL/STRAND	**SD.6-8.ESS.**	**Middle School Earth and Space Science Standards**

INDICATOR/BENCHMARK	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (SEP: 7; DCI: ESS3.C; CCC: Cause/Effect, Technology, Nature Science/Consequence-Actions)

Grade **7** - Adopted: **2010**

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Key Ideas and Details**
STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Craft and Structure**
STANDARD	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.
STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Integration of Knowledge and Ideas**
STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Range of Reading and Level of Text Complexity**
STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Text Types and Purposes**
STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
SUPPORTING SKILLS	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Production and Distribution of Writing**
STANDARD	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	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.

South Dakota Content Standards

Science

Grade **8** - Adopted: **2015**

GOAL/STRAND	**SD.6-8.PSS.**	**Middle School Physical Science Standards**
INDICATOR/BENCHMARK	MS-PS4-3.	Obtain, evaluate and communicate information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals. (SEP: 8; DCI: PS4.C; CCC: Structure, Technology)

GOAL/STRAND	**SD.6-8.ESS.**	**Middle School Earth and Space Science Standards**
INDICATOR/BENCHMARK	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (SEP: 7; DCI: ESS3.C; CCC: Cause/Effect, Technology, Nature Science/Consequence-Actions)

Grade **8** - Adopted: **2010**

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Key Ideas and Details**
STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Craft and Structure**
STANDARD	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.
STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Integration of Knowledge and Ideas**

STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

GOAL/STRAND	**SD.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Range of Reading and Level of Text Complexity**

STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Text Types and Purposes**
STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**

SUPPORTING SKILLS	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

GOAL/STRAND	**SD.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
INDICATOR/BENCHMARK		**Production and Distribution of Writing**

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

STANDARD	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.

South Dakota Content Standards

Technology Education

Grade **8** - Adopted: **2015**

GOAL/STRAND	**SD.ET.**	**Educational Technology**
INDICATOR/BENCHMARK	**ET.CT.**	**Eighth Grade Critical Thinking, Problem Solving, and Decision Making**
STANDARD	**8.ET.CT.3.**	**Students evaluate and select technology tools based on the specific tasks.**

SUPPORTING SKILLS	8.ET.CT.3.1.	Develop, analyze, and integrate a repertoire of strategies to apply new technologies to tasks.

GOAL/STRAND	**SD.ET.**	**Educational Technology**
INDICATOR/BENCHMARK	**ET.OC.**	**Eighth Grade Technology Operations and Concepts**
STANDARD	**8.ET.OC.1.**	**Students interpret the history and progression of technology.**

SUPPORTING SKILLS	8.ET.OC.1.1.	Critique the progression of technology systems and peripherals to improve the user experience

SUPPORTING SKILLS	8.ET.OC.1.2.	Predict the effects that may result from society's increasing reliance on technology.

Tennessee Academic Standards

Mathematics

Grade **5** - Adopted: **2021**

STRAND / STANDARD / COURSE		Standards for Mathematical Practice
CONCEPTUAL STRAND / GUIDING QUESTION	1	Make sense of problems and persevere in solving them.
CONCEPTUAL STRAND / GUIDING QUESTION	2	Reason abstractly and quantitatively.
CONCEPTUAL STRAND / GUIDING QUESTION	3	Construct viable arguments and critique the reasoning of others.
CONCEPTUAL STRAND / GUIDING QUESTION	4	Model with mathematics.
CONCEPTUAL STRAND / GUIDING QUESTION	5	Use appropriate tools strategically.
CONCEPTUAL STRAND / GUIDING QUESTION	7	Look for and make use of structure.

STRAND / STANDARD / COURSE		Mathematics | Grade 5
CONCEPTUAL STRAND / GUIDING QUESTION	**5.MD.**	**Measurement and Data (MD)**
GUIDING QUESTION / LEARNING EXPECTATION	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
LEARNING EXPECTATION	5.MD.C.4.	Measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.

STRAND / STANDARD / COURSE		Mathematics | Grade 5

CONCEPTUAL STRAND / GUIDING QUESTION	**5.MD.**	**Measurement and Data (MD)**
GUIDING QUESTION / LEARNING EXPECTATION	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
LEARNING EXPECTATION	**5.MD.C.5.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume of right rectangular prisms.**
INDICATOR	5.MD.C.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent whole-number products of three factors as volumes (e.g., to represent the associative property of multiplication).
INDICATOR	5.MD.C.5.b.	Know and apply the formulas V = l x w x h and V = B x h (where B represents the area of the base) for rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems.

Tennessee Academic Standards

Mathematics

Grade **6** - Adopted: **2021**

STRAND / STANDARD / COURSE		**Standards for Mathematical Practice**
CONCEPTUAL STRAND / GUIDING QUESTION	1	Make sense of problems and persevere in solving them.
CONCEPTUAL STRAND / GUIDING QUESTION	2	Reason abstractly and quantitatively.
CONCEPTUAL STRAND / GUIDING QUESTION	3	Construct viable arguments and critique the reasoning of others.
CONCEPTUAL STRAND / GUIDING QUESTION	4	Model with mathematics.
CONCEPTUAL STRAND / GUIDING QUESTION	5	Use appropriate tools strategically.
CONCEPTUAL STRAND / GUIDING QUESTION	7	Look for and make use of structure.
STRAND / STANDARD / COURSE		**Mathematics | Grade 6**

CONCEPTUAL STRAND / GUIDING QUESTION	**6.G.**	**Geometry (G)**
GUIDING QUESTION / LEARNING EXPECTATION	**6.G.A.**	**Solve real-world and mathematical problems involving area, surface area, and volume.**
LEARNING EXPECTATION	6.G.A.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh where B is the area of the base to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Tennessee Academic Standards

Mathematics

Grade **7** - Adopted: **2021**

STRAND / STANDARD / COURSE		Standards for Mathematical Practice
CONCEPTUAL STRAND / GUIDING QUESTION	1	Make sense of problems and persevere in solving them.
CONCEPTUAL STRAND / GUIDING QUESTION	2	Reason abstractly and quantitatively.
CONCEPTUAL STRAND / GUIDING QUESTION	3	Construct viable arguments and critique the reasoning of others.
CONCEPTUAL STRAND / GUIDING QUESTION	4	Model with mathematics.
CONCEPTUAL STRAND / GUIDING QUESTION	5	Use appropriate tools strategically.
CONCEPTUAL STRAND / GUIDING QUESTION	7	Look for and make use of structure.

Tennessee Academic Standards

Mathematics

Grade **8** - Adopted: **2021**

STRAND / STANDARD / COURSE		Standards for Mathematical Practice

CONCEPTUAL STRAND / GUIDING QUESTION	1	Make sense of problems and persevere in solving them.
CONCEPTUAL STRAND / GUIDING QUESTION	2	Reason abstractly and quantitatively.
CONCEPTUAL STRAND / GUIDING QUESTION	3	Construct viable arguments and critique the reasoning of others.
CONCEPTUAL STRAND / GUIDING QUESTION	4	Model with mathematics.
CONCEPTUAL STRAND / GUIDING QUESTION	5	Use appropriate tools strategically.
CONCEPTUAL STRAND / GUIDING QUESTION	7	Look for and make use of structure.

STRAND / STANDARD / COURSE		**Mathematics | Grade 8**
CONCEPTUAL STRAND / GUIDING QUESTION	**8.G.**	**Geometry (G)**
GUIDING QUESTION / LEARNING EXPECTATION	**8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
LEARNING EXPECTATION	8.G.C.6.	Apply the formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems.

Tennessee Academic Standards

Science

Grade **5** - Adopted: **2016**

STRAND / STANDARD / COURSE	**TN.5.ETS.**	**Engineering, Technology, and Applications of Science (ETS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**5.ETS1.**	**Engineering Design**

GUIDING QUESTION / LEARNING EXPECTATION	5.ETS1.1.	Research, test, re-test, and communicate a design to solve a problem.
GUIDING QUESTION / LEARNING EXPECTATION	5.ETS1.2.	Plan and carry out tests on one or more elements of a prototype in which variables are controlled and failure points are considered to identify which elements need to be improved. Apply the results of tests to redesign the prototype.
GUIDING QUESTION / LEARNING EXPECTATION	5.ETS1.3.	Describe how failure provides valuable information toward finding a solution.
STRAND / STANDARD / COURSE	**TN.5.ETS.**	**Engineering, Technology, and Applications of Science (ETS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**5.ETS2.**	**Links Among Engineering, Technology, Science, and Society**
GUIDING QUESTION / LEARNING EXPECTATION	5.ETS2.1.	Use appropriate measuring tools, simple hand tools, and fasteners to construct a prototype of a new or improved technology.
GUIDING QUESTION / LEARNING EXPECTATION	5.ETS2.3.	Identify how scientific discoveries lead to new and improved technologies.

Tennessee Academic Standards

Science

Grade **6** - Adopted: **2016**

STRAND / STANDARD / COURSE	**TN.6.ESS.**	**Earth and Space Sciences (ESS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**6.ESS2.**	**Earth's Systems**
GUIDING QUESTION / LEARNING EXPECTATION	6.ESS2.4.	Apply scientific principles to design a method to analyze and interpret the impact of humans and other organisms on the hydrologic cycle.

Tennessee Academic Standards

Technology Education

Grade **5** - Adopted: **2022**

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Fifth Grade: Computer Science Standards**

GUIDING QUESTION / LEARNING EXPECTATION	**5.AT.**	**Algorithmic Thinking**
LEARNING EXPECTATION	5.AT.1.	Analyze and improve an algorithm that includes sequencing and simple patterns with or without a computing device.
LEARNING EXPECTATION	5.AT.2.	Create an algorithm to solve a problem while detecting and debugging logical errors within the algorithm.
LEARNING EXPECTATION	5.AT.3.	Develop and recommend solutions to a given problem and explain the process to an audience.
STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Fifth Grade: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**5.PC.**	**Programming Concepts**
LEARNING EXPECTATION	5.PC.1.	Create simple animated stories or solve pre-existing problems using a precise sequence of instructions and simple loops, collaboratively or individually.

Tennessee Academic Standards

Technology Education

Grade **6** - Adopted: **2022**

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.AT.**	**Algorithmic Thinking**
LEARNING EXPECTATION	MS.AT.1.	Use clearly named variables of various data types to create generalized algorithms.
LEARNING EXPECTATION	MS.AT.2.	Create algorithms which include methods of controlling the flow of computation using “if…then… else” type conditional statements to perform different operations depending on the values of inputs.
LEARNING EXPECTATION	MS.AT.3.	Identify algorithms that make use of sequencing, selection, or iteration.
LEARNING EXPECTATION	MS.AT.4.	Describe how algorithmic processes and automation increase efficiency.
STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**

CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.PC.**	**Programming Concepts**
LEARNING EXPECTATION	MS.PC.1.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

Tennessee Academic Standards

Technology Education

Grade **7** - Adopted: **2022**

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.AT.**	**Algorithmic Thinking**
LEARNING EXPECTATION	MS.AT.1.	Use clearly named variables of various data types to create generalized algorithms.
LEARNING EXPECTATION	MS.AT.2.	Create algorithms which include methods of controlling the flow of computation using “if…then… else” type conditional statements to perform different operations depending on the values of inputs.
LEARNING EXPECTATION	MS.AT.3.	Identify algorithms that make use of sequencing, selection, or iteration.
LEARNING EXPECTATION	MS.AT.4.	Describe how algorithmic processes and automation increase efficiency.

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.PC.**	**Programming Concepts**
LEARNING EXPECTATION	MS.PC.1.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

Tennessee Academic Standards

Technology Education

Grade **8** - Adopted: **2022**

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**

CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.AT.**	**Algorithmic Thinking**
LEARNING EXPECTATION	MS.AT.1.	Use clearly named variables of various data types to create generalized algorithms.
LEARNING EXPECTATION	MS.AT.2.	Create algorithms which include methods of controlling the flow of computation using “if…then… else” type conditional statements to perform different operations depending on the values of inputs.
LEARNING EXPECTATION	MS.AT.3.	Identify algorithms that make use of sequencing, selection, or iteration.
LEARNING EXPECTATION	MS.AT.4.	Describe how algorithmic processes and automation increase efficiency.

STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.PC.**	**Programming Concepts**
LEARNING EXPECTATION	MS.PC.1.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs.

Texas Essential Knowledge and Skills (TEKS)

Mathematics

Grade **5** - Adopted: **2012**

TEKS	**111.7.**	**Grade 5, Adopted 2012.**
STUDENT EXPECTATION	**111.7.b.1.**	**Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:**
GRADE LEVEL EXPECTATION	111.7.b.1.B.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
GRADE LEVEL EXPECTATION	111.7.b.1.C.	Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.
GRADE LEVEL EXPECTATION	111.7.b.1.F.	Analyze mathematical relationships to connect and communicate mathematical ideas.

TEKS	**111.7.**	**Grade 5, Adopted 2012.**
STUDENT EXPECTATION	**111.7.b.4.**	**Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to:**

GRADE LEVEL EXPECTATION	111.7.b.4.G.	Use concrete objects and pictorial models to develop the formulas for the volume of a rectangular prism, including the special form for a cube (V = l x w x h, V = s x s x s, and V = Bh).

TEKS	**111.7.**	**Grade 5, Adopted 2012.**
STUDENT EXPECTATION	**111.7.b.6.**	**Geometry and measurement. The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to:**
GRADE LEVEL EXPECTATION	111.7.b.6.B.	Determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base.

Texas Essential Knowledge and Skills (TEKS)

Mathematics

Grade **6** - Adopted: **2012**

TEKS	**111.26.**	**Grade 6, Adopted 2012.**
STUDENT EXPECTATION	**111.26.b.1.**	**Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:**
GRADE LEVEL EXPECTATION	111.26.b.1.B.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
GRADE LEVEL EXPECTATION	111.26.b.1.C.	Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.
GRADE LEVEL EXPECTATION	111.26.b.1.F.	Analyze mathematical relationships to connect and communicate mathematical ideas.

TEKS	**111.26.**	**Grade 6, Adopted 2012.**
STUDENT EXPECTATION	**111.26.b.8.**	**Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to represent relationships and solve problems. The student is expected to:**
GRADE LEVEL EXPECTATION	111.26.b.8.C.	Write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.
GRADE LEVEL EXPECTATION	111.26.b.8.D.	Determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.

Texas Essential Knowledge and Skills (TEKS)

Mathematics

Grade **7** - Adopted: **2012**

TEKS	**111.27.**	**Grade 7, Adopted 2012.**
STUDENT EXPECTATION	**111.27.b.1.**	**Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:**
GRADE LEVEL EXPECTATION	111.27.b.1.B.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
GRADE LEVEL EXPECTATION	111.27.b.1.C.	Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.

GRADE LEVEL EXPECTATION	111.27.b.1.F.	Analyze mathematical relationships to connect and communicate mathematical ideas.

TEKS	**111.27.**	**Grade 7, Adopted 2012.**
STUDENT EXPECTATION	**111.27.b.9.**	**Expressions, equations, and relationships. The student applies mathematical process standards to solve geometric problems. The student is expected to:**
GRADE LEVEL EXPECTATION	111.27.b.9.A.	Solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids.

Texas Essential Knowledge and Skills (TEKS)

Mathematics

Grade **8** - Adopted: **2012**

TEKS	**111.28.**	**Grade 8, Adopted 2012.**
STUDENT EXPECTATION	**111.28.b.1.**	**Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:**
GRADE LEVEL EXPECTATION	111.28.b.1.B.	Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.
GRADE LEVEL EXPECTATION	111.28.b.1.C.	Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.
GRADE LEVEL EXPECTATION	111.28.b.1.F.	Analyze mathematical relationships to connect and communicate mathematical ideas.

TEKS	**111.28.**	**Grade 8, Adopted 2012.**
STUDENT EXPECTATION	**111.28.b.6.**	**Expressions, equations, and relationships. The student applies mathematical process standards to develop mathematical relationships and make connections to geometric formulas. The student is expected to:**
GRADE LEVEL EXPECTATION	111.28.b.6.A.	Describe the volume formula V = Bh of a cylinder in terms of its base area and its height.
GRADE LEVEL EXPECTATION	111.28.b.6.B.	Model the relationship between the volume of a cylinder and a cone having both congruent bases and heights and connect that relationship to the formulas.

TEKS	**111.28.**	**Grade 8, Adopted 2012.**
STUDENT EXPECTATION	**111.28.b.7.**	**Expressions, equations, and relationships. The student applies mathematical process standards to use geometry to solve problems. The student is expected to:**
GRADE LEVEL EXPECTATION	111.28.b.7.A.	Solve problems involving the volume of cylinders, cones, and spheres.

Texas Essential Knowledge and Skills (TEKS)

Science

Grade **5** - Adopted: **2017**

TEKS	**§112.16**	**Science, Grade 5, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.16.b**	**Knowledge and skills.**

GRADE LEVEL EXPECTATION	**§112.16.b.2**	**Scientific investigation and reasoning. The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:**
INDICATOR	§112.16.b.2.B	ask well defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology
TEKS	**§112.16**	**Science, Grade 5, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.16.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.16.b.3**	**Scientific investigation and reasoning. The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:**
INDICATOR	§112.16.b.3.A	analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing
INDICATOR	§112.16.b.3.B	draw or develop a model that represents how something that cannot be seen such as the Sun, Earth, and Moon system and formation of sedimentary rock works or looks
TEKS	**§112.16**	**Science, Grade 5, Adopted 2017 – The provisions of §§112.11-112.16 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.16.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.16.b.4**	**Scientific investigation and reasoning. The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:**
INDICATOR	§112.16.b.4.A	collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observations of habitats or organisms such as terrariums and aquariums

Texas Essential Knowledge and Skills (TEKS)

Science

Grade **6** - Adopted: **2017**

TEKS	**§112.18**	**Science, Grade 6, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.18.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.18.b.3**	**Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:**
INDICATOR	§112.18.b.3.A	analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student
INDICATOR	§112.18.b.3.D	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content
TEKS	**§112.18**	**Science, Grade 6, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.18.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.18.b.4**	**Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:**

INDICATOR	§112.18.b.4.A	use appropriate tools, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, balances, microscopes, thermometers, calculators, computers, timing devices, and other necessary equipment to collect, record, and analyze information

Texas Essential Knowledge and Skills (TEKS)

Science

Grade **7** - Adopted: **2017**

TEKS	**§112.19**	**Science, Grade 7, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.19.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.19.b.3**	**Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:**
INDICATOR	§112.19.b.3.A	analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student
INDICATOR	§112.19.b.3.D	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content
TEKS	**§112.19**	**Science, Grade 7, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.19.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.19.b.4**	**Science investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:**
INDICATOR	§112.19.b.4.A	use appropriate tools, including life science models, hand lenses, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other necessary equipment to collect, record, and analyze information
TEKS	**§112.19**	**Science, Grade 7, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.19.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.19.b.8**	**Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:**
INDICATOR	§112.19.b.8.C	model the effects of human activity on groundwater and surface water in a watershed

Texas Essential Knowledge and Skills (TEKS)

Science

Grade **8** - Adopted: **2017**

TEKS	**§112.20**	**Science, Grade 8, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.20.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.20.b.3**	**Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:**

INDICATOR	§112.20.b.3.A	analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, so as to encourage critical thinking by the student
INDICATOR	§112.20.b.3.D	relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content

TEKS	**§112.20**	**Science, Grade 8, Adopted 2017 – The provisions of §§112.18-112.20 of this subchapter shall be implemented by school districts beginning with the 2018-2019 school year.**
STUDENT EXPECTATION	**§112.20.b**	**Knowledge and skills.**
GRADE LEVEL EXPECTATION	**§112.20.b.4**	**Scientific investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:**
INDICATOR	§112.20.b.4.A	use appropriate tools, including lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectroscopes, timing devices, and other necessary equipment to collect, record, and analyze information

Texas Essential Knowledge and Skills (TEKS)

Technology Education

Grade **5** - Adopted: **2011**

TEKS	**§126.7.**	**Technology Applications, Grades 3-5**
STUDENT EXPECTATION	**§126.7.(1)**	**Creativity and innovation. The student uses creative thinking and innovative processes to construct knowledge and develop digital products. The student is expected to:**
GRADE LEVEL EXPECTATION	§126.7.(1)(C)	Use virtual environments to explore systems and issues.

TEKS	**§126.7.**	**Technology Applications, Grades 3-5**
STUDENT EXPECTATION	**§126.7.(4)**	**Critical thinking, problem solving, and decision making. The student researches and evaluates projects using digital tools and resources. The student is expected to:**
GRADE LEVEL EXPECTATION	§126.7.(4)(A)	Identify information regarding a problem and explain the steps toward the solution.

Texas Essential Knowledge and Skills (TEKS)

Technology Education

Grade **6** - Adopted: **2011**

TEKS	**§126.14.**	**Technology Applications, Grade 6**
STUDENT EXPECTATION	**§126.14.(4)**	**Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:**
GRADE LEVEL EXPECTATION	§126.14.(4)(A)	Identify and define relevant problems and significant questions for investigation.

Texas Essential Knowledge and Skills (TEKS)

Technology Education

Grade **7** - Adopted: **2011**

TEKS	**§126.15.**	**Technology Applications, Grade 7**
STUDENT EXPECTATION	**§126.15.(4)**	**Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:**

GRADE LEVEL EXPECTATION	§126.15. (4)(A)	Identify and define relevant problems and significant questions for investigation.

Texas Essential Knowledge and Skills (TEKS)

Technology Education

Grade **8** - Adopted: **2011**

TEKS	**§126.16.**	**Technology Applications, Grade 8**
STUDENT EXPECTATION	**§126.16. (4)**	**Critical thinking, problem solving, and decision making. The student makes informed decisions by applying critical-thinking and problem-solving skills. The student is expected to:**
GRADE LEVEL EXPECTATION	§126.16. (4)(A)	Identify and define relevant problems and significant questions for investigation.

Utah Core Standards

Mathematics

Grade **5** - Adopted: **2016**

STANDARD / AREA OF LEARNING	**UT.5.MP.**	**MATHEMATICAL PRACTICES (5.MP)**
OBJECTIVE / STRAND	5.MP.1.	Make sense of problems and persevere in solving them.
OBJECTIVE / STRAND	5.MP.2.	Reason abstractly and quantitatively.
OBJECTIVE / STRAND	5.MP.3.	Construct viable arguments and critique the reasoning of others.
OBJECTIVE / STRAND	5.MP.4.	Model with mathematics.
OBJECTIVE / STRAND	5.MP.5.	Use appropriate tools strategically.
OBJECTIVE / STRAND	5.MP.7.	Look for and make use of structure.
STANDARD / AREA OF LEARNING	**UT.5.MD.**	**MEASUREMENT AND DATA (5.MD)**
OBJECTIVE / STRAND		**Convert like measurement units within a given measurement system (Standard 5.MD.1). Represent and interpret data (Standard 5.MD.2). Understand concepts of geometric measurement and volume, as well as how multiplication and addition relate to volume (Standard 5.MD.3).**
INDICATOR / CLUSTER	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units.

STANDARD / AREA OF LEARNING	**UT.5.MD.**	**MEASUREMENT AND DATA (5.MD)**
OBJECTIVE / STRAND		**Convert like measurement units within a given measurement system (Standard 5.MD.1). Represent and interpret data (Standard 5.MD.2). Understand concepts of geometric measurement and volume, as well as how multiplication and addition relate to volume (Standard 5.MD.3).**

INDICATOR / CLUSTER	**5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**
EXPECTATION / STANDARD	5.MD.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, for example, to represent the associative property of multiplication.
EXPECTATION / STANDARD	5.MD.5.b.	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.

Utah Core Standards

Mathematics

Grade **6** - Adopted: **2016**

STANDARD / AREA OF LEARNING	**UT.6.MP.**	**MATHEMATICAL PRACTICES (6.MP)**
OBJECTIVE / STRAND	6.MP.1.	Make sense of problems and persevere in solving them.
OBJECTIVE / STRAND	6.MP.2.	Reason abstractly and quantitatively.
OBJECTIVE / STRAND	6.MP.3.	Construct viable arguments and critique the reasoning of others.
OBJECTIVE / STRAND	6.MP.4.	Model with mathematics.
OBJECTIVE / STRAND	6.MP.5.	Use appropriate tools strategically.
OBJECTIVE / STRAND	6.MP.7.	Look for and make use of structure.
STANDARD / AREA OF LEARNING	**UT.6.G.**	**GEOMETRY (6.G)**
OBJECTIVE / STRAND		**Solve real-world and mathematical problems involving area, surface area, and volume (Standards 6.G.1–4).**
INDICATOR / CLUSTER	6.G.2.	Find the volume of a right rectangular prism with appropriate unit fraction edge lengths by packing it with cubes of the appropriate unit fraction edge lengths (for example, 3½ x 2 x 6), and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (Note: Model the packing using drawings and diagrams.)

Utah Core Standards

Mathematics

Grade **7** - Adopted: **2016**

STANDARD / AREA OF LEARNING	**UT.7.MP.**	**MATHEMATICAL PRACTICES (7.MP)**

OBJECTIVE / STRAND	7.MP.1.	Make sense of problems and persevere in solving them. Explain the meaning of a problem and look for entry points to its solution. Analyze givens, constraints, relationships, and goals. Make conjectures about the form and meaning of the solution, plan a solution pathway, and continually monitor progress asking, “Does this make sense?” Consider analogous problems, make connections between multiple representations, identify the correspondence between different approaches, look for trends, and transform algebraic expressions to highlight meaningful mathematics. Check answers to problems using a different method.
OBJECTIVE / STRAND	7.MP.2.	Reason abstractly and quantitatively. Make sense of the quantities and their relationships in problem situations. Translate between context and algebraic representations by contextualizing and decontextualizing quantitative relationships. This includes the ability to decontextualize a given situation, representing it algebraically and manipulating symbols fluently as well as the ability to contextualize algebraic representations to make sense of the problem.
OBJECTIVE / STRAND	7.MP.3.	Construct viable arguments and critique the reasoning of others. Understand and use stated assumptions, definitions, and previously established results in constructing arguments. Make conjectures and build a logical progression of statements to explore the truth of their conjectures. Justify conclusions and communicate them to others. Respond to the arguments of others by listening, asking clarifying questions, and critiquing the reasoning of others.
OBJECTIVE / STRAND	7.MP.4.	Model with mathematics. Apply mathematics to solve problems arising in everyday life, society, and the workplace. Make assumptions and approximations, identifying important quantities to construct a mathematical model. Routinely interpret mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
OBJECTIVE / STRAND	7.MP.5.	Use appropriate tools strategically. Consider the available tools and be sufficiently familiar with them to make sound decisions about when each tool might be helpful, recognizing both the insight to be gained as well as the limitations. Identify relevant external mathematical resources and use them to pose or solve problems. Use tools to explore and deepen their understanding of concepts.
OBJECTIVE / STRAND	7.MP.7.	Look for and make use of structure. Look closely at mathematical relationships to identify the underlying structure by recognizing a simple structure within a more complicated structure. See complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, see 5 – 3(x – y)^2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

Utah Core Standards

Mathematics

Grade **8** - Adopted: **2016**

STANDARD / AREA OF LEARNING	UT.8.MP.	MATHEMATICAL PRACTICES (8.MP)
OBJECTIVE / STRAND		**The Standards for Mathematical Practice in Eighth Grade describe mathematical habits of mind that teachers should seek to develop in their students. Students become mathematically proficient in engaging with mathematical content and concepts as they learn, experience, and apply these skills and attitudes (Standards 8.MP.1–8).**
INDICATOR / CLUSTER	8.MP.1.	Make sense of problems and persevere in solving them. Explain the meaning of a problem and look for entry points to its solution. Analyze givens, constraints, relationships, and goals. Make conjectures about the form and meaning of the solution, plan a solution pathway, and continually monitor progress asking, “Does this make sense?” Consider analogous problems, make connections between multiple representations, identify the correspondence between different approaches, look for trends, and transform algebraic expressions to highlight meaningful mathematics. Check answers to problems using a different method.
INDICATOR / CLUSTER	8.MP.2.	Reason abstractly and quantitatively. Make sense of the quantities and their relationships in problem situations. Translate between context and algebraic representations by contextualizing and decontextualizing quantitative relationships. This includes the ability to decontextualize a given situation, representing it algebraically and manipulating symbols fluently as well as the ability to contextualize algebraic representations to make sense of the problem.

INDICATOR / CLUSTER	8.MP.3.	Construct viable arguments and critique the reasoning of others. Understand and use stated assumptions, definitions, and previously established results in constructing arguments. Make conjectures and build a logical progression of statements to explore the truth of their conjectures. Justify conclusions and communicate them to others. Respond to the arguments of others by listening, asking clarifying questions, and critiquing the reasoning of others.
INDICATOR / CLUSTER	8.MP.4.	Model with mathematics. Apply mathematics to solve problems arising in everyday life, society, and the workplace. Make assumptions and approximations, identifying important quantities to construct a mathematical model. Routinely interpret mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
INDICATOR / CLUSTER	8.MP.5.	Use appropriate tools strategically. Consider the available tools and be sufficiently familiar with them to make sound decisions about when each tool might be helpful, recognizing both the insight to be gained as well as the limitations. Identify relevant external mathematical resources and use them to pose or solve problems. Use tools to explore and deepen their understanding of concepts.
INDICATOR / CLUSTER	8.MP.7.	Look for and make use of structure. Look closely at mathematical relationships to identify the underlying structure by recognizing a simple structure within a more complicated structure. See complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, see 5 – 3(x –y)^2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.
STANDARD / AREA OF LEARNING	**UT.8.G.**	**GEOMETRY (8.G)**
OBJECTIVE / STRAND		**Understand congruence and similarity using physical models, transparencies, or geometry software (Standards 8.G.1–5). Understand and apply the Pythagorean Theorem and its converse (Standards 8.G.6–8). Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres (Standard 8.G.9).**
INDICATOR / CLUSTER	8.G.9.	Know the formulas for the volumes of cones, cylinders, and spheres, and use them to solve real-world and mathematical problems.

Utah Core Standards

Science

Grade **6** - Adopted: **2013**

STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Key Ideas and Details**
INDICATOR / CLUSTER	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
INDICATOR / CLUSTER	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Craft and Structure**
INDICATOR / CLUSTER	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.

INDICATOR / CLUSTER	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Integration of Knowledge and Ideas**
INDICATOR / CLUSTER	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Range of Reading and Level of Text Complexity**
INDICATOR / CLUSTER	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Text Types and Purposes**
INDICATOR / CLUSTER	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION / STANDARD	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Production and Distribution of Writing**
INDICATOR / CLUSTER	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
INDICATOR / CLUSTER	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.

Utah Core Standards

Science

Grade **7** - Adopted: **2013**

STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Key Ideas and Details**
INDICATOR / CLUSTER	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

INDICATOR / CLUSTER	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Craft and Structure**
INDICATOR / CLUSTER	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.
INDICATOR / CLUSTER	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Integration of Knowledge and Ideas**
INDICATOR / CLUSTER	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Range of Reading and Level of Text Complexity**
INDICATOR / CLUSTER	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Text Types and Purposes**
INDICATOR / CLUSTER	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION / STANDARD	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Production and Distribution of Writing**
INDICATOR / CLUSTER	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
INDICATOR / CLUSTER	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.

Utah Core Standards

Science

Grade **8** - Adopted: **2015**

STANDARD / AREA OF LEARNING		**SEEd - Grade 8 (2017)**
OBJECTIVE / STRAND	**Strand 8.4:**	**INTERACTIONS WITH NATURAL SYSTEMS AND RESOURCES**
INDICATOR / CLUSTER		**Interactions of matter and energy through geologic processes have led to the uneven distribution of natural resources. Many of these resources are nonrenewable, and per-capita use can cause positive or negative consequences. Global temperatures change due to various factors, and can cause a change in regional climates. As energy flows through the physical world, natural disasters can occur that affect human life. Humans can study patterns in natural systems to anticipate and forecast some future disasters and work to mitigate the outcomes.**
EXPECTATION / STANDARD	Standard 8.4.2	Engage in argument supported by evidence about the effect of per-capita consumption of natural resources on Earth's systems. Emphasize that these resources are limited and may be non-renewable. Examples of evidence include rates of consumption of food and natural resources such as freshwater, minerals, and energy sources.

Grade **8** - Adopted: **2013**

STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Key Ideas and Details**
INDICATOR / CLUSTER	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
INDICATOR / CLUSTER	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Craft and Structure**
INDICATOR / CLUSTER	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.
INDICATOR / CLUSTER	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Integration of Knowledge and Ideas**
INDICATOR / CLUSTER	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STANDARD / AREA OF LEARNING		**Reading Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Range of Reading and Level of Text Complexity**

INDICATOR / CLUSTER	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Text Types and Purposes**
INDICATOR / CLUSTER	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**

EXPECTATION / STANDARD	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

STANDARD / AREA OF LEARNING		**Writing Standards for Literacy in Science and Technical Subjects**
OBJECTIVE / STRAND		**Production and Distribution of Writing**

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

INDICATOR / CLUSTER	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.

Utah Core Standards
Technology Education
Grade **5** - Adopted: **2019**

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Data and Analysis (DA):**

EXPECTATION / STANDARD	Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions.

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Algorithms and Programming (AP):**

EXPECTATION / STANDARD	An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions.

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 1:**	**Fostering an Inclusive Computing Culture**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**
INDICATOR	1	Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products.
INDICATOR	2	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 2:**	**Collaborating Around Computing**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**
INDICATOR	2	Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness.

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 3:**	**Recognizing and Defining Computational Problems**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
INDICATOR	3	Evaluate whether it is appropriate and feasible to solve a problem computationally.

STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 5:**	**Creating Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**

INDICATOR	1	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, considering key features, time and resource constraints, and user expectations.
INDICATOR	2	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 6:**	**Testing and Refining Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**
INDICATOR	1	Systematically test computational artifacts by considering all scenarios and using test cases.
STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 5.AP.1.**	**Compare and refine multiple algorithms for the same task and determine which is the most appropriate. (Practice 3: Recognizing and Defining Computational Problems and Practice 6: Testing and Refining Computational Artifacts)**
EXPECTATION / STANDARD		Students will compare different algorithms that achieve the same result, and determine which algorithm is more appropriate. For example, students will compare different ways to get ready in the morning before school or which is the best route to get to the lunchroom.
STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 5.AP.4.**	**Use an iterative process to plan and develop a program by considering the perspectives and preferences of others. (Practice 1: Fostering an Inclusive Computing Culture and Practice 5: Creating Computational Artifacts)**
EXPECTATION / STANDARD		Students will plan and develop a solution for another person's problem. For example, a student has a hard time completing homework. The team designs a solution for how to manage time in order to complete homework, gathers data on the new solution, and revises the solution.

Utah Core Standards

Technology Education

Grade **6** - Adopted: **2019**

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Data and Analysis (DA):**

EXPECTATION / STANDARD		Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Algorithms and Programming (AP):**
EXPECTATION / STANDARD		An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 1:**	**Fostering an Inclusive Computing Culture**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products.
INDICATOR	2	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 2:**	**Collaborating Around Computing**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 3:**	**Recognizing and Defining Computational Problems**

EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
INDICATOR	3	Evaluate whether it is appropriate and feasible to solve a problem computationally.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 4:**	**Developing and Using Abstractions**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	3	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 5:**	**Creating Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
INDICATOR	2	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 6:**	**Testing and Refining Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Systematically test computational artifacts by considering all scenarios and using test cases.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Computing Systems (CS):**
INDICATOR / CLUSTER	**Standard 6.CS.1.**	**Utilize troubleshooting strategies to resolve hardware and software issues in a logical order. (Practice 4: Developing and Using Abstractions)**

EXPECTATION / STANDARD	Students will be able to utilize a step-by-step approach to identify and resolve problems with hardware and software. For example, a checklist can be used to ensure that possible solutions are not overlooked such as checking for writing conventions before finalizing a writing assignment. Students may refer to the order of operations when solving a math equation. Students may search for technical information online when solving problems. A flow diagram may be used to determine possible next steps.

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 6.AP.1.**	**Design and illustrate algorithms to efficiently solve complex problems by utilizing pseudocode and/or other descriptive methods. (Practice 3: Recognizing and defining computational problems)**

EXPECTATION / STANDARD	Students will decompose or design algorithms (how to instructions) utilizing pseudocode to solve complex problems. Students will be able to decompose a real-world problem and illustrate the decision-making process in a well-organized flowchart, storyboard, ordered directions, notations, or other method. For example, the students might create a flowchart to illustrate which equipment to use for recess based on the weather, play preference, and a student's energy level.

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 6.AP.2.**	**Create naming conventions for variables that support the debugging process and incorporate these variables into a simple program. (Practice 7: Communicating about Computing)**

EXPECTATION / STANDARD	To make the debugging process easier, students will create and name variables that store data in a meaningful and logical way. For example, when writing an algorithm, students will incorporate names based on the command function such as use the variable "turn" to describe direction, "loop" for repeating tasks.

Utah Core Standards

Technology Education

Grade **7** - Adopted: **2019**

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Data and Analysis (DA):**

EXPECTATION / STANDARD	Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions.

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Algorithms and Programming (AP):**

EXPECTATION / STANDARD		An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 1:**	**Fostering an Inclusive Computing Culture**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products.
INDICATOR	2	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 2:**	**Collaborating Around Computing**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 3:**	**Recognizing and Defining Computational Problems**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
INDICATOR	3	Evaluate whether it is appropriate and feasible to solve a problem computationally.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**

INDICATOR / CLUSTER	**Practice 4:**	**Developing and Using Abstractions**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	3	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 5:**	**Creating Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
INDICATOR	2	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 6:**	**Testing and Refining Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Systematically test computational artifacts by considering all scenarios and using test cases.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 7.AP.3.**	**Systematically test and refine programs using a range of test cases. (Practice 6: Testing and Refining Computational Artifacts.)**
EXPECTATION / STANDARD		Students will use a variety of problem-solving processes such as the engineering design process, decision matrix, pros and cons, or DMAIC (define, measure, analyze, improve and control) to test and refine a project or program. Students will test and refine a computer program, an engineering artifact, or solution. For example, students may test and refine a math program solving for surface area of different shapes (triangles, quadrilaterals, polygons, cubes).
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 7.AP.4.**	**Select and assign tasks to maintain a project timeline when collaboratively developing computational artifacts. (Practice 2: Collaborating Around Computing. Practice 5: Creating Computational Artifacts.)**

EXPECTATION / STANDARD		Students will select, assign, and manage tasks within a project timeline of milestones and due dates while collaboratively working on projects. For example, students will use tools such as storyboards, to-do lists, team roles, and other project management tools to organize their projects and share the work across team members and help them be more efficient in managing time and resources.

Utah Core Standards
Technology Education
Grade **8** - Adopted: **2019**

STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Data and Analysis (DA):**
EXPECTATION / STANDARD		Computing systems exist to process data. The amount of digital data generated in the world is rapidly expanding, and the need to process data effectively is increasingly important. Data is collected and stored so it can be analyzed to better understand the world and make more accurate predictions.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Concepts**
INDICATOR / CLUSTER		**Algorithms and Programming (AP):**
EXPECTATION / STANDARD		An algorithm is a sequence of steps designed to accomplish a specific task. Algorithms are translated into programs, or code, to provide instructions for computing devices. Algorithms and programming control all computing systems, empowering people to communicate with the world in new ways and solve compelling problems. The development process to create meaningful and efficient programs involves choosing which information to use and how to process and store it, breaking apart large problems into smaller ones, recombining existing solutions, and analyzing different solutions.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 1:**	**Fostering an Inclusive Computing Culture**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products.
INDICATOR	2	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**

INDICATOR / CLUSTER	**Practice 2:**	**Collaborating Around Computing**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Create team norms, expectations, and equitable workloads to increase efficiency and effectiveness.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 3:**	**Recognizing and Defining Computational Problems**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
INDICATOR	3	Evaluate whether it is appropriate and feasible to solve a problem computationally.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 4:**	**Developing and Using Abstractions**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	3	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 5:**	**Creating Computational Artifacts**
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
INDICATOR	2	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STANDARD / AREA OF LEARNING		**Utah 6-12 Computer Science Standards**
OBJECTIVE / STRAND		**Core Practices**

INDICATOR / CLUSTER	Practice 6:	Testing and Refining Computational Artifacts
EXPECTATION / STANDARD		**By the end of Grade 12, students should be able to:**
INDICATOR	1	Systematically test computational artifacts by considering all scenarios and using test cases.

Vermont Content Standards

Mathematics

Grade **5** - Adopted: **2010 (CCSS)**

STANDARD / STRAND	VT.MP.	Mathematical Practices
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.2.	Reason abstractly and quantitatively.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.4.	Model with mathematics.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.5.	Use appropriate tools strategically.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.7.	Look for and make use of structure.

STANDARD / STRAND	VT.5.MD.	Measurement and Data
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

STANDARD / STRAND	VT.5.MD.	Measurement and Data

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	**5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
GRADE LEVEL EXPECTATION	5.MD.5(a)	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
GRADE LEVEL EXPECTATION	5.MD.5(b)	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Vermont Content Standards

Mathematics

Grade **6** - Adopted: **2010 (CCSS)**

STANDARD / STRAND	VT.MP.	Mathematical Practices
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.2.	Reason abstractly and quantitatively.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.4.	Model with mathematics.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.5.	Use appropriate tools strategically.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.7.	Look for and make use of structure.

STANDARD / STRAND	**VT.6.G.**	**Geometry**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Solve real-world and mathematical problems involving area, surface area, and volume.**

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	6.G.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Vermont Content Standards

Mathematics

Grade **7** - Adopted: **2010 (CCSS)**

STANDARD / STRAND	VT.MP.	Mathematical Practices
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.2.	Reason abstractly and quantitatively.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.4.	Model with mathematics.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.5.	Use appropriate tools strategically.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.7.	Look for and make use of structure.

Vermont Content Standards

Mathematics

Grade **8** - Adopted: **2010 (CCSS)**

STANDARD / STRAND	VT.MP.	Mathematical Practices
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.2.	Reason abstractly and quantitatively.

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.4.	Model with mathematics.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.5.	Use appropriate tools strategically.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MP.7.	Look for and make use of structure.
STANDARD / STRAND	**VT.8.G.**	**Geometry**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	8.G.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Vermont Content Standards

Science

Grade **5** - Adopted: **2014**

STANDARD / STRAND	**VT.3-5-ETS.**	**ENGINEERING DESIGN**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**3-5-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
GRADE LEVEL EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Vermont Content Standards

Science

Grade **6** - Adopted: **2014**

STANDARD / STRAND	**VT.MS-ESS.**	**EARTH AND SPACE SCIENCE**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

STANDARD / STRAND	**VT.MS-ETS.**	**ENGINEERING DESIGN**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**MS-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **6** - Adopted: **2010**

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Key Ideas and Details**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Craft and Structure**

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Integration of Knowledge and Ideas**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Range of Reading and Level of Text Complexity**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
STANDARD / STRAND	**VT.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Text Types and Purposes**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
GRADE LEVEL EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
STANDARD / STRAND	**VT.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Production and Distribution of Writing**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.

Vermont Content Standards

Science

Grade **7** - Adopted: **2014**

STANDARD / STRAND	**VT.MS-ESS.**	**EARTH AND SPACE SCIENCE**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

STANDARD / STRAND	**VT.MS-ETS.**	**ENGINEERING DESIGN**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**MS-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **7** - Adopted: **2010**

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Key Ideas and Details**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Craft and Structure**

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Integration of Knowledge and Ideas**

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Range of Reading and Level of Text Complexity**

GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

STANDARD / STRAND	**VT.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Text Types and Purposes**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**

GRADE LEVEL EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

STANDARD / STRAND	VT.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		Production and Distribution of Writing
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.

Vermont Content Standards

Science

Grade **8** - Adopted: **2014**

STANDARD / STRAND	VT.MS-ESS.	EARTH AND SPACE SCIENCE
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MS-ESS3.	Earth and Human Activity
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		Students who demonstrate understanding can:
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

STANDARD / STRAND	VT.MS-ETS.	ENGINEERING DESIGN
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	MS-ETS1.	Engineering Design
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		Students who demonstrate understanding can:
GRADE LEVEL EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **8** - Adopted: **2010**

STANDARD / STRAND	VT.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Key Ideas and Details**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Craft and Structure**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Integration of Knowledge and Ideas**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STANDARD / STRAND	**VT.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Range of Reading and Level of Text Complexity**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
STANDARD / STRAND	**VT.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Text Types and Purposes**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
GRADE LEVEL EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
STANDARD / STRAND	**VT.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Production and Distribution of Writing**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	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.

Vermont Content Standards

Technology Education

Grade **5** - Adopted: **2017**

STANDARD / STRAND	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
STANDARD / STRAND	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
STANDARD / STRAND	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Vermont Content Standards

Technology Education

Grade **6** - Adopted: **2017**

STANDARD / STRAND	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
STANDARD / STRAND	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
STANDARD / STRAND	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Vermont Content Standards

Technology Education

Grade **7** - Adopted: **2017**

STANDARD / STRAND	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
STANDARD / STRAND	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
STANDARD / STRAND	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Vermont Content Standards

Technology Education

Grade **8** - Adopted: **2017**

STANDARD / STRAND	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.
STANDARD / STRAND	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
STANDARD / STRAND	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Virginia Standards of Learning

Mathematics

Grade **7** - Adopted: **2016**

STRAND / TOPIC	**VA.MG.7.**	**Measurement and Geometry**
STANDARD / STRAND	**7.4.**	**The student will**
INDICATOR / STANDARD	7.4.a.	Describe and determine the volume and surface area of rectangular prisms and cylinders.
INDICATOR / STANDARD	7.4.b.	Solve problems, including practical problems, involving the volume and surface area of rectangular prisms and cylinders.

Virginia Standards of Learning

Science

Grade **5** - Adopted: **2018**

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Scientific and Engineering Practices**
INDICATOR / STANDARD	**5.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR	**5.1.b.**	**planning and carrying out investigations**
PROGRESS INDICATOR	5.1.b.5.	use tools and/or materials to design and/or build a device that solves a specific problem

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Scientific and Engineering Practices**
INDICATOR / STANDARD	**5.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR	**5.1.f.**	**obtaining, evaluating, and communicating information**
PROGRESS INDICATOR	5.1.f.2.	communicate scientific information, design ideas, and/or solutions with others

Virginia Standards of Learning

Science

Grade **6** - Adopted: **2018**

STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.a.**	**asking questions and defining problems**
INDICATOR	6.1.a.3.	offer simple solutions to design problems

STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.b.**	**planning and carrying out investigations**
INDICATOR	6.1.b.4.	use tools and materials to design and/or build a device to solve a specific problem

STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.c.**	**interpreting, analyzing, and evaluating data**
INDICATOR	6.1.c.4.	use data to evaluate and refine design solutions

STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.d.**	**constructing and critiquing conclusions and explanations**
INDICATOR	6.1.d.3.	generate and compare multiple solutions to problems based on how well they meet the criteria and constraints

STRAND / TOPIC		**Grade Six – Our world; our responsibility**

STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.e.**	**developing and using models**
INDICATOR	6.1.e.2.	use, develop, and revise models to predict and explain phenomena
INDICATOR	6.1.e.3.	evaluate limitations of models
STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**6.1.f.**	**obtaining, evaluating, and communicating information**
INDICATOR	6.1.f.1.	read scientific texts, including those adapted for classroom use, to obtain scientific and/or technical information
STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.6.**	**The student will investigate and understand that water has unique physical properties and has a role in the natural and human-made environment. Key ideas include:**
INDICATOR / STANDARD	6.6.b.	water has specific properties;
INDICATOR / STANDARD	6.6.f.	water is important for agriculture, power generation, and public health.
STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.8.**	**The student will investigate and understand that land and water have roles in watershed systems. Key ideas include:**
INDICATOR / STANDARD	6.8.d.	natural processes, human activities, and biotic and abiotic factors influence the health of a watershed system.
STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.9.**	**The student will investigate and understand that humans impact the environment and individuals can influence public policy decisions related to energy and the environment. Key ideas include:**
INDICATOR / STANDARD	6.9.c.	major health and safety issues are associated with air and water quality;

Virginia Standards of Learning

Science

Grade **7** - Adopted: **2018**

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.a.**	**asking questions and defining problems**

INDICATOR	LS.1.a.2.	offer simple solutions to design problems

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.c.**	**interpreting, analyzing, and evaluating data**
INDICATOR	LS.1.c.4.	consider limitations of data analysis and/or seek to improve precision and accuracy of data
INDICATOR	LS.1.c.5.	use data to evaluate and refine design solutions

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.d.**	**constructing and critiquing conclusions and explanations**
INDICATOR	LS.1.d.2.	construct scientific explanations based on valid and reliable evidence obtained from sources (including the students' own investigations)

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.e.**	**developing and using models**
INDICATOR	LS.1.e.1.	construct and use models and simulations to illustrate, predict, and/or explain observable and unobservable phenomena, life processes, or mechanisms
INDICATOR	LS.1.e.2.	evaluate limitations of models

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.f.**	**obtaining, evaluating, and communicating information**
INDICATOR	LS.1.f.1.	read scientific texts, including those adapted for classroom use, to obtain scientific and/or technical information

Virginia Standards of Learning

Science

Grade **8** - Adopted: **2018**

STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**

INDICATOR / STANDARD	**LS.1.a.**	**asking questions and defining problems**
INDICATOR	LS.1.a.2.	offer simple solutions to design problems
STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.c.**	**interpreting, analyzing, and evaluating data**
INDICATOR	LS.1.c.4.	consider limitations of data analysis and/or seek to improve precision and accuracy of data
INDICATOR	LS.1.c.5.	use data to evaluate and refine design solutions
STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.d.**	**constructing and critiquing conclusions and explanations**
INDICATOR	LS.1.d.2.	construct scientific explanations based on valid and reliable evidence obtained from sources (including the students' own investigations)
STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.e.**	**developing and using models**
INDICATOR	LS.1.e.1.	construct and use models and simulations to illustrate, predict, and/or explain observable and unobservable phenomena, life processes, or mechanisms
INDICATOR	LS.1.e.2.	evaluate limitations of models
STRAND / TOPIC		**Life Science**
STANDARD / STRAND	**LS.1.**	**The student will demonstrate an understanding of scientific and engineering practices by:**
INDICATOR / STANDARD	**LS.1.f.**	**obtaining, evaluating, and communicating information**
INDICATOR	LS.1.f.1.	read scientific texts, including those adapted for classroom use, to obtain scientific and/or technical information

Virginia Standards of Learning

Technology Education

Grade **5** - Adopted: **2017**

STRAND / TOPIC	**VA.CS.**	**Computer Science**

STANDARD / STRAND		**Algorithms and Programming**
INDICATOR / STANDARD	**5.1.**	**The student will construct sets of step-by-step instructions (algorithms) both independently and collaboratively,**
INDICATOR	5.1.a.	Using sequencing.

STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Algorithms and Programming**
INDICATOR / STANDARD	**5.2.**	**The student will construct programs to accomplish a task as a means of creative expression using a block or text based programming language, both independently and collaboratively**
INDICATOR	5.2.a.	Using sequencing.

STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Algorithms and Programming**
INDICATOR / STANDARD	5.3.	The student will analyze, correct, and improve (debug) an algorithm that includes sequencing, events, loops, conditionals, and variables. [Related SOL areas - Math: Problem Solving, English: Editing]

STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Data and Analysis**
INDICATOR / STANDARD	5.11.	The student will answer a question by using a computer to manipulate data in order for the student to draw conclusions and make predictions. [Related SOL: Math 5.16, 5.17, VS.1c and j]

Grade **5** - Adopted: **2020**

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**KC.**	**Knowledge Constructor (KC)**
INDICATOR / STANDARD		**Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.**
INDICATOR	**KC.D.**	**Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.**
PROGRESS INDICATOR	KC.D.i.	Students use digital resources and tools to explore real-world issues and problems and collaborate with others to find answers or solutions.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.A.**	**Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.**

PROGRESS INDICATOR	ID.A.i.	With guidance from an educator, students use appropriate technologies to explore and practice how a design process works to generate ideas, consider solutions, plan to solve a problem, or create innovative products that are shared with others.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	ID.	Innovative Designer (ID)
INDICATOR / STANDARD		Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.
INDICATOR	ID.B.	Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.
PROGRESS INDICATOR	ID.B.i.	With guidance from an educator, students select and use appropriate technologies to plan and manage a design process.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	ID.	Innovative Designer (ID)
INDICATOR / STANDARD		Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.
INDICATOR	ID.C.	Use appropriate technologies to develop, test, and refine prototypes as part of a cyclical design process.
PROGRESS INDICATOR	ID.C.i.	With guidance from an educator, students use appropriate technologies in a cyclical design process to develop prototypes and reflect on the role of trial and error.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	ID.	Innovative Designer (ID)
INDICATOR / STANDARD		Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.
INDICATOR	ID.D.	Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.
PROGRESS INDICATOR	ID.D.i.	With guidance from an educator, students demonstrate perseverance when working with open-ended problem.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	CT.	Computational Thinker (CT)
INDICATOR / STANDARD		Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.
INDICATOR	CT.A.	Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.
PROGRESS INDICATOR	CT.A.i.	With guidance from an educator, students create, identify, explore, and solve problems by selecting technology-assisted methods such as data analysis, modeling, and algorithmic thinking.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.C.**	**Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving.**
PROGRESS INDICATOR	CT.C.i.	Students break down problems into smaller parts, identify key information, and propose solutions using technologies, when appropriate.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CC.**	**Creative Communicator (CC)**
INDICATOR / STANDARD		**Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.**
INDICATOR	**CC.B.**	**Create original works or responsibly repurpose or remix digital resources into new creations.**
PROGRESS INDICATOR	CC.B.i.	Students use appropriate technologies to create original works and learn strategies for remixing other digital works to create new digital works.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CC.**	**Creative Communicator (CC)**
INDICATOR / STANDARD		**Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.**
INDICATOR	**CC.C.**	**Communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.**
PROGRESS INDICATOR	CC.C.i.	Students create digital works to communicate ideas visually and graphically.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**GC.**	**Global Collaborator (GC)**
INDICATOR / STANDARD		**Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
INDICATOR	**GC.D.**	**Explore local and global issues and use collaborative technologies to work with others to investigate solutions.**
PROGRESS INDICATOR	GC.D.i.	Students use collaborative technologies to work with others to understand problems and investigate solutions to local and global issues.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**KC.**	**Knowledge Constructor (KC)**
INDICATOR / STANDARD		**Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.**
INDICATOR	**KC.D.**	**Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.**
PROGRESS INDICATOR	KC.D.m.	Students use digital resources and tools to explore real-world issues and problems and actively pursue solutions.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.A.**	**Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.**
PROGRESS INDICATOR	ID.A.m.	In collaboration with an educator, students use appropriate technologies in a design process to generate ideas, create innovative products, or solve authentic problems.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.B.**	**Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.**
PROGRESS INDICATOR	ID.B.m.	In collaboration with an educator, students select and use appropriate technologies to plan and manage a design process that identifies design constraints and trade-offs and weighs risks.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.C.**	**Use appropriate technologies to develop, test, and refine prototypes as part of a cyclical design process.**
PROGRESS INDICATOR	ID.C.m.	In collaboration with an educator, students use appropriate technologies in a cyclical design process to develop prototypes and demonstrate the use of setbacks as potential opportunities for improvement.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**

INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.D.**	**Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.**
PROGRESS INDICATOR	ID.D.m.	In collaboration with an educator, students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.A.**	**Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.**
PROGRESS INDICATOR	CT.A.m.	Students create, identify, explore, and solve problems using technology-assisted methods such as data analysis, modeling, or algorithmic thinking.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.B.**	**Collect data or identify relevant data sets, use appropriate technologies to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.**
PROGRESS INDICATOR	CT.B.m.	Students find or organize data and use appropriate technologies to interpret, analyze, and represent data to construct models, predict outcomes, solve problems, and make evidence-based decisions.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.C.**	**Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving.**
PROGRESS INDICATOR	CT.C.m.	Students break problems into component parts, identify key pieces and use that information to problem solve using technologies, when appropriate.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CC.**	**Creative Communicator (CC)**
INDICATOR / STANDARD		**Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.**
INDICATOR	**CC.B.**	**Create original works or responsibly repurpose or remix digital resources into new creations.**

PROGRESS INDICATOR	CC.B.m.	Students use appropriate technologies to create new digital works or responsibly repurpose or remix other digital works into new digital works.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**GC.**	**Global Collaborator (GC)**
INDICATOR / STANDARD		**Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
INDICATOR	**GC.D.**	**Explore local and global issues and use collaborative technologies to work with others to investigate solutions.**
PROGRESS INDICATOR	GC.D.m.	Students use collaborative technologies to work with others to understand problems, investigate and develop solutions related to local and global issues.

Virginia Standards of Learning

Technology Education

Grade **7** - Adopted: **2020**

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**KC.**	**Knowledge Constructor (KC)**
INDICATOR / STANDARD		**Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.**
INDICATOR	**KC.D.**	**Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.**
PROGRESS INDICATOR	KC.D.m.	Students use digital resources and tools to explore real-world issues and problems and actively pursue solutions.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.A.**	**Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.**
PROGRESS INDICATOR	ID.A.m.	In collaboration with an educator, students use appropriate technologies in a design process to generate ideas, create innovative products, or solve authentic problems.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.B.**	**Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.**

PROGRESS INDICATOR	ID.B.m.	In collaboration with an educator, students select and use appropriate technologies to plan and manage a design process that identifies design constraints and trade-offs and weighs risks.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.C.**	**Use appropriate technologies to develop, test, and refine prototypes as part of a cyclical design process.**
PROGRESS INDICATOR	ID.C.m.	In collaboration with an educator, students use appropriate technologies in a cyclical design process to develop prototypes and demonstrate the use of setbacks as potential opportunities for improvement.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.D.**	**Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.**
PROGRESS INDICATOR	ID.D.m.	In collaboration with an educator, students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.A.**	**Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.**
PROGRESS INDICATOR	CT.A.m.	Students create, identify, explore, and solve problems using technology-assisted methods such as data analysis, modeling, or algorithmic thinking.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.B.**	**Collect data or identify relevant data sets, use appropriate technologies to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.**
PROGRESS INDICATOR	CT.B.m.	Students find or organize data and use appropriate technologies to interpret, analyze, and represent data to construct models, predict outcomes, solve problems, and make evidence-based decisions.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**

STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.C.**	**Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving.**
PROGRESS INDICATOR	CT.C.m.	Students break problems into component parts, identify key pieces and use that information to problem solve using technologies, when appropriate.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CC.**	**Creative Communicator (CC)**
INDICATOR / STANDARD		**Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.**
INDICATOR	**CC.B.**	**Create original works or responsibly repurpose or remix digital resources into new creations.**
PROGRESS INDICATOR	CC.B.m.	Students use appropriate technologies to create new digital works or responsibly repurpose or remix other digital works into new digital works.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**GC.**	**Global Collaborator (GC)**
INDICATOR / STANDARD		**Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
INDICATOR	**GC.D.**	**Explore local and global issues and use collaborative technologies to work with others to investigate solutions.**
PROGRESS INDICATOR	GC.D.m.	Students use collaborative technologies to work with others to understand problems, investigate and develop solutions related to local and global issues.

Virginia Standards of Learning

Technology Education

Grade **8** - Adopted: **2020**

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**KC.**	**Knowledge Constructor (KC)**
INDICATOR / STANDARD		**Students critically curate a variety of digital resources using appropriate technologies, including assistive technologies, to construct knowledge, produce creative digital works, and make meaningful learning experiences for themselves and others.**
INDICATOR	**KC.D.**	**Actively explore real-world issues and problems, develop ideas and theories, and pursue answers and solutions.**
PROGRESS INDICATOR	KC.D.m.	Students use digital resources and tools to explore real-world issues and problems and actively pursue solutions.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**

STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.A.**	**Know and use appropriate technologies in a purposeful design process for generating ideas, testing theories, creating innovative digital works, or solving authentic problems.**
PROGRESS INDICATOR	ID.A.m.	In collaboration with an educator, students use appropriate technologies in a design process to generate ideas, create innovative products, or solve authentic problems.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.B.**	**Select and use appropriate technologies to plan and manage a design process that considers design constraints and calculated risks.**
PROGRESS INDICATOR	ID.B.m.	In collaboration with an educator, students select and use appropriate technologies to plan and manage a design process that identifies design constraints and trade-offs and weighs risks.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.C.**	**Use appropriate technologies to develop, test, and refine prototypes as part of a cyclical design process.**
PROGRESS INDICATOR	ID.C.m.	In collaboration with an educator, students use appropriate technologies in a cyclical design process to develop prototypes and demonstrate the use of setbacks as potential opportunities for improvement.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**ID.**	**Innovative Designer (ID)**
INDICATOR / STANDARD		**Students use a variety of technologies, including assistive technologies, within a design process to identify and solve problems by creating new, useful or imaginative solutions or iterations.**
INDICATOR	**ID.D.**	**Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.**
PROGRESS INDICATOR	ID.D.m.	In collaboration with an educator, students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

STRAND / TOPIC		**Digital Learning Integration Standards of Learning for Virginia Public Schools**
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.A.**	**Formulate problem definitions suited for technology-assisted methods such as data analysis, modeling and algorithmic thinking in exploring and finding solutions.**

PROGRESS INDICATOR	CT.A.m.	Students create, identify, explore, and solve problems using technology-assisted methods such as data analysis, modeling, or algorithmic thinking.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.B.**	**Collect data or identify relevant data sets, use appropriate technologies to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.**
PROGRESS INDICATOR	CT.B.m.	Students find or organize data and use appropriate technologies to interpret, analyze, and represent data to construct models, predict outcomes, solve problems, and make evidence-based decisions.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CT.**	**Computational Thinker (CT)**
INDICATOR / STANDARD		**Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods, including those that leverage assistive technologies, to develop and test solutions.**
INDICATOR	**CT.C.**	**Break problems into component parts, extract key information, and develop descriptive models, using technologies when appropriate, to understand complex systems or facilitate problem-solving.**
PROGRESS INDICATOR	CT.C.m.	Students break problems into component parts, identify key pieces and use that information to problem solve using technologies, when appropriate.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**CC.**	**Creative Communicator (CC)**
INDICATOR / STANDARD		**Students communicate clearly and express themselves creatively for a variety of purposes using appropriate technologies (including assistive technologies), styles, formats, and digital media appropriate to their goals.**
INDICATOR	**CC.B.**	**Create original works or responsibly repurpose or remix digital resources into new creations.**
PROGRESS INDICATOR	CC.B.m.	Students use appropriate technologies to create new digital works or responsibly repurpose or remix other digital works into new digital works.

STRAND / TOPIC		Digital Learning Integration Standards of Learning for Virginia Public Schools
STANDARD / STRAND	**GC.**	**Global Collaborator (GC)**
INDICATOR / STANDARD		**Students use appropriate technologies, including assistive technologies, to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
INDICATOR	**GC.D.**	**Explore local and global issues and use collaborative technologies to work with others to investigate solutions.**
PROGRESS INDICATOR	GC.D.m.	Students use collaborative technologies to work with others to understand problems, investigate and develop solutions related to local and global issues.

Mathematics

Grade **5** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.5.MP.	Mathematical Practices
STANDARD / ESSENTIAL SKILL	5.MP.1.	Make sense of problems and persevere in solving them.
STANDARD / ESSENTIAL SKILL	5.MP.2.	Reason abstractly and quantitatively.
STANDARD / ESSENTIAL SKILL	5.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / ESSENTIAL SKILL	5.MP.4.	Model with mathematics.
STANDARD / ESSENTIAL SKILL	5.MP.5.	Use appropriate tools strategically.
STANDARD / ESSENTIAL SKILL	5.MP.7.	Look for and make use of structure.

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.5.MD.	Measurement and Data
STANDARD / ESSENTIAL SKILL		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
STUDENT EXPECTATION / ESSENTIAL SKILL	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.5.MD.	Measurement and Data
STANDARD / ESSENTIAL SKILL		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
STUDENT EXPECTATION / ESSENTIAL SKILL	**5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**

EXPECTATION	5.MD.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
EXPECTATION	5.MD.5.b.	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Washington DC Academic Standards

Mathematics

Grade **6** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.6.MP.	Mathematical Practices
STANDARD / ESSENTIAL SKILL	6.MP.1.	Make sense of problems and persevere in solving them.
STANDARD / ESSENTIAL SKILL	6.MP.2.	Reason abstractly and quantitatively.
STANDARD / ESSENTIAL SKILL	6.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / ESSENTIAL SKILL	6.MP.4.	Model with mathematics.
STANDARD / ESSENTIAL SKILL	6.MP.5.	Use appropriate tools strategically.
STANDARD / ESSENTIAL SKILL	6.MP.7.	Look for and make use of structure.

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.6.G.	Geometry
STANDARD / ESSENTIAL SKILL		**Solve real-world and mathematical problems involving area, surface area, and volume.**
STUDENT EXPECTATION / ESSENTIAL SKILL	6.G.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Washington DC Academic Standards

Mathematics

Grade **7** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.7.MP.	Mathematical Practices
STANDARD / ESSENTIAL SKILL	7.MP.1.	Make sense of problems and persevere in solving them.
STANDARD / ESSENTIAL SKILL	7.MP.2.	Reason abstractly and quantitatively.
STANDARD / ESSENTIAL SKILL	7.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / ESSENTIAL SKILL	7.MP.4.	Model with mathematics.
STANDARD / ESSENTIAL SKILL	7.MP.5.	Use appropriate tools strategically.
STANDARD / ESSENTIAL SKILL	7.MP.7.	Look for and make use of structure.

Washington DC Academic Standards

Mathematics

Grade **8** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	DC.CC.8.MP.	Mathematical Practices
STANDARD / ESSENTIAL SKILL	8.MP.1.	Make sense of problems and persevere in solving them.
STANDARD / ESSENTIAL SKILL	8.MP.2.	Reason abstractly and quantitatively.
STANDARD / ESSENTIAL SKILL	8.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / ESSENTIAL SKILL	8.MP.4.	Model with mathematics.
STANDARD / ESSENTIAL SKILL	8.MP.5.	Use appropriate tools strategically.

STANDARD / ESSENTIAL SKILL	8.MP.7.	Look for and make use of structure.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.CC.8.G.**	**Geometry**
STANDARD / ESSENTIAL SKILL		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
STUDENT EXPECTATION / ESSENTIAL SKILL	8.G.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Washington DC Academic Standards

Science

Grade **5** - Adopted: **2013**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.3-5-ETS.**	**ENGINEERING DESIGN**
STANDARD / ESSENTIAL SKILL	**3-5-ETS1.**	**Engineering Design**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Washington DC Academic Standards

Science

Grade **6** - Adopted: **2013**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STANDARD / ESSENTIAL SKILL	**MS-ESS3.**	**Earth and Human Activity**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / ESSENTIAL SKILL	**MS-ETS1.**	**Engineering Design**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **6** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Key Ideas and Details**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Craft and Structure**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.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.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Integration of Knowledge and Ideas**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Range of Reading and Level of Text Complexity**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Text Types and Purposes**
STUDENT EXPECTATION / ESSENTIAL SKILL	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Production and Distribution of Writing**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.6.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Science

Grade **7** - Adopted: **2013**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STANDARD / ESSENTIAL SKILL	**MS-ESS3.**	**Earth and Human Activity**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / ESSENTIAL SKILL	**MS-ETS1.**	**Engineering Design**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **7** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Key Ideas and Details**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Craft and Structure**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.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.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Integration of Knowledge and Ideas**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Range of Reading and Level of Text Complexity**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Text Types and Purposes**
STUDENT EXPECTATION / ESSENTIAL SKILL	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Production and Distribution of Writing**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.6.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Washington DC Academic Standards

Science

Grade **8** - Adopted: **2013**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STANDARD / ESSENTIAL SKILL	**MS-ESS3.**	**Earth and Human Activity**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / ESSENTIAL SKILL	**MS-ETS1.**	**Engineering Design**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **8** - Adopted: **2010**

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Key Ideas and Details**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Craft and Structure**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.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.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Integration of Knowledge and Ideas**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Range of Reading and Level of Text Complexity**

STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Text Types and Purposes**
STUDENT EXPECTATION / ESSENTIAL SKILL	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / STRAND / DISCIPLINE	**DC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STANDARD / ESSENTIAL SKILL		**Production and Distribution of Writing**
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STUDENT EXPECTATION / ESSENTIAL SKILL	6-8.WHST.6.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Washington State K-12 Learning Standards and Guidelines

Mathematics

Grade **5** - Adopted: **2011**

EALR	**WA.MP.**	**Mathematical Practices**
BIG IDEA / CORE CONTENT	MP.1.	Make sense of problems and persevere in solving them.
BIG IDEA / CORE CONTENT	MP.2.	Reason abstractly and quantitatively.
BIG IDEA / CORE CONTENT	MP.3.	Construct viable arguments and critique the reasoning of others.

BIG IDEA / CORE CONTENT	MP.4.	Model with mathematics.
BIG IDEA / CORE CONTENT	MP.5.	Use appropriate tools strategically.
BIG IDEA / CORE CONTENT	MP.7.	Look for and make use of structure.

EALR	WA.5.MD.	Measurement and Data
BIG IDEA / CORE CONTENT		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
CORE CONTENT / CONTENT STANDARD	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

EALR	WA.5.MD.	Measurement and Data
BIG IDEA / CORE CONTENT		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
CORE CONTENT / CONTENT STANDARD	**5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
CONTENT STANDARD / PERFORMANCE EXPECTATION	5.MD.5(a)	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
CONTENT STANDARD / PERFORMANCE EXPECTATION	5.MD.5(b)	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Washington State K-12 Learning Standards and Guidelines

Mathematics

Grade **6** - Adopted: **2011**

EALR	WA.MP.	Mathematical Practices
BIG IDEA / CORE CONTENT	MP.1.	Make sense of problems and persevere in solving them.
BIG IDEA / CORE CONTENT	MP.2.	Reason abstractly and quantitatively.

BIG IDEA / CORE CONTENT	MP.3.	Construct viable arguments and critique the reasoning of others.
BIG IDEA / CORE CONTENT	MP.4.	Model with mathematics.
BIG IDEA / CORE CONTENT	MP.5.	Use appropriate tools strategically.
BIG IDEA / CORE CONTENT	MP.7.	Look for and make use of structure.
EALR	**WA.6.G.**	**Geometry**
BIG IDEA / CORE CONTENT		**Solve real-world and mathematical problems involving area, surface area, and volume.**
CORE CONTENT / CONTENT STANDARD	6.G.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Washington State K-12 Learning Standards and Guidelines

Mathematics

Grade **7** - Adopted: **2011**

EALR	WA.MP.	Mathematical Practices
BIG IDEA / CORE CONTENT	MP.1.	Make sense of problems and persevere in solving them.
BIG IDEA / CORE CONTENT	MP.2.	Reason abstractly and quantitatively.
BIG IDEA / CORE CONTENT	MP.3.	Construct viable arguments and critique the reasoning of others.
BIG IDEA / CORE CONTENT	MP.4.	Model with mathematics.
BIG IDEA / CORE CONTENT	MP.5.	Use appropriate tools strategically.
BIG IDEA / CORE CONTENT	MP.7.	Look for and make use of structure.

Washington State K-12 Learning Standards and Guidelines

Mathematics

Grade **8** - Adopted: **2011**

EALR	WA.MP.	Mathematical Practices
BIG IDEA / CORE CONTENT	MP.1.	Make sense of problems and persevere in solving them.
BIG IDEA / CORE CONTENT	MP.2.	Reason abstractly and quantitatively.
BIG IDEA / CORE CONTENT	MP.3.	Construct viable arguments and critique the reasoning of others.
BIG IDEA / CORE CONTENT	MP.4.	Model with mathematics.
BIG IDEA / CORE CONTENT	MP.5.	Use appropriate tools strategically.
BIG IDEA / CORE CONTENT	MP.7.	Look for and make use of structure.

EALR	WA.8.G.	Geometry
BIG IDEA / CORE CONTENT		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
CORE CONTENT / CONTENT STANDARD	8.G.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Washington State K-12 Learning Standards and Guidelines

Science

Grade **5** - Adopted: **2014**

EALR	WA.3-5-ETS.	ENGINEERING DESIGN
BIG IDEA / CORE CONTENT	**3-5-ETS1.**	**Engineering Design**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

CONTENT STANDARD / PERFORMANCE EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
CONTENT STANDARD / PERFORMANCE EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Washington State K-12 Learning Standards and Guidelines

Science

Grade **6** - Adopted: **2014**

EALR	WA.MS-ESS.	EARTH AND SPACE SCIENCE
BIG IDEA / CORE CONTENT	**MS-ESS3.**	**Earth and Human Activity**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

EALR	WA.MS-ETS.	ENGINEERING DESIGN
BIG IDEA / CORE CONTENT	**MS-ETS1.**	**Engineering Design**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **6** - Adopted: **2010**

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects

BIG IDEA / CORE CONTENT		**Key Ideas and Details**
CORE CONTENT / CONTENT STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
CORE CONTENT / CONTENT STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
EALR	**WA.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Craft and Structure**
CORE CONTENT / CONTENT STANDARD	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.
CORE CONTENT / CONTENT STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
EALR	**WA.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Integration of Knowledge and Ideas**
CORE CONTENT / CONTENT STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
EALR	**WA.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Range of Reading and Level of Text Complexity**
CORE CONTENT / CONTENT STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
EALR	**WA.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Text Types and Purposes**

CORE CONTENT / CONTENT STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
CONTENT STANDARD / PERFORMANCE EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

EALR	**WA.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Production and Distribution of Writing**
CORE CONTENT / CONTENT STANDARD	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CORE CONTENT / CONTENT STANDARD	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.

Washington State K-12 Learning Standards and Guidelines

Science

Grade **7** - Adopted: **2014**

EALR	**WA.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BIG IDEA / CORE CONTENT	**MS-ESS3.**	**Earth and Human Activity**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

EALR	**WA.MS-ETS.**	**ENGINEERING DESIGN**
BIG IDEA / CORE CONTENT	**MS-ETS1.**	**Engineering Design**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **7** - Adopted: **2010**

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Key Ideas and Details**
CORE CONTENT / CONTENT STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
CORE CONTENT / CONTENT STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Craft and Structure**
CORE CONTENT / CONTENT STANDARD	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.
CORE CONTENT / CONTENT STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Integration of Knowledge and Ideas**
CORE CONTENT / CONTENT STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects

BIG IDEA / CORE CONTENT		**Range of Reading and Level of Text Complexity**
CORE CONTENT / CONTENT STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

EALR	**WA.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Text Types and Purposes**
CORE CONTENT / CONTENT STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
CONTENT STANDARD / PERFORMANCE EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

EALR	**WA.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Production and Distribution of Writing**
CORE CONTENT / CONTENT STANDARD	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CORE CONTENT / CONTENT STANDARD	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.

Washington State K-12 Learning Standards and Guidelines

Science

Grade **8** - Adopted: **2014**

EALR	**WA.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BIG IDEA / CORE CONTENT	**MS-ESS3.**	**Earth and Human Activity**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

EALR	**WA.MS-ETS.**	**ENGINEERING DESIGN**

BIG IDEA / CORE CONTENT	**MS-ETS1.**	**Engineering Design**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade **8** - Adopted: **2010**

EALR	**WA.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Key Ideas and Details**
CORE CONTENT / CONTENT STANDARD	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
CORE CONTENT / CONTENT STANDARD	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

EALR	**WA.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BIG IDEA / CORE CONTENT		**Craft and Structure**
CORE CONTENT / CONTENT STANDARD	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.
CORE CONTENT / CONTENT STANDARD	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Integration of Knowledge and Ideas**
CORE CONTENT / CONTENT STANDARD	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

EALR	WA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Range of Reading and Level of Text Complexity**
CORE CONTENT / CONTENT STANDARD	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

EALR	WA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Text Types and Purposes**
CORE CONTENT / CONTENT STANDARD	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
CONTENT STANDARD / PERFORMANCE EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

EALR	WA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
BIG IDEA / CORE CONTENT		**Production and Distribution of Writing**
CORE CONTENT / CONTENT STANDARD	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
CORE CONTENT / CONTENT STANDARD	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.

Washington State K-12 Learning Standards and Guidelines

Technology Education

Grade **5** - Adopted: **2018**

EALR	WA.ET.3-5.	Educational Technology Learning Standards

BIG IDEA / CORE CONTENT	**3-5.4.**	**Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
CORE CONTENT / CONTENT STANDARD	3-5.4.b.	Students use digital and non-digital tools to plan and manage a design process.

EALR	**WA.ET.3-5.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**3-5.5.**	**Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
CORE CONTENT / CONTENT STANDARD	3-5.5.a.	Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator.
CORE CONTENT / CONTENT STANDARD	3-5.5.d.	Students understand and explore basic concepts related to automation, patterns and algorithmic thinking.

EALR		**Computer Science**
BIG IDEA / CORE CONTENT		**Level 1B: 3-5**
CORE CONTENT / CONTENT STANDARD	**1B-CS.**	**Computing Systems**
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-CS-03.	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (P. 6.2)

EALR		**Computer Science**
BIG IDEA / CORE CONTENT		**Level 1B: 3-5**
CORE CONTENT / CONTENT STANDARD	**1B-AP.**	**Algorithms and Programming**
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-08.	Compare and refine multiple algorithms for the same task and determine which is the most appropriate. (P. 6.3, P. 3.3)
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-11.	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. (P. 3.2)

CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-12.	Modify, remix, or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features. (P. 5.3)
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-13.	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. (P. 1.1, P. 5.1)
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-15.	Test and debug (identify and fix errors) a program or algorithm to ensure it runs as intended. (P. 6.1, P. 6.2)
EALR		**Computer Science**
BIG IDEA / CORE CONTENT		**Level 1B: 3-5**
CORE CONTENT / CONTENT STANDARD	**1B-IC.**	**Impacts of Computing**
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-IC-18.	Discuss computing technologies that have changed the world, and express how those technologies influence, and are influenced by, cultural practices. (P. 3.1)
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-IC-19.	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P. 1.2)

Washington State K-12 Learning Standards and Guidelines

Technology Education

Grade **6** - Adopted: **2018**

EALR	**WA.ET.6-8.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**6-8.3.**	**Knowledge Constructor - Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
CORE CONTENT / CONTENT STANDARD	6-8.3.d.	Students explore real-world issues and problems and actively pursue an understanding of them and solutions for them.

EALR	**WA.ET.6-8.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**6-8.4.**	**Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**

CORE CONTENT / CONTENT STANDARD	6-8.4.a.	Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

EALR	WA.ET.6-8.	Educational Technology Learning Standards
BIG IDEA / CORE CONTENT	**6-8.5.**	**Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
CORE CONTENT / CONTENT STANDARD	6-8.5.a.	Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.
CORE CONTENT / CONTENT STANDARD	6-8.5.d.	Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-CS.**	**Computing Systems**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-CS-01.	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices. (P. 3.3)
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-CS-03.	Systematically identify and fix problems with computing devices and their components. (P. 6.2)

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-AP.**	**Algorithms and Programming**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P. 4.4, 4.1)

CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-18.	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts. (P. 2.2)

EALR		**Computer Science**
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-IC.**	**Impacts of Computing**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P. 2.4, P. 5.2)

Washington State K-12 Learning Standards and Guidelines

Technology Education

Grade **7** - Adopted: **2018**

EALR	**WA.ET.6-8.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**6-8.3.**	**Knowledge Constructor - Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
CORE CONTENT / CONTENT STANDARD	6-8.3.d.	Students explore real-world issues and problems and actively pursue an understanding of them and solutions for them.

EALR	**WA.ET.6-8.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**6-8.4.**	**Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
CORE CONTENT / CONTENT STANDARD	6-8.4.a.	Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

EALR	**WA.ET.6-8.**	**Educational Technology Learning Standards**
BIG IDEA / CORE CONTENT	**6-8.5.**	**Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
CORE CONTENT / CONTENT STANDARD	6-8.5.a.	Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.

CORE CONTENT / CONTENT STANDARD	6-8.5.d.	Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-CS.**	**Computing Systems**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-CS-01.	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices. (P. 3.3)
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-CS-03.	Systematically identify and fix problems with computing devices and their components. (P. 6.2)

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-AP.**	**Algorithms and Programming**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P. 4.4, 4.1)
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EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-IC.**	**Impacts of Computing**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P. 2.4, P. 5.2)

EALR	WA.ET.6-8.	Educational Technology Learning Standards
BIG IDEA / CORE CONTENT	**6-8.3.**	**Knowledge Constructor - Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
CORE CONTENT / CONTENT STANDARD	6-8.3.d.	Students explore real-world issues and problems and actively pursue an understanding of them and solutions for them.

EALR	WA.ET.6-8.	Educational Technology Learning Standards
BIG IDEA / CORE CONTENT	**6-8.4.**	**Innovative Designer - Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
CORE CONTENT / CONTENT STANDARD	6-8.4.a.	Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

EALR	WA.ET.6-8.	Educational Technology Learning Standards
BIG IDEA / CORE CONTENT	**6-8.5.**	**Computational Thinker - Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
CORE CONTENT / CONTENT STANDARD	6-8.5.a.	Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.
CORE CONTENT / CONTENT STANDARD	6-8.5.d.	Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-CS.**	**Computing Systems**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-CS-01.	Recommend improvements to the design of computing devices, based on an analysis of how users interact with the devices. (P. 3.3)
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EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-AP.**	**Algorithms and Programming**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P. 4.4, 4.1)
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-18.	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts. (P. 2.2)

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-IC.**	**Impacts of Computing**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P. 2.4, P. 5.2)

West Virginia College and Career Readiness Standards

Mathematics

Grade **5** - Adopted: **2016**

CONTENT STANDARD / COURSE	WV.M.MHM.	Mathematical Habits of Mind
CONTENT STANDARD / OBJECTIVE	MHM1.	Make sense of problems and persevere in solving them.
CONTENT STANDARD / OBJECTIVE	MHM2.	Reason abstractly and quantitatively.
CONTENT STANDARD / OBJECTIVE	MHM3.	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / OBJECTIVE	MHM4.	Model with mathematics.

CONTENT STANDARD / OBJECTIVE	MHM5.	Use appropriate tools strategically.
CONTENT STANDARD / OBJECTIVE	MHM7.	Look for and make use of structure.

CONTENT STANDARD / COURSE	**WV.M.5.MD.**	**Measurement and Data**
CONTENT STANDARD / OBJECTIVE		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
OBJECTIVE / EXPECTATION	M.5.21.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

CONTENT STANDARD / COURSE	**WV.M.5.MD.**	**Measurement and Data**
CONTENT STANDARD / OBJECTIVE		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
OBJECTIVE / EXPECTATION	**M.5.22.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**
GRADE LEVEL EXPECTATION	M.5.22.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication).
GRADE LEVEL EXPECTATION	M.5.22.b.	Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems.

West Virginia College and Career Readiness Standards

Mathematics

Grade **6** - Adopted: **2016**

CONTENT STANDARD / COURSE	**WV.M.MHM.**	**Mathematical Habits of Mind**
CONTENT STANDARD / OBJECTIVE	MHM1.	Make sense of problems and persevere in solving them.
CONTENT STANDARD / OBJECTIVE	MHM2.	Reason abstractly and quantitatively.
CONTENT STANDARD / OBJECTIVE	MHM3.	Construct viable arguments and critique the reasoning of others.

CONTENT STANDARD / OBJECTIVE	MHM4.	Model with mathematics.
CONTENT STANDARD / OBJECTIVE	MHM5.	Use appropriate tools strategically.
CONTENT STANDARD / OBJECTIVE	MHM7.	Look for and make use of structure.
CONTENT STANDARD / COURSE	**WV.M.6.G.**	**Geometry**
CONTENT STANDARD / OBJECTIVE		**Solve real-world and mathematical problems involving area, surface area, and volume.**
OBJECTIVE / EXPECTATION	M.6.22.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

West Virginia College and Career Readiness Standards

Mathematics

Grade **7** - Adopted: **2016**

CONTENT STANDARD / COURSE	**WV.M.MHM.**	**Mathematical Habits of Mind**
CONTENT STANDARD / OBJECTIVE	MHM1.	Make sense of problems and persevere in solving them.
CONTENT STANDARD / OBJECTIVE	MHM2.	Reason abstractly and quantitatively.
CONTENT STANDARD / OBJECTIVE	MHM3.	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / OBJECTIVE	MHM4.	Model with mathematics.
CONTENT STANDARD / OBJECTIVE	MHM5.	Use appropriate tools strategically.
CONTENT STANDARD / OBJECTIVE	MHM7.	Look for and make use of structure.

Grade **8** - Adopted: **2016**

CONTENT STANDARD / COURSE	WV.M.MHM.	Mathematical Habits of Mind
CONTENT STANDARD / OBJECTIVE	MHM1.	Make sense of problems and persevere in solving them.
CONTENT STANDARD / OBJECTIVE	MHM2.	Reason abstractly and quantitatively.
CONTENT STANDARD / OBJECTIVE	MHM3.	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / OBJECTIVE	MHM4.	Model with mathematics.
CONTENT STANDARD / OBJECTIVE	MHM5.	Use appropriate tools strategically.
CONTENT STANDARD / OBJECTIVE	MHM7.	Look for and make use of structure.

CONTENT STANDARD / COURSE	WV.M.8.G.	Geometry
CONTENT STANDARD / OBJECTIVE		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
OBJECTIVE / EXPECTATION	M.8.24.	Know the formulas for the volumes of cones, cylinders and spheres and use them to solve real-world and mathematical problems.

West Virginia College and Career Readiness Standards

Science

Grade **5** - Adopted: **2021**

CONTENT STANDARD / COURSE		Science Indicators Grades 3-5
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Nature of Science**
GRADE LEVEL EXPECTATION		Science is a creative human endeavor which is influenced by social and cultural biases.

CONTENT STANDARD / COURSE		Science Indicators Grades 3-5

CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Practices of Scientists and Engineers**
GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions
GRADE LEVEL EXPECTATION		Obtaining, evaluating, and communicating information
CONTENT STANDARD / COURSE		**Science Indicators Grades 3-5**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Connecting Concepts**
GRADE LEVEL EXPECTATION		Investigating and explaining cause and effect
CONTENT STANDARD / COURSE		**Science Indicators Grades 3-5**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Literacy**
GRADE LEVEL EXPECTATION		Utilizing and connecting ideas among informational (factual) scientific texts
GRADE LEVEL EXPECTATION		Integrating and applying information presented in various media formats when writing and speaking
GRADE LEVEL EXPECTATION		Building and appropriately using science domain vocabulary and phrases
CONTENT STANDARD / COURSE		**Science – Grade 5**
CONTENT STANDARD / OBJECTIVE		**Engineering, Technology, and Applications of Science**
OBJECTIVE / EXPECTATION		**Engineering Design**
GRADE LEVEL EXPECTATION	S.5.15.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

GRADE LEVEL EXPECTATION	S.5.16.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	S.5.17.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

West Virginia College and Career Readiness Standards

Science

Grade **6** - Adopted: **2021**

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Nature of Science**
GRADE LEVEL EXPECTATION		Science is a creative human endeavor which is influenced by social and cultural biases.

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Practices of Scientists and Engineers**
GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions
GRADE LEVEL EXPECTATION		Obtaining, evaluating, and communicating information

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Connecting Concepts**
GRADE LEVEL EXPECTATION		Investigating and explaining cause and effect

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**

CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Literacy**
GRADE LEVEL EXPECTATION		Reading with understanding articles about science in the popular press and engaging in social conversation about the validity of the conclusions

CONTENT STANDARD / COURSE		**Science – Grade 6**
CONTENT STANDARD / OBJECTIVE		**PHYSICAL Science**
OBJECTIVE / EXPECTATION		**Waves and Electromagnetic Radiation**
GRADE LEVEL EXPECTATION	S.6.12.	Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

CONTENT STANDARD / COURSE		**Science – Grade 6**
CONTENT STANDARD / OBJECTIVE		**Engineering, Technology, and Applications of Science**
OBJECTIVE / EXPECTATION		**Engineering Design**
GRADE LEVEL EXPECTATION	S.6.20.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution.

West Virginia College and Career Readiness Standards

Science

Grade **7** - Adopted: **2021**

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Nature of Science**
GRADE LEVEL EXPECTATION		Science is a creative human endeavor which is influenced by social and cultural biases.

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Practices of Scientists and Engineers**

GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions
GRADE LEVEL EXPECTATION		Obtaining, evaluating, and communicating information
CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Connecting Concepts**
GRADE LEVEL EXPECTATION		Investigating and explaining cause and effect
CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Literacy**
GRADE LEVEL EXPECTATION		Reading with understanding articles about science in the popular press and engaging in social conversation about the validity of the conclusions
CONTENT STANDARD / COURSE		**Science – Grade 7**
CONTENT STANDARD / OBJECTIVE		**Engineering, Technology, and Applications of Science**
OBJECTIVE / EXPECTATION		**Engineering Design**
GRADE LEVEL EXPECTATION	S.7.22.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, considering limitations to solutions including scientific principles and potential relevant possible impacts on people and the environment.
GRADE LEVEL EXPECTATION	S.7.23.	Analyze data from tests to determine which characteristics of design can be combined into a new solution to better meet the criteria for success.

West Virginia College and Career Readiness Standards

Science

Grade **8** - Adopted: **2021**

CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**

CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Nature of Science**
GRADE LEVEL EXPECTATION		Science is a creative human endeavor which is influenced by social and cultural biases.
CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Practices of Scientists and Engineers**
GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions
GRADE LEVEL EXPECTATION		Obtaining, evaluating, and communicating information
CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Connecting Concepts**
GRADE LEVEL EXPECTATION		Investigating and explaining cause and effect
CONTENT STANDARD / COURSE		**Science Indicators Grades 6-8**
CONTENT STANDARD / OBJECTIVE		**College- and Career-Readiness Indicators for Science**
OBJECTIVE / EXPECTATION		**Science Literacy**
GRADE LEVEL EXPECTATION		Reading with understanding articles about science in the popular press and engaging in social conversation about the validity of the conclusions
CONTENT STANDARD / COURSE		**Science – Grade 8**
CONTENT STANDARD / OBJECTIVE		**Earth and Space Science**

OBJECTIVE / EXPECTATION		**Human Impacts**
GRADE LEVEL EXPECTATION	S.8.17.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD / COURSE		**Science – Grade 8**
CONTENT STANDARD / OBJECTIVE		**Engineering, Technology, and Applications of Science**
OBJECTIVE / EXPECTATION		**Engineering Design**
GRADE LEVEL EXPECTATION	S.8.18.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	S.8.19.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

West Virginia College and Career Readiness Standards

Technology Education

Grade **5** - Adopted: **2019**

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Technology 3-5**
OBJECTIVE / EXPECTATION		**Innovative Designer**
GRADE LEVEL EXPECTATION	T.3-5.13.	With support and guidance, select appropriate technology tools to solve problems and communicate information.
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Computer Science 3-5**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.3-5.1.	Verbalize the steps to solve a problem.
GRADE LEVEL EXPECTATION	CS.3-5.2.	Work together in a team to solve a problem.

West Virginia College and Career Readiness Standards

Technology Education

Grade **6** - Adopted: **2019**

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**

CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.6-8.1.	Analyze and devise problem-solving strategies cooperatively and collaboratively.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**
GRADE LEVEL EXPECTATION	CS.6-8.10.	Analyze the problem and use a tool (e.g., flow chart) to design an algorithm to solve complex problems.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.DCS.1.	Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
GRADE LEVEL EXPECTATION	CS.DCS.3.	Define an algorithm as a sequence of instructions that can be processed by a computer.
GRADE LEVEL EXPECTATION	CS.DCS.5.	Act out searching and sorting algorithms.
GRADE LEVEL EXPECTATION	CS.DCS.9.	Interact with content-specific models and simulations (e.g., ecosystems, epidemics, molecular dynamics) to support learning and research.
GRADE LEVEL EXPECTATION	CS.DCS.10.	Evaluate what kinds of problems can be solved using modeling and simulation.
GRADE LEVEL EXPECTATION	CS.DCS.12.	Use abstraction to decompose a problem into sub problems.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**

GRADE LEVEL EXPECTATION	CS.DCS.20.	Select appropriate tools and technology resources to accomplish a variety of tasks and solve problems.
GRADE LEVEL EXPECTATION	CS.DCS.23.	Demonstrate an understanding of algorithms and their practical application.
GRADE LEVEL EXPECTATION	CS.DCS.27.	Demonstrate characteristics used in open ended problem-solving and programming (e.g., comfort with complexity, persistence, brainstorming, adaptability, patience, propensity to tinker, creativity, accepting challenge).
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computers and Communications Devices**
GRADE LEVEL EXPECTATION	CS.DCS.36.	Describe ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).

West Virginia College and Career Readiness Standards

Technology Education

Grade **7** - Adopted: **2019**

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.6-8.1.	Analyze and devise problem-solving strategies cooperatively and collaboratively.
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**
GRADE LEVEL EXPECTATION	CS.6-8.10.	Analyze the problem and use a tool (e.g., flow chart) to design an algorithm to solve complex problems.
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**

GRADE LEVEL EXPECTATION	CS.DCS.1.	Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
GRADE LEVEL EXPECTATION	CS.DCS.3.	Define an algorithm as a sequence of instructions that can be processed by a computer.
GRADE LEVEL EXPECTATION	CS.DCS.5.	Act out searching and sorting algorithms.
GRADE LEVEL EXPECTATION	CS.DCS.9.	Interact with content-specific models and simulations (e.g., ecosystems, epidemics, molecular dynamics) to support learning and research.
GRADE LEVEL EXPECTATION	CS.DCS.10.	Evaluate what kinds of problems can be solved using modeling and simulation.
GRADE LEVEL EXPECTATION	CS.DCS.12.	Use abstraction to decompose a problem into sub problems.
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**
GRADE LEVEL EXPECTATION	CS.DCS.20.	Select appropriate tools and technology resources to accomplish a variety of tasks and solve problems.
GRADE LEVEL EXPECTATION	CS.DCS.23.	Demonstrate an understanding of algorithms and their practical application.
GRADE LEVEL EXPECTATION	CS.DCS.27.	Demonstrate characteristics used in open ended problem-solving and programming (e.g., comfort with complexity, persistence, brainstorming, adaptability, patience, propensity to tinker, creativity, accepting challenge).
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computers and Communications Devices**
GRADE LEVEL EXPECTATION	CS.DCS.36.	Describe ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).

West Virginia College and Career Readiness Standards

Technology Education

Grade **8** - Adopted: **2019**

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**

CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.6-8.1.	Analyze and devise problem-solving strategies cooperatively and collaboratively.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Computer Science 6-8**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**
GRADE LEVEL EXPECTATION	CS.6-8.10.	Analyze the problem and use a tool (e.g., flow chart) to design an algorithm to solve complex problems.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computer Systems and Computational Thinking**
GRADE LEVEL EXPECTATION	CS.DCS.1.	Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
GRADE LEVEL EXPECTATION	CS.DCS.3.	Define an algorithm as a sequence of instructions that can be processed by a computer.
GRADE LEVEL EXPECTATION	CS.DCS.5.	Act out searching and sorting algorithms.
GRADE LEVEL EXPECTATION	CS.DCS.9.	Interact with content-specific models and simulations (e.g., ecosystems, epidemics, molecular dynamics) to support learning and research.
GRADE LEVEL EXPECTATION	CS.DCS.10.	Evaluate what kinds of problems can be solved using modeling and simulation.
GRADE LEVEL EXPECTATION	CS.DCS.12.	Use abstraction to decompose a problem into sub problems.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**

GRADE LEVEL EXPECTATION	CS.DCS.20.	Select appropriate tools and technology resources to accomplish a variety of tasks and solve problems.
GRADE LEVEL EXPECTATION	CS.DCS.23.	Demonstrate an understanding of algorithms and their practical application.
GRADE LEVEL EXPECTATION	CS.DCS.27.	Demonstrate characteristics used in open ended problem-solving and programming (e.g., comfort with complexity, persistence, brainstorming, adaptability, patience, propensity to tinker, creativity, accepting challenge).
CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Discovering Computer Science**
OBJECTIVE / EXPECTATION		**Computers and Communications Devices**
GRADE LEVEL EXPECTATION	CS.DCS.36.	Describe ways in which computers use models of intelligent behavior (e.g., robot motion, speech and language understanding, and computer vision).

Wisconsin Academic Standards

Mathematics

Grade **5** - Adopted: **2021**

DOMAIN		**Standards for Mathematical Practice**
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.
CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.
CONTENT STANDARD	Math Practice 4:	Model with mathematics.
CONTENT STANDARD	Math Practice 5:	Use appropriate tools strategically.
CONTENT STANDARD	Math Practice 7:	Look for and make use of structure.
DOMAIN		**Grade 5 Content Standards**
CONTENT STANDARD	**M.5.MD.**	**Measurement and Data (5.MD)**

PERFORMANCE STANDARD / LEARNING PRIORITY	**M.5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
DESCRIPTOR / FOCUS AREA	M.5.MD.C.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units.

DOMAIN		**Grade 5 Content Standards**
CONTENT STANDARD	**M.5.MD.**	**Measurement and Data (5.MD)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**M.5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
DESCRIPTOR / FOCUS AREA	**M.5.MD.C.5.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**
LEARNING CONTINUUM	M.5.MD.C.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
LEARNING CONTINUUM	M.5.MD.C.5.b.	Apply the formulas V = l x w x h and V = B x h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems.

Wisconsin Academic Standards

Mathematics

Grade **6** - Adopted: **2021**

DOMAIN		**Standards for Mathematical Practice**
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.
CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.
CONTENT STANDARD	Math Practice 4:	Model with mathematics.
CONTENT STANDARD	Math Practice 5:	Use appropriate tools strategically.
CONTENT STANDARD	Math Practice 7:	Look for and make use of structure.

DOMAIN		Grade 6 Content Standards
CONTENT STANDARD	**M.6.G.**	**Geometry (6.G)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**M.6.G.A.**	**Solve real-world and mathematical problems involving area, surface area, and volume. (M)**
DESCRIPTOR / FOCUS AREA	M.6.G.A.2.	Find volumes of right rectangular prisms with fractional edge lengths by using physical or virtual unit cubes. Develop (construct) and apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms in the context of solving real-world and mathematical problems.

Wisconsin Academic Standards

Mathematics

Grade **7** - Adopted: **2021**

DOMAIN		Standards for Mathematical Practice
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.
CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.
CONTENT STANDARD	Math Practice 4:	Model with mathematics.
CONTENT STANDARD	Math Practice 5:	Use appropriate tools strategically.
CONTENT STANDARD	Math Practice 7:	Look for and make use of structure.

Wisconsin Academic Standards

Mathematics

Grade **8** - Adopted: **2021**

DOMAIN		Standards for Mathematical Practice
CONTENT STANDARD	Math Practice 1:	Make sense of problems and persevere in solving them.
CONTENT STANDARD	Math Practice 2:	Reason abstractly and quantitatively.

CONTENT STANDARD	Math Practice 3:	Construct viable arguments, and appreciate and critique the reasoning of others.
CONTENT STANDARD	Math Practice 4:	Model with mathematics.
CONTENT STANDARD	Math Practice 5:	Use appropriate tools strategically.
CONTENT STANDARD	Math Practice 7:	Look for and make use of structure.

DOMAIN		Grade 8 Content Standards
CONTENT STANDARD	**M.8.G.**	**Geometry (8.G)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**M.8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres. (M)**
DESCRIPTOR / FOCUS AREA	M.8.G.C.9.	Know the relationship among the formulas for the volumes of cones, cylinders, and spheres (given the same height and diameter) and use them to solve real-world and mathematical problems.

Wisconsin Academic Standards

Science

Grade **5** - Adopted: **2017**

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC2.**	**Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Cause and Effect**
LEARNING CONTINUUM	SCI.CC2.3-5.	Students routinely identify and test causal relationships and use these relationships to explain change. They understand events that occur together with regularity may or may not signify a cause and effect relationship.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP2.**	**Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP2.A.**	**Developing Models – Students build and revise simple models and use models to represent events and design solutions. This includes the following:**
LEARNING CONTINUUM	SCI.SEP2.A.3-5.1.	Identify limitations of models.

LEARNING CONTINUUM	SCI.SEP2.A.3-5.5.	Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.SEP 3.	Students plan and carry out investigations, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 3.A.	Planning and Conducting Investigations – Students plan and carry out investigations that control variables and provide evidence to support explanations or design solutions. This includes the following:
LEARNING CONTINUUM	SCI.SEP3.A.3-5.2.	Evaluate appropriate methods and tools for collecting data.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.A.	Construct an Explanation – Students use evidence to construct explanations that specify variables which describe and predict phenomena. This includes the following:
LEARNING CONTINUUM	SCI.SEP 6.A.3-5.1.	Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
LEARNING CONTINUUM	SCI.SEP 6.A.3-5.2.	Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation.
LEARNING CONTINUUM	SCI.SEP 6.A.3-5.3.	Identify the evidence that supports particular points in an explanation.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.SEP.	Science and Engineering Practices (SEP)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.SEP 6.	Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.SEP 6.B.	Design Solutions – Students use evidence to create multiple solutions to design problems. This includes the following:
LEARNING CONTINUUM	SCI.SEP 6.B.3-5.1.	Apply scientific ideas to solve design problems.
LEARNING CONTINUUM	SCI.SEP 6.B.3-5.2.	Generate multiple solutions to a problem and compare how well they meet the criteria and constraints.

DOMAIN	WI.SCI.	Science

CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 8.**	**Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 8.A.**	**Obtain, Evaluate, and Communicate Information – Students evaluate the merit and accuracy of ideas and methods. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 8.A.3-5.1.	Read and comprehend grade-appropriate complex texts and other reliable media to summarize and obtain scientific and technical ideas, and describe how they are supported by evidence.
LEARNING CONTINUUM	SCI.SEP 8.A.3-5.5.	Communicate scientific and technical information orally or in written formats, including various forms of media, which may include tables, diagrams, and charts.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.A.**	**Defining and Delimiting Engineering Problems**
LEARNING CONTINUUM	SCI.ETS1.A.3-5.	Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.B.**	**Developing Possible Solutions**
LEARNING CONTINUUM	SCI.ETS1.B.3-5.1.	Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.
LEARNING CONTINUUM	SCI.ETS1.B.3-5.3.	Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 2.A.**	**Interdependence of Science, Engineering, and Technology**

LEARNING CONTINUUM	SCI.ETS2.A.3-5.1.	Science and technology support each other.
LEARNING CONTINUUM	SCI.ETS2.A.3-5.2.	Tools and instruments are used to answer scientific questions, while scientific discoveries lead to the development of new technologies.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ETS.	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.ETS2.	Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS2.B.	Influence of Engineering, Technology, and Science on Society and the Natural World
LEARNING CONTINUUM	SCI.ETS2.B.3-5.1.	People's needs and wants change over time, as do their demands for new and improved technologies.
LEARNING CONTINUUM	SCI.ETS2.B.3-5.3.	When new technologies become available, they can bring about changes in the way people live and interact with one another.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ETS.	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.ETS3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS3.A.	Science and Engineering Are Human Endeavors
LEARNING CONTINUUM	SCI.ETS3.A.3-5.3.	Science and engineering affect everyday life.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ETS.	Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.ETS3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ETS3.C.	Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems
LEARNING CONTINUUM	SCI.ETS3.C.3-5.1.	The products of science and engineering are not developed through one set "scientific method" or "engineering design process." Instead, they use a variety of approaches described in the Science and Engineering Practices.
LEARNING CONTINUUM	SCI.ETS3.C.3-5.3.	There is no perfect design in engineering. Designs that are best in some ways (e.g. safety or ease of use) may be inferior in other ways (e.g. cost or aesthetics).

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC2.**	**Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Cause and Effect**
LEARNING CONTINUUM	SCI.CC2.m.	Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 2.**	**Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 2.A.**	**Developing Models – Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following:**
LEARNING CONTINUUM	SCI.SEP2.A.m.1.	Evaluate limitations of a model for a proposed object or tool.
LEARNING CONTINUUM	SCI.SEP2.A.m.2.	Develop or modify a model – based on evidence – to match what happens if a variable or component of a system is changed.
LEARNING CONTINUUM	SCI.SEP2.A.m.3.	Use and develop a model of simple systems with uncertain and less predictable factors.
LEARNING CONTINUUM	SCI.SEP2.A.m.4.	Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.5.	Develop and use a model to predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.6.	Develop a model to describe unobservable mechanisms.
LEARNING CONTINUUM	SCI.SEP2.A.m.7.	Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 5.**	**Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**

DESCRIPTOR / FOCUS AREA	**SCI.SEP 5.A.**	**Qualitative and Quantitative Data – Students identify patterns in large data sets and use mathematical concepts to support explanations and arguments. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 5.A.m.2.	Use digital tools (e.g., computers) to analyze very large data sets for patterns and trends.
LEARNING CONTINUUM	SCI.SEP 5.A.m.3.	Use mathematical representations to describe and support scientific conclusions and design solutions.
LEARNING CONTINUUM	SCI.SEP 5.A.m.4.	Create algorithms (a series of ordered steps) to solve a problem.
LEARNING CONTINUUM	SCI.SEP 5.A.m.6.	Use digital tools and mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.A.**	**Construct an Explanation – Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 6.A.m.1.	Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP 6.A.m.2.	Construct an explanation using models or representations.
LEARNING CONTINUUM	SCI.SEP 6.A.m.3.	Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
LEARNING CONTINUUM	SCI.SEP 6.A.m.4.	Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world phenomena, examples, or events.
LEARNING CONTINUUM	SCI.SEP 6.A.m.5.	Apply scientific reasoning to show why the data or evidence is adequate for the explanation.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.B.**	**Design Solutions – Students design solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 6.B.m.1.	Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process, or system.

LEARNING CONTINUUM	SCI.SEP 6.B.m.2.	Undertake a design project, engaging in the design cycle, to construct and implement a solution that meets specific design criteria and constraints.
LEARNING CONTINUUM	SCI.SEP 6.B.m.3.	Optimize performance of a design by prioritizing criteria, making trade-offs, testing, revising, and retesting.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 8.**	**Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 8.A.**	**Obtain, Evaluate, and Communicate Information – Students evaluate the merit and validity of ideas and methods. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 8.A.m.1.	Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s).
LEARNING CONTINUUM	SCI.SEP 8.A.m.5.	Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.A.**	**Defining and Delimiting Engineering Problems**
LEARNING CONTINUUM	SCI.ETS1 .A.m.	The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.B.**	**Developing Possible Solutions**
LEARNING CONTINUUM	SCI.ETS1 .B.m.1.	A solution needs to be tested and then modified on the basis of the test results in order to improve it.
LEARNING CONTINUUM	SCI.ETS1 .B.m.2.	There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.
LEARNING CONTINUUM	SCI.ETS1 .B.m.3.	Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.

LEARNING CONTINUUM	SCI.ETS1.B.m.4.	Models of all kinds are important for testing solutions.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS1.C.**	**Optimizing the Design Solution**
LEARNING CONTINUUM	SCI.ETS1.C.m.2.	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS2.A.**	**Interdependence of Science, Engineering, and Technology**
LEARNING CONTINUUM	SCI.ETS2.A.m.1.	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
LEARNING CONTINUUM	SCI.ETS2.A.m.2.	Science and technology drive each other forward.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS2.B.**	**Influence of Engineering, Technology, and Science on Society and the Natural World**
LEARNING CONTINUUM	SCI.ETS2.B.m.2.	The uses of technologies are driven by people's needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.
LEARNING CONTINUUM	SCI.ETS2.B.m.3.	Technology use varies over time and from region to region.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**

DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.A.**	**Science and Engineering Are Human Endeavors**
LEARNING CONTINUUM	SCI.ETS3 .A.m.2.	Scientists and engineers are persistent, use creativity, reasoning, and skepticism, and remain open to new ideas.
LEARNING CONTINUUM	SCI.ETS3 .A.m.3.	Science and engineering are influenced by what is valued in society.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.B.**	**Science and Engineering Are Unique Ways of Thinking with Different Purposes**
LEARNING CONTINUUM	SCI.ETS3 .B.m.2.	Engineering seeks solutions to human problems, including issues that arise due to human interaction with the environment. It uses some of the same practices as science and often applies scientific principles to solutions.
LEARNING CONTINUUM	SCI.ETS3 .B.m.3.	Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that requires honesty, fairness and dedication to public health, safety and welfare.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.C.**	**Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems**
LEARNING CONTINUUM	SCI.ETS3 .C.m.3.	Engineers develop solutions using multiple approaches and evaluate their solutions against criteria such as cost, safety, time and performance. This evaluation often involves trade-offs between constraints to find the optimal solution.

Wisconsin Academic Standards

Science

Grade **7** - Adopted: **2017**

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC2 .**	**Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Cause and Effect**

LEARNING CONTINUUM	SCI.CC2.m.	Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 2.**	**Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 2.A.**	**Developing Models – Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following:**
LEARNING CONTINUUM	SCI.SEP2.A.m.1.	Evaluate limitations of a model for a proposed object or tool.
LEARNING CONTINUUM	SCI.SEP2.A.m.2.	Develop or modify a model – based on evidence – to match what happens if a variable or component of a system is changed.
LEARNING CONTINUUM	SCI.SEP2.A.m.3.	Use and develop a model of simple systems with uncertain and less predictable factors.
LEARNING CONTINUUM	SCI.SEP2.A.m.4.	Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.5.	Develop and use a model to predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.6.	Develop a model to describe unobservable mechanisms.
LEARNING CONTINUUM	SCI.SEP2.A.m.7.	Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 5.**	**Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 5.A.**	**Qualitative and Quantitative Data – Students identify patterns in large data sets and use mathematical concepts to support explanations and arguments. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 5.A.m.2.	Use digital tools (e.g., computers) to analyze very large data sets for patterns and trends.
LEARNING CONTINUUM	SCI.SEP 5.A.m.3.	Use mathematical representations to describe and support scientific conclusions and design solutions.
LEARNING CONTINUUM	SCI.SEP 5.A.m.4.	Create algorithms (a series of ordered steps) to solve a problem.

LEARNING CONTINUUM	SCI.SEP 5.A.m.6.	Use digital tools and mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.A.**	**Construct an Explanation – Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 6.A.m.1.	Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP 6.A.m.2.	Construct an explanation using models or representations.
LEARNING CONTINUUM	SCI.SEP 6.A.m.3.	Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
LEARNING CONTINUUM	SCI.SEP 6.A.m.4.	Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world phenomena, examples, or events.
LEARNING CONTINUUM	SCI.SEP 6.A.m.5.	Apply scientific reasoning to show why the data or evidence is adequate for the explanation.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.B.**	**Design Solutions – Students design solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 6.B.m.1.	Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process, or system.
LEARNING CONTINUUM	SCI.SEP 6.B.m.2.	Undertake a design project, engaging in the design cycle, to construct and implement a solution that meets specific design criteria and constraints.
LEARNING CONTINUUM	SCI.SEP 6.B.m.3.	Optimize performance of a design by prioritizing criteria, making trade-offs, testing, revising, and retesting.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**

PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 8.**	**Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 8.A.**	**Obtain, Evaluate, and Communicate Information – Students evaluate the merit and validity of ideas and methods. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 8.A.m.1.	Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s).
LEARNING CONTINUUM	SCI.SEP 8.A.m.5.	Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.A.**	**Defining and Delimiting Engineering Problems**
LEARNING CONTINUUM	SCI.ETS1 .A.m.	The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.B.**	**Developing Possible Solutions**
LEARNING CONTINUUM	SCI.ETS1 .B.m.1.	A solution needs to be tested and then modified on the basis of the test results in order to improve it.
LEARNING CONTINUUM	SCI.ETS1 .B.m.2.	There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.
LEARNING CONTINUUM	SCI.ETS1 .B.m.3.	Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.
LEARNING CONTINUUM	SCI.ETS1 .B.m.4.	Models of all kinds are important for testing solutions.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**

DESCRIPTOR / FOCUS AREA	**SCI.ETS 1.C.**	**Optimizing the Design Solution**
LEARNING CONTINUUM	SCI.ETS1 .C.m.2.	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 2.A.**	**Interdependence of Science, Engineering, and Technology**
LEARNING CONTINUUM	SCI.ETS2 .A.m.1.	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
LEARNING CONTINUUM	SCI.ETS2 .A.m.2.	Science and technology drive each other forward.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 2.B.**	**Influence of Engineering, Technology, and Science on Society and the Natural World**
LEARNING CONTINUUM	SCI.ETS2 .B.m.2.	The uses of technologies are driven by people's needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.
LEARNING CONTINUUM	SCI.ETS2 .B.m.3.	Technology use varies over time and from region to region.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.A.**	**Science and Engineering Are Human Endeavors**
LEARNING CONTINUUM	SCI.ETS3 .A.m.2.	Scientists and engineers are persistent, use creativity, reasoning, and skepticism, and remain open to new ideas.
LEARNING CONTINUUM	SCI.ETS3 .A.m.3.	Science and engineering are influenced by what is valued in society.

DOMAIN	**WI.SCI.**	**Science**

CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS3.B.**	**Science and Engineering Are Unique Ways of Thinking with Different Purposes**
LEARNING CONTINUUM	SCI.ETS3.B.m.2.	Engineering seeks solutions to human problems, including issues that arise due to human interaction with the environment. It uses some of the same practices as science and often applies scientific principles to solutions.
LEARNING CONTINUUM	SCI.ETS3.B.m.3.	Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that requires honesty, fairness and dedication to public health, safety and welfare.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS3.C.**	**Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems**
LEARNING CONTINUUM	SCI.ETS3.C.m.3.	Engineers develop solutions using multiple approaches and evaluate their solutions against criteria such as cost, safety, time and performance. This evaluation often involves trade-offs between constraints to find the optimal solution.

Wisconsin Academic Standards

Science

Grade **8** - Adopted: **2017**

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC2.**	**Students use science and engineering practices, disciplinary core ideas, and cause and effect relationships to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Cause and Effect**
LEARNING CONTINUUM	SCI.CC2.m.	Students classify relationships as causal or correlational, and recognize correlation does not necessarily imply causation. They use cause and effect relationships to predict phenomena in natural or designed systems. They also understand that phenomena may have more than one cause, and some cause and effect relationships in systems can only be explained using probability.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP2.**	**Students develop and use models, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP2.A.**	**Developing Models – Students develop, use, and revise models to describe, test, and predict more abstract phenomena and design systems. This includes the following:**

LEARNING CONTINUUM	SCI.SEP2.A.m.1.	Evaluate limitations of a model for a proposed object or tool.
LEARNING CONTINUUM	SCI.SEP2.A.m.2.	Develop or modify a model – based on evidence – to match what happens if a variable or component of a system is changed.
LEARNING CONTINUUM	SCI.SEP2.A.m.3.	Use and develop a model of simple systems with uncertain and less predictable factors.
LEARNING CONTINUUM	SCI.SEP2.A.m.4.	Develop and/or revise a model to show the relationships among variables, including those that are not observable but predict observable phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.5.	Develop and use a model to predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP2.A.m.6.	Develop a model to describe unobservable mechanisms.
LEARNING CONTINUUM	SCI.SEP2.A.m.7.	Develop and use a model to generate data to test ideas about phenomena in natural or designed systems, including those representing inputs and outputs, and those at unobservable scales.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 5.**	**Students use mathematics and computational thinking, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 5.A.**	**Qualitative and Quantitative Data – Students identify patterns in large data sets and use mathematical concepts to support explanations and arguments. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 5.A.m.2.	Use digital tools (e.g., computers) to analyze very large data sets for patterns and trends.
LEARNING CONTINUUM	SCI.SEP 5.A.m.3.	Use mathematical representations to describe and support scientific conclusions and design solutions.
LEARNING CONTINUUM	SCI.SEP 5.A.m.4.	Create algorithms (a series of ordered steps) to solve a problem.
LEARNING CONTINUUM	SCI.SEP 5.A.m.6.	Use digital tools and mathematical concepts and arguments to test and compare proposed solutions to an engineering design problem.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.A.**	**Construct an Explanation – Students construct explanations supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**

LEARNING CONTINUUM	SCI.SEP 6.A.m.1.	Construct an explanation that includes qualitative or quantitative relationships between variables that predict and describe phenomena.
LEARNING CONTINUUM	SCI.SEP 6.A.m.2.	Construct an explanation using models or representations.
LEARNING CONTINUUM	SCI.SEP 6.A.m.3.	Construct a scientific explanation based on valid and reliable evidence obtained from sources, including the students' own experiments. Solutions should build on the following assumption: theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
LEARNING CONTINUUM	SCI.SEP 6.A.m.4.	Apply scientific ideas, principles, and evidence to construct, revise, or use an explanation for real world phenomena, examples, or events.
LEARNING CONTINUUM	SCI.SEP 6.A.m.5.	Apply scientific reasoning to show why the data or evidence is adequate for the explanation.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 6.**	**Students construct explanations and design solutions, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 6.B.**	**Design Solutions – Students design solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 6.B.m.1.	Apply scientific ideas or principles to design, construct, and test a design of an object, tool, process, or system.
LEARNING CONTINUUM	SCI.SEP 6.B.m.2.	Undertake a design project, engaging in the design cycle, to construct and implement a solution that meets specific design criteria and constraints.
LEARNING CONTINUUM	SCI.SEP 6.B.m.3.	Optimize performance of a design by prioritizing criteria, making trade-offs, testing, revising, and retesting.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.SEP.**	**Science and Engineering Practices (SEP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.SEP 8.**	**Students will obtain, evaluate and communicate information, in conjunction with using crosscutting concepts and disciplinary core ideas, to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.SEP 8.A.**	**Obtain, Evaluate, and Communicate Information – Students evaluate the merit and validity of ideas and methods. This includes the following:**
LEARNING CONTINUUM	SCI.SEP 8.A.m.1.	Critically read scientific texts adapted for classroom use to determine the central ideas, to obtain scientific and technical information, and to describe patterns in and evidence about the natural and designed world(s).
LEARNING CONTINUUM	SCI.SEP 8.A.m.5.	Communicate scientific and technical information (e.g. about a proposed object, tool, process, or system) in writing and through oral presentations.

DOMAIN	**WI.SCI.**	**Science**

CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS1.A.**	**Defining and Delimiting Engineering Problems**
LEARNING CONTINUUM	SCI.ETS1.A.m.	The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS1.B.**	**Developing Possible Solutions**
LEARNING CONTINUUM	SCI.ETS1.B.m.1.	A solution needs to be tested and then modified on the basis of the test results in order to improve it.
LEARNING CONTINUUM	SCI.ETS1.B.m.2.	There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.
LEARNING CONTINUUM	SCI.ETS1.B.m.3.	Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors.
LEARNING CONTINUUM	SCI.ETS1.B.m.4.	Models of all kinds are important for testing solutions.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS1.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of engineering design to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS1.C.**	**Optimizing the Design Solution**
LEARNING CONTINUUM	SCI.ETS1.C.m.2.	The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**

DESCRIPTOR / FOCUS AREA	**SCI.ETS 2.A.**	**Interdependence of Science, Engineering, and Technology**
LEARNING CONTINUUM	SCI.ETS2 .A.m.1.	Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.
LEARNING CONTINUUM	SCI.ETS2 .A.m.2.	Science and technology drive each other forward.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 2.B.**	**Influence of Engineering, Technology, and Science on Society and the Natural World**
LEARNING CONTINUUM	SCI.ETS2 .B.m.2.	The uses of technologies are driven by people's needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.
LEARNING CONTINUUM	SCI.ETS2 .B.m.3.	Technology use varies over time and from region to region.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.A.**	**Science and Engineering Are Human Endeavors**
LEARNING CONTINUUM	SCI.ETS3 .A.m.2.	Scientists and engineers are persistent, use creativity, reasoning, and skepticism, and remain open to new ideas.
LEARNING CONTINUUM	SCI.ETS3 .A.m.3.	Science and engineering are influenced by what is valued in society.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS .**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS 3.B.**	**Science and Engineering Are Unique Ways of Thinking with Different Purposes**
LEARNING CONTINUUM	SCI.ETS3 .B.m.2.	Engineering seeks solutions to human problems, including issues that arise due to human interaction with the environment. It uses some of the same practices as science and often applies scientific principles to solutions.

LEARNING CONTINUUM	SCI.ETS3.B.m.3.	Science and engineering have direct impacts on the quality of life for all people. Therefore, scientists and engineers need to pursue their work in an ethical manner that requires honesty, fairness and dedication to public health, safety and welfare.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ETS.**	**Disciplinary Core Idea: Engineering, Technology, and the Application of Science (ETS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ETS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and engineering to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ETS3.C.**	**Science and Engineering Use Multiple Approaches to Create New Knowledge and Solve Problems**

LEARNING CONTINUUM	SCI.ETS3.C.m.3.	Engineers develop solutions using multiple approaches and evaluate their solutions against criteria such as cost, safety, time and performance. This evaluation often involves trade-offs between constraints to find the optimal solution.

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Grade **5** - Adopted: **2017**

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP1.**	**Students will recognize and define computational problems using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP1.a.**	**Develop algorithms.**

LEARNING CONTINUUM	CS.AP1.a.4.i.	Construct and execute algorithms (sets of step-by-step instructions), which include sequencing, loops, and conditionals to accomplish a task, both independently and collaboratively, with or without a computing device.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP2.**	**Students will create computational artifacts using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP2.a.**	**Develop and implement an artifact.**

LEARNING CONTINUUM	CS.AP2.a.3.i.	Construct programs in order to solve a problem or for creative expression, which include sequencing, events, loops, conditionals, parallelism and variables, using a block-based visual programming language or text based language, both independently and collaboratively (e.g., pair programming).

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**

DESCRIPTOR / FOCUS AREA	**CS.AP3.b.**	**Communicate about technical and social issues.**
LEARNING CONTINUUM	CS.AP3.b.2.i.	Understand that algorithms have impacted society in both beneficial and harmful ways.
LEARNING CONTINUUM	CS.AP3.b.3.i.	Compare different problem solving techniques.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP5.**	**Students will collaborate with diverse teams.**
DESCRIPTOR / FOCUS AREA	**CS.AP5.a.**	**Work together to solve computational problems using a variety of resources.**
LEARNING CONTINUUM	CS.AP5.a.4.i.	Understand there are many resources that can be used/tapped to solve a problem.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP6.**	**Students will test and refine computational solutions.**
DESCRIPTOR / FOCUS AREA	**CS.AP6.b.**	**Develop and apply success criteria.**
LEARNING CONTINUUM	CS.AP6.b.1.i.	Determine the correctness of a computational problem solution by listening to a classmate describe the solution.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.CS.**	**Content Area: Computing Systems (CS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.CS2.**	**Students will test and refine computing systems.**
DESCRIPTOR / FOCUS AREA	**CS.CS2.a.**	**Problem solve and debug.**
LEARNING CONTINUUM	CS.CS2.a.2.i.	Identify, using accurate terminology, simple hardware and software problems that may occur during use, and apply strategies for solving problems (e.g., reboot device, check for power, check network availability, close and reopen app).

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC2.**	**Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.**

DESCRIPTOR / FOCUS AREA	**ITL.KC2.b.**	**Build knowledge by actively exploring real-world issues and problems.**
LEARNING CONTINUUM	ITL.KC2.b.4.i.	Connect learning to age-appropriate real-world issues and problems and begin to develop questions for problem solving.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID1.**	**Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.**
DESCRIPTOR / FOCUS AREA	**ITL.ID1.a.**	**Find authentic problems in local and global contexts.**
LEARNING CONTINUUM	ITL.ID1.a.2.i.	Identify and describe problems or challenges that affect the community. Analyze all conditions that make it a problem.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID1.**	**Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.**
DESCRIPTOR / FOCUS AREA	**ITL.ID1.b.**	**Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems.**
LEARNING CONTINUUM	ITL.ID1.b.2.i.	Demonstrate perseverance when working with authentic, open-ended problems.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID2.**	**Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.**
DESCRIPTOR / FOCUS AREA	**ITL.ID2.a.**	**Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions.**
LEARNING CONTINUUM	ITL.ID2.a.2.i.	Explore and practice how a deliberate design process works to generate ideas, considers solutions, plans to solve a problem, and creates innovative products to share with others.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID2.**	**Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.**
DESCRIPTOR / FOCUS AREA	**ITL.ID2.c.**	**Develop, test, and refine prototypes as part of a cyclical design process.**

LEARNING CONTINUUM	ITL.ID2.c.2.i.	Engage in an iterative process to develop and test prototypes and reflect on the role that trial and error plays in the design process.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANCE STANDARD / LEARNING PRIORITY	ITL.CT1.	Students develop and employ strategies for understanding and solving problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1.a.	Identify, define, and interpret problems where digital tools can assist in finding solutions.

LEARNING CONTINUUM	ITL.CT1.a.2.i.	Identify problems and select appropriate digital tools to analyze and explore solutions.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	ITL.CT.	Content Area: Computational Thinker (CT)
PERFORMANCE STANDARD / LEARNING PRIORITY	ITL.CT1.	Students develop and employ strategies for understanding and solving problems.
DESCRIPTOR / FOCUS AREA	ITL.CT1.b.	Collect data, then identify and use digital tools to analyze and represent the data to find solutions.

LEARNING CONTINUUM	ITL.CT1.b.2.i.	Utilize age-appropriate digital tools to collect data, design, code, test and verify possible solutions collect and represent data to discuss results and share conclusions.

Wisconsin Academic Standards

Technology Education

Grade **6** - Adopted: **2017**

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANCE STANDARD / LEARNING PRIORITY	CS.AP1.	Students will recognize and define computational problems using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP1.a.	Develop algorithms.

LEARNING CONTINUUM	CS.AP1.a.6.m.	Decompose a computational problem into parts and create solutions for one or more parts.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	CS.AP.	Content Area: Algorithms and Programming (AP)
PERFORMANCE STANDARD / LEARNING PRIORITY	CS.AP2.	Students will create computational artifacts using algorithms and programming.
DESCRIPTOR / FOCUS AREA	CS.AP2.a.	Develop and implement an artifact.

LEARNING CONTINUUM	CS.AP2.a.6.m.	Develop programs, both independently and collaboratively, which include sequencing with nested loops and multiple branches [Clarification: At this level, students may use block-based and/or text-based languages].
LEARNING CONTINUUM	CS.AP2.a.8.m.	Use an iterative design process (e.g., define the problem, generate ideas, build, test, and improve solutions) to solve computational problems, both independently and collaboratively.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**
DESCRIPTOR / FOCUS AREA	**CS.AP3.b.**	**Communicate about technical and social issues.**
LEARNING CONTINUUM	CS.AP3.b.5.m.	Discuss how algorithms have impacted society – both the beneficial and harmful effects.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**
DESCRIPTOR / FOCUS AREA	**CS.AP3.c.**	**Document code.**
LEARNING CONTINUUM	CS.AP3.c.1.m.	Interpret the flow of execution of algorithms and predict their outcomes. [Clarification: Algorithms can be expressed using natural language, flow and control diagrams, comments within code, and pseudocode.]

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.DA.**	**Content Area: Data and Analysis (DA)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.DA1.**	**Students will create computational artifacts using data and analysis.**
DESCRIPTOR / FOCUS AREA	**CS.DA1.a.**	**Represent and manipulate data.**
LEARNING CONTINUUM	CS.DA1.a.3.m.	Represent data using different encoding schemes (e.g., binary, Unicode, Morse code, shorthand, student-created codes).

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC1.**	**Students critically curate a variety of digital tools and diverse resources.**
DESCRIPTOR / FOCUS AREA	**ITL.KC1.a.**	**Plan and employ effective research strategies.**

LEARNING CONTINUUM	ITL.KC1.a.9.m.	Demonstrate and practice using an inquiry-based process that involves asking questions, investigating the answers, and developing new understandings for personal or academic learning activities.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC2.**	**Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.**
DESCRIPTOR / FOCUS AREA	**ITL.KC2.b.**	**Build knowledge by actively exploring real-world issues and problems.**

LEARNING CONTINUUM	ITL.KC2.b.5.m.	Demonstrate initiative and engagement by posing questions and investigating the answers beyond the collection of superficial facts.
LEARNING CONTINUUM	ITL.KC2.b.6.m.	Explore real-world issues and problems and actively pursue an understanding of them. Begin to develop answers and solutions for problem solving.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID1.**	**Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.**
DESCRIPTOR / FOCUS AREA	**ITL.ID1.b.**	**Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems.**
LEARNING CONTINUUM	ITL.ID1.b.3.m.	Demonstrate an ability to persevere through authentic, open-ended problems by applying abstract concepts with greater ambiguity.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID2.**	**Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.**
DESCRIPTOR / FOCUS AREA	**ITL.ID2.a.**	**Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions.**
LEARNING CONTINUUM	ITL.ID2.a.3.m.	Use a deliberate design process to generate ideas, create innovative products, and test theories as possible solutions.

DOMAIN	WI.ITL.	Information and Technology Literacy
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.a.**	**Identify, define, and interpret problems where digital tools can assist in finding solutions.**

LEARNING CONTINUUM	ITL.CT1.a.3.m.	Define and solve an authentic problem using data analysis, modeling, and algorithmic thinking.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.c.**	**Break problems into smaller parts, identify key information, and develop descriptive models.**
LEARNING CONTINUUM	ITL.CT1.c.3.m.	Separate authentic problems into component parts, identify patterns and differences and develop descriptive models to facilitate problem solving.

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Grade **7** - Adopted: **2017**

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP1.**	**Students will recognize and define computational problems using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP1.a.**	**Develop algorithms.**
LEARNING CONTINUUM	CS.AP1.a.6.m.	Decompose a computational problem into parts and create solutions for one or more parts.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP2.**	**Students will create computational artifacts using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP2.a.**	**Develop and implement an artifact.**
LEARNING CONTINUUM	CS.AP2.a.6.m.	Develop programs, both independently and collaboratively, which include sequencing with nested loops and multiple branches [Clarification: At this level, students may use block-based and/or text-based languages].
LEARNING CONTINUUM	CS.AP2.a.8.m.	Use an iterative design process (e.g., define the problem, generate ideas, build, test, and improve solutions) to solve computational problems, both independently and collaboratively.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**

DESCRIPTOR / FOCUS AREA	**CS.AP3.b.**	**Communicate about technical and social issues.**
LEARNING CONTINUUM	CS.AP3.b.5.m.	Discuss how algorithms have impacted society – both the beneficial and harmful effects.

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**
DESCRIPTOR / FOCUS AREA	**CS.AP3.c.**	**Document code.**
LEARNING CONTINUUM	CS.AP3.c.1.m.	Interpret the flow of execution of algorithms and predict their outcomes. [Clarification: Algorithms can be expressed using natural language, flow and control diagrams, comments within code, and pseudocode.]

DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.DA.**	**Content Area: Data and Analysis (DA)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.DA1.**	**Students will create computational artifacts using data and analysis.**
DESCRIPTOR / FOCUS AREA	**CS.DA1.a.**	**Represent and manipulate data.**
LEARNING CONTINUUM	CS.DA1.a.3.m.	Represent data using different encoding schemes (e.g., binary, Unicode, Morse code, shorthand, student-created codes).

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC1.**	**Students critically curate a variety of digital tools and diverse resources.**
DESCRIPTOR / FOCUS AREA	**ITL.KC1.a.**	**Plan and employ effective research strategies.**
LEARNING CONTINUUM	ITL.KC1.a.9.m.	Demonstrate and practice using an inquiry-based process that involves asking questions, investigating the answers, and developing new understandings for personal or academic learning activities.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC2.**	**Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.**
DESCRIPTOR / FOCUS AREA	**ITL.KC2.b.**	**Build knowledge by actively exploring real-world issues and problems.**

LEARNING CONTINUUM	ITL.KC2.b.5.m.	Demonstrate initiative and engagement by posing questions and investigating the answers beyond the collection of superficial facts.
LEARNING CONTINUUM	ITL.KC2.b.6.m.	Explore real-world issues and problems and actively pursue an understanding of them. Begin to develop answers and solutions for problem solving.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID1.**	**Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.**
DESCRIPTOR / FOCUS AREA	**ITL.ID1.b.**	**Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems.**
LEARNING CONTINUUM	ITL.ID1.b.3.m.	Demonstrate an ability to persevere through authentic, open-ended problems by applying abstract concepts with greater ambiguity.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID2.**	**Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.**
DESCRIPTOR / FOCUS AREA	**ITL.ID2.a.**	**Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions.**
LEARNING CONTINUUM	ITL.ID2.a.3.m.	Use a deliberate design process to generate ideas, create innovative products, and test theories as possible solutions.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.a.**	**Identify, define, and interpret problems where digital tools can assist in finding solutions.**
LEARNING CONTINUUM	ITL.CT1.a.3.m.	Define and solve an authentic problem using data analysis, modeling, and algorithmic thinking.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.c.**	**Break problems into smaller parts, identify key information, and develop descriptive models.**

LEARNING CONTINUUM	ITL.CT1.c.3.m.	Separate authentic problems into component parts, identify patterns and differences and develop descriptive models to facilitate problem solving.

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Grade **8** - Adopted: **2017**

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP1.**	**Students will recognize and define computational problems using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP1.a.**	**Develop algorithms.**
LEARNING CONTINUUM	CS.AP1.a.6.m.	Decompose a computational problem into parts and create solutions for one or more parts.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP2.**	**Students will create computational artifacts using algorithms and programming.**
DESCRIPTOR / FOCUS AREA	**CS.AP2.a.**	**Develop and implement an artifact.**
LEARNING CONTINUUM	CS.AP2.a.6.m.	Develop programs, both independently and collaboratively, which include sequencing with nested loops and multiple branches [Clarification: At this level, students may use block-based and/or text-based languages].
LEARNING CONTINUUM	CS.AP2.a.8.m.	Use an iterative design process (e.g., define the problem, generate ideas, build, test, and improve solutions) to solve computational problems, both independently and collaboratively.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**
DESCRIPTOR / FOCUS AREA	**CS.AP3.b.**	**Communicate about technical and social issues.**
LEARNING CONTINUUM	CS.AP3.b.5.m.	Discuss how algorithms have impacted society – both the beneficial and harmful effects.

DOMAIN	WI.CS.	Computer Science
CONTENT STANDARD	**CS.AP.**	**Content Area: Algorithms and Programming (AP)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.AP3.**	**Students will communicate about computing ideas.**

DESCRIPTOR / FOCUS AREA	**CS.AP3.c.**	**Document code.**
LEARNING CONTINUUM	CS.AP3.c.1.m.	Interpret the flow of execution of algorithms and predict their outcomes. [Clarification: Algorithms can be expressed using natural language, flow and control diagrams, comments within code, and pseudocode.]
DOMAIN	**WI.CS.**	**Computer Science**
CONTENT STANDARD	**CS.DA.**	**Content Area: Data and Analysis (DA)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**CS.DA1.**	**Students will create computational artifacts using data and analysis.**
DESCRIPTOR / FOCUS AREA	**CS.DA1.a.**	**Represent and manipulate data.**
LEARNING CONTINUUM	CS.DA1.a.3.m.	Represent data using different encoding schemes (e.g., binary, Unicode, Morse code, shorthand, student-created codes).
DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC1.**	**Students critically curate a variety of digital tools and diverse resources.**
DESCRIPTOR / FOCUS AREA	**ITL.KC1.a.**	**Plan and employ effective research strategies.**
LEARNING CONTINUUM	ITL.KC1.a.9.m.	Demonstrate and practice using an inquiry-based process that involves asking questions, investigating the answers, and developing new understandings for personal or academic learning activities.
DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.KC.**	**Content Area: Knowledge Constructor (KC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.KC2.**	**Students produce creative artifacts and make meaningful learning experiences from curated knowledge for themselves and others.**
DESCRIPTOR / FOCUS AREA	**ITL.KC2.b.**	**Build knowledge by actively exploring real-world issues and problems.**
LEARNING CONTINUUM	ITL.KC2.b.5.m.	Demonstrate initiative and engagement by posing questions and investigating the answers beyond the collection of superficial facts.
LEARNING CONTINUUM	ITL.KC2.b.6.m.	Explore real-world issues and problems and actively pursue an understanding of them. Begin to develop answers and solutions for problem solving.
DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID1.**	**Students use a variety of digital tools and resources to identify and solve authentic problems using design thinking.**

DESCRIPTOR / FOCUS AREA	**ITL.ID1.b.**	**Exhibit tolerance for ambiguity, perseverance and the capacity to work with authentic, open-ended problems.**
LEARNING CONTINUUM	ITL.ID1.b.3.m.	Demonstrate an ability to persevere through authentic, open-ended problems by applying abstract concepts with greater ambiguity.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.ID.**	**Content Area: Innovative Designer (ID)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.ID2.**	**Students use a variety of technologies within a design process to create new, useful, and imaginative solutions.**
DESCRIPTOR / FOCUS AREA	**ITL.ID2.a.**	**Know and use a deliberate design process for generating ideas, testing theories, and creating innovative artifacts and solutions.**
LEARNING CONTINUUM	ITL.ID2.a.3.m.	Use a deliberate design process to generate ideas, create innovative products, and test theories as possible solutions.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.a.**	**Identify, define, and interpret problems where digital tools can assist in finding solutions.**
LEARNING CONTINUUM	ITL.CT1.a.3.m.	Define and solve an authentic problem using data analysis, modeling, and algorithmic thinking.

DOMAIN	**WI.ITL.**	**Information and Technology Literacy**
CONTENT STANDARD	**ITL.CT.**	**Content Area: Computational Thinker (CT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**ITL.CT1.**	**Students develop and employ strategies for understanding and solving problems.**
DESCRIPTOR / FOCUS AREA	**ITL.CT1.c.**	**Break problems into smaller parts, identify key information, and develop descriptive models.**
LEARNING CONTINUUM	ITL.CT1.c.3.m.	Separate authentic problems into component parts, identify patterns and differences and develop descriptive models to facilitate problem solving.

Wyoming Content and Performance Standards

Mathematics

Grade **5** - Adopted: **2018**

CONTENT STANDARD		**Standards for Mathematical Practices**
BENCHMARK	1	Make sense of problems and persevere in solving them.
BENCHMARK	2	Reason abstractly and quantitatively.

BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	4	Model with mathematics.
BENCHMARK	5	Use appropriate tools strategically.
BENCHMARK	7	Look for and make use of structure.
CONTENT STANDARD		**Measurement and Data**
BENCHMARK	**5.MD.I.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXAMPLE	5.MD.I.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

CONTENT STANDARD		**Measurement and Data**
BENCHMARK	**5.MD.I.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXAMPLE	**5.MD.I.5.**	**Relate volume to the operations of multiplication and solve real world and mathematical problems involving volume.**
EXPECTATION	5.MD.I.5A.	Find the volume of a right rectangular prism with whole number dimensions by multiplying them. Show that this volume is the same as when counting unit cubes.
EXPECTATION	5.MD.I.5B.	Find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems given the formulas V =(l)(w)(h) and V = (B)(h) for rectangular prisms.

Wyoming Content and Performance Standards

Mathematics

Grade **6** - Adopted: **2018**

CONTENT STANDARD		**Standards for Mathematical Practices**
BENCHMARK	1	Make sense of problems and persevere in solving them.
BENCHMARK	2	Reason abstractly and quantitatively.
BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	4	Model with mathematics.
BENCHMARK	5	Use appropriate tools strategically.
BENCHMARK	7	Look for and make use of structure.
CONTENT STANDARD		**Geometry**
BENCHMARK	**6.G.H.**	**Solve real-world and mathematical problems involving area, surface area, and volume.**

GRADE LEVEL EXAMPLE	6.G.H.2.	Find the volume of a right rectangular prism with fractional edge lengths in the context of solving real-world and mathematical problems by applying the formulas V = (l)(w)(h) and V = (B)(h), and label with appropriate units.

Wyoming Content and Performance Standards

Mathematics

Grade **7** - Adopted: **2018**

CONTENT STANDARD		Standards for Mathematical Practices
BENCHMARK	1	Make sense of problems and persevere in solving them.
BENCHMARK	2	Reason abstractly and quantitatively.
BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	4	Model with mathematics.
BENCHMARK	5	Use appropriate tools strategically.
BENCHMARK	7	Look for and make use of structure.
CONTENT STANDARD		**Geometry**
BENCHMARK	**7.G.F.**	**Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**
GRADE LEVEL EXAMPLE	**7.G.F.6.**	**Solve real-world and mathematical problems involving**
EXPECTATION	7.G.F.6A.	area and surface area of objects composed of triangles and quadrilaterals;
EXPECTATION	7.G.F.6B.	volume of objects composed only of right prisms having triangular or quadrilateral bases.

Wyoming Content and Performance Standards

Mathematics

Grade **8** - Adopted: **2018**

CONTENT STANDARD		Standards for Mathematical Practices
BENCHMARK	1	Make sense of problems and persevere in solving them.
BENCHMARK	2	Reason abstractly and quantitatively.
BENCHMARK	3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	4	Model with mathematics.
BENCHMARK	5	Use appropriate tools strategically.
BENCHMARK	7	Look for and make use of structure.

CONTENT STANDARD		**Geometry**
BENCHMARK	**8.G.I.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
GRADE LEVEL EXAMPLE	8.G.I.9.	Given the formulas, solve real-world and mathematical problems involving volume and surface area of cylinders.

Wyoming Content and Performance Standards

Science

Grade **5** - Adopted: **2016**

CONTENT STANDARD		**ENGINEERING DESIGN**
BENCHMARK	**3-5-ETS1.**	**Engineering, Technology, & Applications of Science**
GRADE LEVEL EXAMPLE	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
GRADE LEVEL EXAMPLE	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXAMPLE	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Wyoming Content and Performance Standards

Science

Grade **6** - Adopted: **2016**

CONTENT STANDARD		**PHYSICAL SCIENCE**
BENCHMARK	**MS-PS4.**	**Waves and their Applications in Technologies for Information Transfer**
GRADE LEVEL EXAMPLE	MS-PS4-3.	Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
CONTENT STANDARD		**EARTH AND SPACE SCIENCE**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXAMPLE	MS-ESS3-4.	Construct an argument supported by evidence for how changes in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD		**ENGINEERING DESIGN**
BENCHMARK	**MS-ETS1.**	**Engineering, Technology, and Applications of Science**
GRADE LEVEL EXAMPLE	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXAMPLE	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

GRADE LEVEL EXAMPLE	MS-ETS1-4.	Develop a model for a proposed object, tool or process and then use an iterative process to test the model, collect data, and generate modification ideas trending toward an optimal design.

Grade **6** - Adopted: **2012**

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Key Ideas and Details**
GRADE LEVEL EXAMPLE	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GRADE LEVEL EXAMPLE	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Craft and Structure**
GRADE LEVEL EXAMPLE	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.
GRADE LEVEL EXAMPLE	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Integration of Knowledge and Ideas**
GRADE LEVEL EXAMPLE	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Range of Reading and Level of Text Complexity**
GRADE LEVEL EXAMPLE	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Text Types and Purposes**
GRADE LEVEL EXAMPLE	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Production and Distribution of Writing**

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

Wyoming Content and Performance Standards

Science

Grade **7** - Adopted: **2016**

CONTENT STANDARD		**PHYSICAL SCIENCE**
BENCHMARK	**MS-PS4.**	**Waves and their Applications in Technologies for Information Transfer**
GRADE LEVEL EXAMPLE	MS-PS4-3.	Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
CONTENT STANDARD		**EARTH AND SPACE SCIENCE**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXAMPLE	MS-ESS3-4.	Construct an argument supported by evidence for how changes in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD		**ENGINEERING DESIGN**
BENCHMARK	**MS-ETS1.**	**Engineering, Technology, and Applications of Science**
GRADE LEVEL EXAMPLE	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXAMPLE	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXAMPLE	MS-ETS1-4.	Develop a model for a proposed object, tool or process and then use an iterative process to test the model, collect data, and generate modification ideas trending toward an optimal design.

Grade **7** - Adopted: **2012**

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Key Ideas and Details**
GRADE LEVEL EXAMPLE	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GRADE LEVEL EXAMPLE	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Craft and Structure**

GRADE LEVEL EXAMPLE	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.
GRADE LEVEL EXAMPLE	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Integration of Knowledge and Ideas**
GRADE LEVEL EXAMPLE	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Range of Reading and Level of Text Complexity**
GRADE LEVEL EXAMPLE	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Text Types and Purposes**
GRADE LEVEL EXAMPLE	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Production and Distribution of Writing**
GRADE LEVEL EXAMPLE	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GRADE LEVEL EXAMPLE	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.

Wyoming Content and Performance Standards

Science

Grade **8** - Adopted: **2016**

CONTENT STANDARD		**PHYSICAL SCIENCE**
BENCHMARK	**MS-PS4.**	**Waves and their Applications in Technologies for Information Transfer**
GRADE LEVEL EXAMPLE	MS-PS4-3.	Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
CONTENT STANDARD		**EARTH AND SPACE SCIENCE**

BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXAMPLE	MS-ESS3-4.	Construct an argument supported by evidence for how changes in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD		**ENGINEERING DESIGN**
BENCHMARK	**MS-ETS1.**	**Engineering, Technology, and Applications of Science**
GRADE LEVEL EXAMPLE	MS-ETS1-1.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
GRADE LEVEL EXAMPLE	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXAMPLE	MS-ETS1-4.	Develop a model for a proposed object, tool or process and then use an iterative process to test the model, collect data, and generate modification ideas trending toward an optimal design.

Grade **8** - Adopted: **2012**

CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Key Ideas and Details**
GRADE LEVEL EXAMPLE	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
GRADE LEVEL EXAMPLE	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Craft and Structure**
GRADE LEVEL EXAMPLE	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.
GRADE LEVEL EXAMPLE	RST.6-8.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Integration of Knowledge and Ideas**
GRADE LEVEL EXAMPLE	RST.6-8.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
CONTENT STANDARD	**RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Range of Reading and Level of Text Complexity**

GRADE LEVEL EXAMPLE	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Text Types and Purposes**
GRADE LEVEL EXAMPLE	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD	**WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
BENCHMARK		**Production and Distribution of Writing**
GRADE LEVEL EXAMPLE	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
GRADE LEVEL EXAMPLE	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.

Wyoming Content and Performance Standards

Technology Education

Grade **5** - Adopted: **2020**

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**1**	**Fostering an Inclusive Computing Culture**
EXPECTATION	1.1.	"Include the unique perspectives of others and reflect on one’s own perspectives when designing and developing computational products."
EXPECTATION	1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
EXPECTATION	1.3.	"Employ self- and peer-advocacy to address bias in interactions, product design, and development methods."

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**3**	**Recognizing and Defining Computational Problems**
EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
EXPECTATION	3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	4	Developing and Using Abstractions
EXPECTATION	4.2.	Evaluate existing technological functionalities and incorporate them into new designs.
EXPECTATION	4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	5	Creating Computational Artifacts
EXPECTATION	5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	6	Testing and Refining Computational Artifact
EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		3-5 Computer Science Standards
GRADE LEVEL EXAMPLE	AP.A.	Algorithms
EXPECTATION	5.AP.A.01.	Using grade appropriate content and complexity, compare and refine multiple algorithms for the same task and determine which is the most appropriate.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		3-5 Computer Science Standards
GRADE LEVEL EXAMPLE	AP.M.	Modularity
EXPECTATION	5.AP.M.01.	Using grade appropriate content and complexity, decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		3-5 Computer Science Standards

GRADE LEVEL EXAMPLE	AP.PD.	Program Development
EXPECTATION	5.AP.PD.03.	Using grade appropriate content and complexity, test and debug (i.e., identify and fix errors) a program or algorithm to ensure it runs as intended.

Wyoming Content and Performance Standards

Technology Education

Grade **6** - Adopted: **2020**

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	1	Fostering an Inclusive Computing Culture
EXPECTATION	1.1.	"Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products."
EXPECTATION	1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
EXPECTATION	1.3.	"Employ self- and peer-advocacy to address bias in interactions, product design, and development methods."

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	3	Recognizing and Defining Computational Problems
EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
EXPECTATION	3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	4	Developing and Using Abstractions
EXPECTATION	4.2.	Evaluate existing technological functionalities and incorporate them into new designs.
EXPECTATION	4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		Wyoming Computer Science Content Standards
BENCHMARK		Computer Science Practices
GRADE LEVEL EXAMPLE	5	Creating Computational Artifacts
EXPECTATION	5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.

EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**6**	**Testing and Refining Computational Artifact**

EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**CS.HS.**	**Hardware & Software**

EXPECTATION	8.CS.HS.01.	Design and refine a project that combines hardware and software components to collect and exchange data.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.A.**	**Algorithms**

EXPECTATION	8.AP.A.01.	Create flowcharts and pseudocode to design algorithms to solve complex problems.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**IC.SI.**	**Social Interactions**

EXPECTATION	8.IC.SI.01.	Using grade appropriate content and complexity, collaborate using tools to connect with peers when creating a computational artifact.

Wyoming Content and Performance Standards

Technology Education

Grade **7** - Adopted: **2020**

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**1**	**Fostering an Inclusive Computing Culture**

EXPECTATION	1.1.	"Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products."

EXPECTATION	1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
EXPECTATION	1.3.	"Employ self- and peer-advocacy to address bias in interactions, product design, and development methods."
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**3**	**Recognizing and Defining Computational Problems**
EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
EXPECTATION	3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**4**	**Developing and Using Abstractions**
EXPECTATION	4.2.	Evaluate existing technological functionalities and incorporate them into new designs.
EXPECTATION	4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**5**	**Creating Computational Artifacts**
EXPECTATION	5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**6**	**Testing and Refining Computational Artifact**
EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**CS.HS.**	**Hardware & Software**

EXPECTATION	8.CS.HS.01.	Design and refine a project that combines hardware and software components to collect and exchange data.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.A.**	**Algorithms**
EXPECTATION	8.AP.A.01.	Create flowcharts and pseudocode to design algorithms to solve complex problems.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**IC.SI.**	**Social Interactions**
EXPECTATION	8.IC.SI.01.	Using grade appropriate content and complexity, collaborate using tools to connect with peers when creating a computational artifact.

Wyoming Content and Performance Standards

Technology Education

Grade **8** - Adopted: **2020**

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**1**	**Fostering an Inclusive Computing Culture**
EXPECTATION	1.1.	"Include the unique perspectives of others and reflect on one's own perspectives when designing and developing computational products."
EXPECTATION	1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
EXPECTATION	1.3.	"Employ self- and peer-advocacy to address bias in interactions, product design, and development methods."

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**3**	**Recognizing and Defining Computational Problems**
EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
EXPECTATION	3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**

BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**4**	**Developing and Using Abstractions**
EXPECTATION	4.2.	Evaluate existing technological functionalities and incorporate them into new designs.
EXPECTATION	4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**5**	**Creating Computational Artifacts**
EXPECTATION	5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**Computer Science Practices**
GRADE LEVEL EXAMPLE	**6**	**Testing and Refining Computational Artifact**
EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**CS.HS.**	**Hardware & Software**
EXPECTATION	8.CS.HS.01.	Design and refine a project that combines hardware and software components to collect and exchange data.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.A.**	**Algorithms**
EXPECTATION	8.AP.A.01.	Create flowcharts and pseudocode to design algorithms to solve complex problems.
CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**IC.SI.**	**Social Interactions**

EXPECTATION	8.IC.SI.01.	Using grade appropriate content and complexity, collaborate using tools to connect with peers when creating a computational artifact.