Main Criteria: Forward Education

Secondary Criteria: 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, Key Stage 2

Forward Education

How Wind Turbines Capture Kinetic Energy

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.

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.

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-PS.	PHYSICAL SCIENCE
STATEMENT OF ENDURING KNOWLEDGE	**MS-PS3.**	**Energy**
GSE STEM		**Students who demonstrate understanding can:**
SPECIFIC INDICATOR	MS-PS3-1.	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
SPECIFIC INDICATOR	MS-PS3-5.	Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.

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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
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

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.
GSE STEM	ISTE-S.4.c.	Develop, test and refine prototypes as part of a cyclical design process.

DOMAIN		**ISTE Standards for Students**

STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.6.**	**Creative Communicators: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.**
GSE STEM	ISTE-S.6.c.	Communication complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.
DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.7.**	**Global Collaborators: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
GSE STEM	ISTE-S.7.b.	Use collaborative technologies to work with others, including peers, experts, or community members to examine issues and problems from multiple viewpoints.
GSE STEM	ISTE-S.7.d.	Explore local and global issues and use collaborative technologies to work with others to investigate solutions.

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

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**1B-CT.**	**Computational Thinking & Programming**
GSE STEM	**1B-CT-V.**	**Variables**
SPECIFIC INDICATOR	1B-CT-V-1.	Create programs that use variables

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**1B-CT.**	**Computational Thinking & Programming**
GSE STEM	**1B-CT-C.**	**Control Structures**
SPECIFIC INDICATOR	1B-CT-C-1.	Create programs that combine sequences, loops, conditionals, and/or events.

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**1B-CT.**	**Computational Thinking & Programming**
GSE STEM	**1B-CT-M.**	**Modularity**
SPECIFIC INDICATOR	1B-CT-M-2.	Create computational artifacts by incorporating existing modules into one's own work to solve a problem.

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**1B-CT.**	**Computational Thinking & Programming**
GSE STEM	**1B-CT-CD.**	**Computational Design**

SPECIFIC INDICATOR	1B-CT-CD-3.	Describe steps taken and choices made during the process of creating a computational artifact.

DOMAIN		**Computer Science**
STATEMENT OF ENDURING KNOWLEDGE	**1B-DL.**	**Digital Literacy**
GSE STEM	**1B-DL-CU.**	**Creation and Use**
SPECIFIC INDICATOR	1B-DL-CU-1.	Use software tools to create and share multimedia artifacts

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.
GSE STEM	ISTE-S.4.c.	Develop, test and refine prototypes as part of a cyclical design process.

DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.6.**	**Creative Communicators: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.**
GSE STEM	ISTE-S.6.c.	Communication complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

DOMAIN		**ISTE Standards for Students**
STATEMENT OF ENDURING KNOWLEDGE	**RI.ISTE-S.7.**	**Global Collaborators: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
GSE STEM	ISTE-S.7.b.	Use collaborative technologies to work with others, including peers, experts, or community members to examine issues and problems from multiple viewpoints.

GSE STEM	ISTE-S.7.d.	Explore local and global issues and use collaborative technologies to work with others to investigate solutions.

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

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-CT.	Computational Thinking & Programming
GSE STEM	2-CT-V.	Variables
SPECIFIC INDICATOR	2-CT-V-1.	Create clearly named variables that represent different data. Perform operations on data stored in variables.

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-CT.	Computational Thinking & Programming
GSE STEM	2-CT-C.	Control Structures
SPECIFIC INDICATOR	2-CT-C-1.	Design programs that combine control structures, including nested loops and compound conditionals.

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-CT.	Computational Thinking & Programming
GSE STEM	2-CT-CD.	Computational Design
SPECIFIC INDICATOR	2-CT-CD-3.	Describe choices made during development of computational artifacts.

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-DA.	Data & Analysis
GSE STEM	2-DA-IM.	Inferences and Models
SPECIFIC INDICATOR	2-DA-IM-1.	Create and refine computational models based on generated or gathered data.

DOMAIN		Computer Science
STATEMENT OF ENDURING KNOWLEDGE	2-DL.	Digital Literacy
GSE STEM	2-DL-CU.	Creation and Use
SPECIFIC INDICATOR	2-DL-CU-1.	Use software tools to create artifacts that engage users over time

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.

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.6.NS.	The Number System
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	6.NS.9.	Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, and percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100.

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	**1**	**Foster an inclusive computing culture.**
GRADE LEVEL EXAMPLE / STAGE	1.b.	Consider others' perspectives as well as one's own perspective when developing computational solutions.

STANDARD / COURSE		Algorithms and Programming
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 2.**	**Use an ordered list of steps (i.e., sequential execution) and simple control structures.**
PERFORMANCE DESCRIPTOR / STANDARD	5.AP.2.1.	Recognize that a sequence of steps can be repeated.

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	**1**	**Foster an inclusive computing culture.**
GRADE LEVEL EXAMPLE / STAGE	1.b.	Consider others' perspectives as well as one's own perspective when developing computational solutions.

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		**Algorithms and Programming**
KNOWLEDGE AND SKILLS / ESSENTIAL QUESTION	**Standard 5.**	**Identify variables and compare the types of data stored as variables.**
PERFORMANCE DESCRIPTOR / STANDARD	6.AP.5.1.	Recognize variables that represent information (e.g., age, first name).
PERFORMANCE DESCRIPTOR / STANDARD	6.AP.5.2.	Recognize variables can represent different types of data (e.g., numbers, words, colors, images).

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 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.
GOAL/STRAND	**5.MD.**	**Measurement and Data**
INDICATOR/BENCHMARK	**5.MD.B.**	**Represent and interpret data.**
STANDARD	**5.MD.B.2.**	**Make a line plot to display a data set.**
SUPPORTING SKILLS	5.MD.B.2.a.	Use operations on fractions of a unit (1/2, 1/4, 1/8) for this grade to solve problems involving information presented in line plots.
SUPPORTING SKILLS	5.MD.B.2.b.	Use information from a line plot representing an unequal situation and redistribute whole or fractional parts to create an equal distribution. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally

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.

South Dakota Content Standards

Science

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

GOAL/STRAND	SD.6-8.PSS.	Middle School Physical Science Standards
INDICATOR/BENCHMARK	MS-PS3-1.	Construct and analyze graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object. (SEP: 4; DCI: PS3.A; CCC: Scale/Prop.)
INDICATOR/BENCHMARK	MS-PS3-5.	Engage in argument from evidence to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object. (SEP: 7; DCI: PS3.B; CCC: Energy/Matter)
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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (SEP: 6; DCI: ESS3.A ; CCC: Cause/Effect , Technology)
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.

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.
STRAND / STANDARD / COURSE		**Mathematics | Grade 5**
CONCEPTUAL STRAND / GUIDING QUESTION	**5.MD.**	**Measurement and Data (MD)**
GUIDING QUESTION / LEARNING EXPECTATION	**5.MD.B.**	**Represent and interpret data.**
LEARNING EXPECTATION	5.MD.B.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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.

Tennessee Academic Standards

Science

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

STRAND / STANDARD / COURSE	**TN.5.PS.**	**Physical Sciences (PS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**5.PS2.**	**Motion and Stability: Forces and Interactions**
GUIDING QUESTION / LEARNING EXPECTATION	5.PS2.2.	Make observations and measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

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.PS.**	**Physical Sciences (PS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**6.PS3.**	**Energy**
GUIDING QUESTION / LEARNING EXPECTATION	6.PS3.2.	Construct a scientific explanation of the transformations between potential and kinetic energy.
GUIDING QUESTION / LEARNING EXPECTATION	6.PS3.3.	Analyze and interpret data to show the relationship between kinetic energy and the mass of an object in motion and its speed.
STRAND / STANDARD / COURSE	**TN.6.ESS.**	**Earth and Space Sciences (ESS)**
CONCEPTUAL STRAND / GUIDING QUESTION	**6.ESS3.**	**Earth and Human Activity**
GUIDING QUESTION / LEARNING EXPECTATION	6.ESS3.1.	Differentiate between renewable and nonrenewable resources by asking questions about their availability and sustainability.
GUIDING QUESTION / LEARNING EXPECTATION	6.ESS3.2.	Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.

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.DA.**	**Data Analysis**
LEARNING EXPECTATION	5.DA.2.	Connect data from a simulation to real-life events.
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.
STRAND / STANDARD / COURSE		**Tennessee K-12 Computer Science State Standards**
CONCEPTUAL STRAND / GUIDING QUESTION		**Middle School: Computer Science Standards**
GUIDING QUESTION / LEARNING EXPECTATION	**MS.DA.**	**Data Analysis**

LEARNING EXPECTATION	MS.DA.2.	Refine computational models based on the data they have generated.

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.2.	Create procedures with parameters that hide the complexity of a task and can be reused to solve similar tasks.
LEARNING EXPECTATION	MS.PC.7.	Design a function using a programming language.

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.9.**	**Data analysis. The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to:**
GRADE LEVEL EXPECTATION	111.7.b.9.C.	Solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.

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.4.**	**Proportionality. The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations. The student is expected to:**
GRADE LEVEL EXPECTATION	111.26.b.4.G.	Generate equivalent forms of fractions, decimals, and percents using real-world problems, including problems that involve money.

TEKS	**111.26.**	**Grade 6, Adopted 2012.**
STUDENT EXPECTATION	**111.26.b.5.**	**Proportionality. The student applies mathematical process standards to solve problems involving proportional relationships. The student is expected to:**
GRADE LEVEL EXPECTATION	111.26.b.5.C.	Use equivalent fractions, decimals, and percents to show equal parts of the same whole.

TEKS	**111.26.**	**Grade 6, Adopted 2012.**
STUDENT EXPECTATION	**111.26.b.13.**	**Measurement and data. The student applies mathematical process standards to use numerical or graphical representations to solve problems. The student is expected to:**
GRADE LEVEL EXPECTATION	111.26.b.13.A.	Interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms, and box plots.

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

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.6**	**Force, motion, and energy. The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:**

INDICATOR	§112.16.b.6.A	explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy

INDICATOR	§112.16.b.6.B	demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound

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

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

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.7**	**Matter and energy. The student knows that some of Earth's energy resources are available on a nearly perpetual basis, while others can be renewed over a relatively short period of time. Some energy resources, once depleted, are essentially nonrenewable. The student is expected to:**
INDICATOR	§112.18.b.7.A	research and discuss the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources

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.8**	**Force, motion, and energy. The student knows force and motion are related to potential and kinetic energy. The student is expected to:**
INDICATOR	§112.18.b.8.A	compare and contrast potential and kinetic energy

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.9**	**Force, motion, and energy. The student knows that the Law of Conservation of Energy states that energy can neither be created nor destroyed, it just changes form. The student is expected to:**
INDICATOR	§112.18.b.9.C	demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy

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.
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.2.	Make a line plot to display a data set of measurements in fractions of a unit (halves, quarters, eighths). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given graduated cylinders with different measures of liquid in each, find the amount of liquid each cylinder would contain if the total amount in all the cylinders were redistributed equally.

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.

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

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 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	1	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
STANDARD / AREA OF LEARNING		**Utah K-5 Computer Science Standards**

OBJECTIVE / STRAND		**Core Practices**
INDICATOR / CLUSTER	**Practice 4:**	**Developing and Using Abstractions**
EXPECTATION / STANDARD		**By the end of Grade 5, students should be able to:**
INDICATOR	2	Model phenomena and processes and simulate systems to understand and evaluate potential outcomes.
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		**Algorithms and Programming (AP):**
INDICATOR / CLUSTER	**Standard 5.AP.3.**	**Create programs by incorporating smaller portions of existing programs, to develop something new or add more advanced features. (Practice 4: Developing and Using Abstractions and Practice 5: Creating Computational Artifacts)**
EXPECTATION / STANDARD		Students will create a new program, based on portions of existing programs. For example, teacher gives a writing prompt where students create an animation and design alternative endings.
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 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	1	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
INDICATOR	2	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
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.
INDICATOR	4	Model phenomena and processes and simulate systems to understand and evaluate potential outcomes.
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		**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.

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.

STANDARD / STRAND	VT.5.MD.	Measurement and Data
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD		**Represent and interpret data.**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL	5.MD.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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.

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-PS.	PHYSICAL SCIENCE
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	**MS-PS3.**	**Energy**
GRADE LEVEL EXPECTATION / KNOWLEDGE AND SKILL		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-PS3-1.	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
GRADE LEVEL EXPECTATION	MS-PS3-5.	Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.

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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
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

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.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.c.	Students develop, test and refine prototypes as part of a cyclical design process.
STANDARD / STRAND	**ISTE-S.6.**	**Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.6.c.	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
STANDARD / STRAND	**ISTE-S.7.**	**Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.7.b.	Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.

ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.7.d.	Students explore local and global issues and use collaborative technologies to work with others to investigate 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.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.4.c.	Students develop, test and refine prototypes as part of a cyclical design process.
STANDARD / STRAND	**ISTE-S.6.**	**Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.6.c.	Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models or simulations.
STANDARD / STRAND	**ISTE-S.7.**	**Global Collaborator: Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.**
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.7.b.	Students use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
ESSENTIAL KNOWLEDGE AND SKILL / STANDARD	ISTE-S.7.d.	Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.

Virginia Standards of Learning

Mathematics

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

STRAND / TOPIC	**VA.NNS.5.**	**Number and Number Sense**
STANDARD / STRAND	**5.2.**	**The student will**
INDICATOR / STANDARD	5.2.a.	Represent and identify equivalencies among fractions and decimals, with and without models.

STRAND / TOPIC	**VA.PS.5.**	**Probability and Statistics**
STANDARD / STRAND	**5.16.**	**The student, given a practical problem, will**
INDICATOR / STANDARD	5.16.b.	Interpret data represented in line plots and stem-and-leaf plots.

Virginia Standards of Learning

Mathematics

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

STRAND / TOPIC	**VA.NNS.6.**	**Number and Number Sense**
STANDARD / STRAND	**6.2.**	**The student will**
INDICATOR / STANDARD	6.2.a.	Represent and determine equivalencies among fractions, mixed numbers, decimals, and percents.

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.a.**	**asking questions and defining problems**
PROGRESS INDICATOR	5.1.a.3.	define design problems that can be solved through the development of an object, tool, process, or system

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.c.**	**interpreting, analyzing, and evaluating data**
PROGRESS INDICATOR	5.1.c.4.	use data to evaluate and refine design solutions

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.d.**	**constructing and critiquing conclusions and explanations**
PROGRESS INDICATOR	5.1.d.2.	describe how scientific ideas apply to design solutions
PROGRESS INDICATOR	5.1.d.3.	generate and compare multiple solutions to problems based on how well they meet the criteria and constraints

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.e.**	**developing and using models**
PROGRESS INDICATOR	5.1.e.1.	develop models using an analogy, example, or abstract representation to describe a scientific principle or design solution
PROGRESS INDICATOR	5.1.e.2.	identify limitations of models

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.1.	read and comprehend reading-level-appropriate texts and/or other reliable media

PROGRESS INDICATOR	5.1.f.2.	communicate scientific information, design ideas, and/or solutions with others

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Force, Motion, and Energy**
INDICATOR / STANDARD	**5.2.**	**The student will investigate and understand that energy can take many forms. Key ideas include:**
INDICATOR	5.2.b.	there are many different forms of energy;
INDICATOR	5.2.c.	energy can be transformed;

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Force, Motion, and Energy**
INDICATOR / STANDARD	**5.3.**	**The student will investigate and understand that there is a relationship between force and energy of moving objects. Key ideas include:**
INDICATOR	5.3.a.	moving objects have kinetic energy;

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Force, Motion, and Energy**
INDICATOR / STANDARD	**5.4.**	**The student will investigate and understand that electricity is transmitted and used in daily life. Key ideas include:**
INDICATOR	5.4.d.	electrical energy can be transformed into radiant, mechanical, and thermal energy;

STRAND / TOPIC		**Grade Five – Transforming matter and energy**
STANDARD / STRAND		**Earth Resources**
INDICATOR / STANDARD	**5.9.**	**The student will investigate and understand that the conservation of energy resources is important. Key ideas include:**
INDICATOR	5.9.a.	some sources of energy are considered renewable and others are not;
INDICATOR	5.9.c.	advances in technology improve the ability to transfer and transform energy.

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	**6.4.**	**The student will investigate and understand that there are basic sources of energy and that energy can be transformed. Key ideas include:**
INDICATOR / STANDARD	6.4.d.	energy transformations are important in energy usage.

STRAND / TOPIC		**Grade Six – Our world; our responsibility**
STANDARD / STRAND	**6.7.**	**The student will investigate and understand that air has properties and that Earth's atmosphere has structure and is dynamic. Key ideas include:**
INDICATOR / STANDARD	6.7.b.	the atmosphere has physical characteristics;

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.b.	renewable and nonrenewable resources can be managed;

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.b.	Using loops. [Related SOL: Math 5.18]
INDICATOR	5.1.c.	Using variables to store and process data. [Related SOL: Math 5.19]
INDICATOR	5.1.d.	Performing number calculations on variables (addition, subtraction, multiplication and division). [Related SOL: Math 5.5, 5.7]
INDICATOR	5.1.e.	Using conditionals (if-statements). [Related SOL: M 5.2, 5.3]

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.b.	Using loops.
INDICATOR	5.2.c.	Using variables.

INDICATOR	5.2.d.	Using mathematical operations (addition, subtraction, multiplication and division) variable to manipulate a variable. [Related SOL: Math 5.19]
INDICATOR	5.2.e.	Using conditionals (if-statements).

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]
INDICATOR / STANDARD	5.4.	The student will create a plan as part of the iterative design process, both independently and collaboratively using strategies such as pair programming (e.g., storyboard, flowchart, pseudo-code, story map). [Related SOL: English 5.7 c, d, e]

STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Data and Analysis**
INDICATOR / STANDARD	5.12.	The student will create an artifact using computing systems to model the attributes and behaviors associated with a concept (e.g., rocks). [Related SOL area - Math Models, 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	**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.

Virginia Standards of Learning

Technology Education

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

STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND	**CS.MCSE.**	**Middle School Computer Science Elective (MSCE) Standards**

INDICATOR / STANDARD		**6-week Core Module - Algorithms and Programming**
INDICATOR	MSCSE.1.	The student will design and iteratively develop programs that combine control structures, including loops and conditionals.
INDICATOR	MSCSE.2.	The student will investigate variables and data types, including simple operations on strings.
STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND	**CS.MCSE.**	**Middle School Computer Science Elective (MSCE) Standards**
INDICATOR / STANDARD		**Data and Analysis**
INDICATOR	MSCSE.14.	The student will refine computational models based on the data they have generated.
STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Algorithms and Programming**
INDICATOR / STANDARD	**6.1.**	**The student will construct programs to accomplish a task as a means of creative expression or scientific exploration using a block based or text based programming language, both independently and collaboratively,**
INDICATOR	6.1.a.	Combining control structures such as if-statements and loops.
INDICATOR	6.1.b.	Creating clearly named variables that represent different data types, including numeric and non-numeric data, and perform operations on their values. [Related SOL: Math 6.3, 6.6]
STRAND / TOPIC	**VA.CS.**	**Computer Science**
STANDARD / STRAND		**Data and Analysis**
INDICATOR / STANDARD	6.10.	The student will use models and simulations to formulate, refine, and test hypotheses.

Grade **6** - 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	**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	**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.B.**	**Use collaborative technologies to work with others, including peers, experts, and community members to examine issues and problems from multiple viewpoints.**
PROGRESS INDICATOR	GC.B.m.	Students use collaborative technologies to work with others, including peers, experts, and online community members to gain broader perspectives as they examine issues, problems, and opportunities.

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.

Washington DC Academic Standards

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.
CONTENT STANDARD / STRAND / DISCIPLINE	**DC.CC.5.MD.**	**Measurement and Data**
STANDARD / ESSENTIAL SKILL		**Represent and interpret data.**
STUDENT EXPECTATION / ESSENTIAL SKILL	5.MD.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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.

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-PS.**	**PHYSICAL SCIENCE**
STANDARD / ESSENTIAL SKILL	**MS-PS3.**	**Energy**
STUDENT EXPECTATION / ESSENTIAL SKILL		**Students who demonstrate understanding can:**
EXPECTATION	MS-PS3-1.	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
EXPECTATION	MS-PS3-5.	Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.
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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
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.

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.

EALR	WA.5.MD.	Measurement and Data
BIG IDEA / CORE CONTENT		**Represent and interpret data.**
CORE CONTENT / CONTENT STANDARD	5.MD.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

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.

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-PS.	PHYSICAL SCIENCE
BIG IDEA / CORE CONTENT	**MS-PS3.**	**Energy**
CORE CONTENT / CONTENT STANDARD		**Students who demonstrate understanding can:**
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-PS3-1.	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
CONTENT STANDARD / PERFORMANCE EXPECTATION	MS-PS3-5.	Construct, use, and present arguments to support the claim that when the motion energy of an object changes, energy is transferred to or from the object.

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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
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

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.c.	Students engage in a cyclical design process to develop prototypes and reflect on the role that trial and error plays.

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 1B: 3-5**
CORE CONTENT / CONTENT STANDARD	**1B-NI.**	**Networks and the Internet**
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-NI-04.	Model how information is broken down into smaller pieces, transmitted as packets through multiple devices over networks and the Internet, and reassembled at the destination. (P. 4.4)

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-09.	Create programs that use variables to store and modify data. Variables are used to store and modify data. (P. 5.2)
CONTENT STANDARD / PERFORMANCE EXPECTATION	1B-AP-10.	Create programs that include sequences, events, loops, and conditionals. (P. 5.2)

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)

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	**6-8.4.**	**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.b.	Students select and use digital tools to support a design process and expand their understanding to identify constraints and trade-offs and to weigh risks.
CORE CONTENT / CONTENT STANDARD	6-8.4.c.	Students engage in a design process to develop, test and revise prototypes, embracing the cyclical process of trial and error and understanding problems or setbacks as potential opportunities for improvement.

EALR		Computer Science
BIG IDEA / CORE CONTENT		**Level 2: 6-8**
CORE CONTENT / CONTENT STANDARD	**2-DA.**	**Data and Analysis**
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-DA-09.	Refine computational models based on the data they have generated. (P. 5.3, P. 4.4)

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-11.	Create clearly named variables that represent different data types and perform operations on their values. (P. 5.1, P. 5.2)
CONTENT STANDARD / PERFORMANCE EXPECTATION	2-AP-12.	Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals. (P. 5.1, P. 5.2)

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 / COURSE	**WV.M.5.MD.**	**Measurement and Data**
CONTENT STANDARD / OBJECTIVE		**Represent and interpret data.**
OBJECTIVE / EXPECTATION	M.5.19.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. (e.g., Given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally).

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.

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		**Practices of Scientists and Engineers**
GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Using mathematical and computational thinking
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		**Earth and Space Science**
OBJECTIVE / EXPECTATION		**Earth's Systems**
GRADE LEVEL EXPECTATION	S.5.11.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
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		**Practices of Scientists and Engineers**
GRADE LEVEL EXPECTATION		Developing and using models
GRADE LEVEL EXPECTATION		Using mathematical and computational thinking
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

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		**Computer Science 3-5**
OBJECTIVE / EXPECTATION		**Programming and Algorithms**
GRADE LEVEL EXPECTATION	CS.3-5.10.	Understand how to decompose a larger problem into smaller sub-problems using sequences, events, loops, and conditionals.

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		**Technology 6-8**
OBJECTIVE / EXPECTATION		**Innovative Designer**
GRADE LEVEL EXPECTATION	T.6-8.15.	Explore real-world issues and problems and actively pursue an understanding of them and solutions for them.

CONTENT STANDARD / COURSE	**2520.14.**	**West Virginia College- and Career-Readiness Standards for Technology and Computer Science**
CONTENT STANDARD / OBJECTIVE		**Technology 6-8**
OBJECTIVE / EXPECTATION		**Global Collaborator**
GRADE LEVEL EXPECTATION	T.6-8.20.	Select collaborative technologies and use them to work with others to investigate and develop solutions related to local and global issues.

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.6-8.3.	Analyze connections between elements of computer science and mathematics.

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.6-8.12.	Write computer program(s) to solve simple problems and document the process for others to reference.

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.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.11.	Analyze the degree to which a computer model accurately represents the real world.
GRADE LEVEL EXPECTATION	CS.DCS.14.	Examine connections between elements of mathematics and computer science including binary numbers, logic, sets and functions.

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.24.	Implement problem solutions using a programming language, including: looping behavior, conditional statements, logic, expressions, variables, and functions.

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.

DOMAIN		**Grade 5 Content Standards**
CONTENT STANDARD	**M.5.NBT.**	**Number and Operations in Base Ten (5.NBT)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**M.5.NBT.B.**	**Perform operations with multi-digit whole numbers and with decimals to hundredths.**
DESCRIPTOR / FOCUS AREA	M.5.NBT.B.5.	Flexibly and efficiently multiply multi-digit whole numbers using strategies or algorithms based on place value, area models, and the properties of operations.

DOMAIN		**Grade 5 Content Standards**
CONTENT STANDARD	**M.5.MD.**	**Measurement and Data (5.MD)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**M.5.MD.B.**	**Represent and interpret data.**

DESCRIPTOR / FOCUS AREA	M.5.MD.B.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots.

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.

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.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC4.**	**Students use science and engineering practices, disciplinary core ideas, and an understanding of systems and models to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Systems and System Models**

LEARNING CONTINUUM	SCI.CC4.3-5.	Students understand a system is a group of related parts that make up a whole and can carry out functions its individual parts cannot. They also describe a system in terms of its components and their interactions.

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 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.PS.**	**Disciplinary Core Idea: Physical Science (PS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.PS2.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of forces, interactions, motion and stability to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.PS2.A.**	**Forces and Motion**
LEARNING CONTINUUM	SCI.PS2.A.3.1.	Qualities of motion and changes in motion require description of both size and direction.
LEARNING CONTINUUM	SCI.PS2.A.3.3.	Patterns of motion can be used to predict future motion.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.PS.**	**Disciplinary Core Idea: Physical Science (PS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.PS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of energy to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.PS3.A.**	**Definitions of Energy**

LEARNING CONTINUUM	SCI.PS3.A.4.	Moving objects contain energy. The faster the object moves, the more energy it has.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	SCI.ESS.	Disciplinary Core Idea: Earth and Space Sciences (ESS)
PERFORMANCE STANDARD / LEARNING PRIORITY	SCI.ESS3.	Students use science and engineering practices, crosscutting concepts, and an understanding of the Earth and human activity to make sense of phenomena and solve problems.
DESCRIPTOR / FOCUS AREA	SCI.ESS3.A.	Natural Resources
LEARNING CONTINUUM	SCI.ESS3.A.4.	Energy and fuels humans use are derived from natural sources, and their use affects the environment. Some resources are renewable over time, others are not.

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.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.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.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.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.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.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.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.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.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).

Science

Grade **6** - 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.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC3.**	**Students use science and engineering practices, disciplinary core ideas, and an understanding of scale, proportion and quantity to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Scale, Proportion, and Quantity**
LEARNING CONTINUUM	SCI.CC3.m.	Students observe time, space, and energy phenomena at various scales using models to study systems that are too large or too small. They understand phenomena observed at one scale may not be observable at another scale, and the function of natural and designed systems may change with scale. They use proportional relationships (e.g., speed as the ratio of distance traveled to time taken) to gather information about the magnitude of properties and processes. They represent scientific relationships through the use of algebraic expressions and equations.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC4.**	**Students use science and engineering practices, disciplinary core ideas, and an understanding of systems and models to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Systems and System Models**
LEARNING CONTINUUM	SCI.CC4.m.	Students understand systems may interact with other systems: they may have sub-systems and be a part of larger complex systems. They use models to represent systems and their interactions—such as inputs, processes, and outputs—and energy, matter, and information flows within systems. They also learn that models are limited in that they only represent certain aspects of the system under study.

DOMAIN	WI.SCI.	Science
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC5.**	**Students use science and engineering practices, disciplinary core ideas, and an understanding of energy and matter to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Energy and Matter**

LEARNING CONTINUUM	SCI.CC5.m.	Students understand matter is conserved because atoms are conserved in physical and chemical processes. They also understand that within a natural or designed system the transfer of energy drives the motion and cycling of matter. Energy may take different forms (e.g. energy in fields, thermal energy, and energy of motion). The transfer of energy can be tracked as energy flows through a designed or natural system.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.CC.**	**Crosscutting Concepts (CC)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.CC6.**	**Students use science and engineering practices, disciplinary core ideas, and an understanding of structure and function to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA		**Structure and Function**
LEARNING CONTINUUM	SCI.CC6.m.	Students model complex and microscopic structures and systems and visualize how their function depends on the shapes, composition, and relationships among their parts. They analyze many complex natural and designed structures and systems to determine how they function. They design structures to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

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.5.	Apply mathematical concepts and processes (such as ratio, rate, percent, basic operations, and simple algebra) to scientific and engineering questions and problems.
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.PS.**	**Disciplinary Core Idea: Physical Science (PS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.PS3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of energy to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.PS3.A.**	**Definitions of Energy**
LEARNING CONTINUUM	SCI.PS3.A.m.	Kinetic energy can be distinguished from the various forms of potential energy.

DOMAIN	**WI.SCI.**	**Science**
CONTENT STANDARD	**SCI.ESS.**	**Disciplinary Core Idea: Earth and Space Sciences (ESS)**
PERFORMANCE STANDARD / LEARNING PRIORITY	**SCI.ESS 3.**	**Students use science and engineering practices, crosscutting concepts, and an understanding of the Earth and human activity to make sense of phenomena and solve problems.**
DESCRIPTOR / FOCUS AREA	**SCI.ESS 3.A.**	**Natural Resources**
LEARNING CONTINUUM	SCI.ESS3.A.m.	Humans depend on Earth's land, oceans, fresh water, atmosphere, and biosphere for different resources, many of which are limited or not renewable. Resources are distributed unevenly around the planet as a result of past geologic processes.

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.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.1.	All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment.
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.

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.

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.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

Technology Education

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).
LEARNING CONTINUUM	CS.AP2.a.4.i.	Create a plan as part of the iterative design process, both independently and with diverse collaborative teams (e.g., storyboard, flowchart, pseudo-code, story map).
LEARNING CONTINUUM	CS.AP2.a.5.i.	Use mathematical operations to change a value stored in a variable.

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.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.9.m.	Create variables that represent different types of data and manipulate their values.
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.]

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.
CONTENT STANDARD		**Measurement and Data**
BENCHMARK	**5.MD.H.**	**Represent and interpret data.**
GRADE LEVEL EXAMPLE	5.MD.H.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions to solve problems involving information presented in line plots.

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.

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-PS3.**	**Energy**
GRADE LEVEL EXAMPLE	MS-PS3-1.	Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.
GRADE LEVEL EXAMPLE	MS-PS3-5.	Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.

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-ESS3-1.	Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.
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

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	3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.

EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.

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.
EXPECTATION	4.4.	Model phenomena and processes and simulate systems to understand and evaluate potential outcomes.

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	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**3-5 Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.V.**	**Variables**
EXPECTATION	5.AP.V.01.	Using grade appropriate content and complexity, create programs that use variables to store and modify data.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**3-5 Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.C.**	**Control**

EXPECTATION	5.AP.C.01.	Using grade appropriate content and complexity, create programs that include sequences, events, loops, and conditionals, both individually and collaboratively.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**3-5 Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.PD.**	**Program Development**
EXPECTATION	5.AP.PD.01.	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.

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	3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.

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.

EXPECTATION	4.4.	Model phenomena and processes and simulate systems to understand and evaluate potential outcomes.

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	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.

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	**DA.IM.**	**Inference & Models**
EXPECTATION	8.DA.IM.01.	Refine computational models based on generated data.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**
BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.V.**	**Variables**
EXPECTATION	8.AP.V.01.	Using grade appropriate content and complexity, create clearly named variables that represent different data types and perform operations on their values.

CONTENT STANDARD		**Wyoming Computer Science Content Standards**

BENCHMARK		**MS Computer Science Standards**
GRADE LEVEL EXAMPLE	**AP.C.**	**Control**
EXPECTATION	8.AP.C.01.	Using grade appropriate content and complexity, design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.

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.