Main Criteria: Forward

Secondary Criteria: Nebraska Content Area Standards, Nevada Academic Content Standards, New Hampshire College and Career Ready Standards, New Jersey Student Learning Standards, New Mexico Content Standards, New York State Learning Standards and Core Curriculum, North Carolina Standard Course of Study, North Dakota Content Standards, Ohio Learning Standards, Oklahoma Academic Standards, Oregon Academic Content Standards, Pennsylvania Core and Academic Standards

Subjects: Mathematics, Science, Technology Education

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

Forward

Solar Water Disinfection (SODIS)

Nebraska Content Area Standards

Mathematics

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

CONTENT STANDARD		**Grade 5 Standards**
STRAND	**5.G.**	**GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.**
INDICATOR	**5.G.4.**	**Area and Volume: Students will extend area problems for rectangles to include fractions and build meaning for measuring volume.**
STRAND	5.G.4.d.	Find the volume of a rectangular prism with whole-number side lengths by modeling with unit squares and show that the volume can be additive and is the same as would be found by multiplying the area of the base times height.
STRAND	5.G.4.e.	Solve authentic problems by applying the formulas V = l × w × h and V = B × h for rectangular prisms to find volumes of rectangular prisms with whole number edge lengths.

Nebraska Content Area Standards

Mathematics

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

CONTENT STANDARD		**Grade 6 Standards**
STRAND	**6.G.**	**GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.**
INDICATOR	**6.G.3.**	**Measurement: Students identify geometric attributes that create two- and three-dimensional shapes in order to perform measurements and apply formulas to find area and volume.**
STRAND	6.G.3.c.	Apply volume formulas for triangular prisms.

Nebraska Content Area Standards

Mathematics

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

CONTENT STANDARD		**Grade 8 Standards**
STRAND	**8.G.**	**GEOMETRY: Students will solve problems and reason with geometry using multiple representations, make connections within math and across disciplines, and communicate their ideas.**
INDICATOR	**8.G.3.**	**Measurement: Students will reason with formulas and context to determine and compare length, area, and volume.**
STRAND	8.G.3.d.	Determine the volume of cones, cylinders, and spheres and solve authentic problems using volumes.

Nebraska Content Area Standards

Science

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

CONTENT STANDARD	**NE.SC.5.13.**	**Earth's Systems**

STRAND	**SC.5.13.4.**	**Gather and analyze data to communicate understanding of Earth's systems.**
INDICATOR	SC.5.13.4.D.	Define a simple design problem that can be solved by applying scientific ideas about the conservation of fresh water on Earth.
INDICATOR	SC.5.13.4.E.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Nebraska Content Area Standards

Science

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

CONTENT STANDARD	**NE.SC.6.4.**	**Energy**
STRAND	**SC.6.4.1.**	**Gather, analyze, and communicate evidence of energy.**
INDICATOR	SC.6.4.1.B.	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principle and potential impacts on people and the natural environment that may limit possible solutions.

Nebraska Content Area Standards

Science

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

CONTENT STANDARD	**NE.SC.7.13.**	**Earth's Systems**
STRAND	**SC.7.13.5.**	**Gather, analyze, and communicate evidence of the flow of energy and cycling of matter associated with Earth's materials and processes.**
INDICATOR	SC.7.13.5.C.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Nebraska Content Area Standards

Science

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

CONTENT STANDARD	**NE.SC.8.1.**	**Forces and Interactions**
STRAND	**SC.8.1.1.**	**Gather, analyze, and communicate evidence of forces and interactions.**
INDICATOR	SC.8.1.1.B.	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.

Nebraska Content Area Standards

Technology Education

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

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**BASIC TECHNOLOGY - Operations/Concepts**
INDICATOR		**HARDWARE/SOFTWARE STANDARDS**
STRAND		Apply strategies for identifying and solving routine problems that occur during everyday computer use.

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**
STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
STRAND		Optimize an algorithm for execution by a computer.

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**PROGRAMMING STANDARDS**
STRAND		Write programs using visual (block-based) programming languages (scratch, code.org).

Nebraska Content Area Standards

Technology Education

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

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence
STRAND		**BASIC TECHNOLOGY - Operations/Concepts**
INDICATOR		**HARDWARE/SOFTWARE STANDARDS**
STRAND		Apply strategies for identifying and solving routine problems that occur during everyday computer use.

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence
STRAND		**DIGITAL MEDIA**
INDICATOR		**DIGITAL MEDIA STANDARDS**
STRAND		Independently use appropriate technology tools (graphic organizers, audio and video) to define problems and propose hypotheses.

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**
STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
STRAND		Optimize an algorithm for execution by a computer.

STRAND		Create simulations/models to understand natural phenomena and test hypotheses.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**PROGRAMMING STANDARDS**
STRAND		Write programs using visual (block-based) programming languages (scratch, code.org).

Nebraska Content Area Standards

Technology Education

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

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**BASIC TECHNOLOGY - Operations/Concepts**
INDICATOR		**HARDWARE/SOFTWARE STANDARDS**
STRAND		Apply strategies for identifying and solving routine problems that occur during everyday computer use.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**DIGITAL MEDIA**
INDICATOR		**DIGITAL MEDIA STANDARDS**
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STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**
STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
STRAND		Optimize an algorithm for execution by a computer.
STRAND		Create simulations/models to understand natural phenomena and test hypotheses.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**PROGRAMMING STANDARDS**
STRAND		Write programs using visual (block-based) programming languages (scratch, code.org).

Technology Education

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

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**BASIC TECHNOLOGY - Operations/Concepts**
INDICATOR		**HARDWARE/SOFTWARE STANDARDS**
STRAND		Apply strategies for identifying and solving routine problems that occur during everyday computer use.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**DIGITAL MEDIA**
INDICATOR		**DIGITAL MEDIA STANDARDS**
STRAND		Independently use appropriate technology tools (graphic organizers, audio and video) to define problems and propose hypotheses.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**
STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
STRAND		Optimize an algorithm for execution by a computer.
STRAND		Create simulations/models to understand natural phenomena and test hypotheses.
STRAND		Evaluate algorithms by their efficiency, correctness, and clarity.

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**PROGRAMMING STANDARDS**
STRAND		Write programs using visual (block-based) programming languages (scratch, code.org).

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.5.**	**Mathematical Practices**
STRAND / INDICATOR	MP.5.1.	Make sense of problems and persevere in solving them.

STRAND / INDICATOR	MP.5.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.5.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.5.4.	Model with mathematics.
STRAND / INDICATOR	MP.5.5.	Use appropriate tools strategically.
STRAND / INDICATOR	MP.5.7.	Look for and make use of structure.
CONTENT STANDARD	**NV.CC.MD.5.**	**Measurement and Data**
STRAND / INDICATOR		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
INDICATOR / GRADE LEVEL EXPECTATION	MD.5.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

CONTENT STANDARD	**NV.CC.MD.5.**	**Measurement and Data**
STRAND / INDICATOR		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
INDICATOR / GRADE LEVEL EXPECTATION	**MD.5.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
GRADE LEVEL EXPECTATION	MD.5.5(a)	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
GRADE LEVEL EXPECTATION	MD.5.5(b)	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.6.**	**Mathematical Practices**
STRAND / INDICATOR	MP.6.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.6.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.6.3.	Construct viable arguments and critique the reasoning of others.

STRAND / INDICATOR	MP.6.4.	Model with mathematics.
STRAND / INDICATOR	MP.6.5.	Use appropriate tools strategically.
STRAND / INDICATOR	MP.6.7.	Look for and make use of structure.
CONTENT STANDARD	**NV.CC.G.6.**	**Geometry**
STRAND / INDICATOR		**Solve real-world and mathematical problems involving area, surface area, and volume.**
INDICATOR / GRADE LEVEL EXPECTATION	G.6.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.7.**	**Mathematical Practices**
STRAND / INDICATOR	MP.7.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.7.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.7.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.7.4.	Model with mathematics.
STRAND / INDICATOR	MP.7.5.	Use appropriate tools strategically.
STRAND / INDICATOR	MP.7.7.	Look for and make use of structure.

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.8.**	**Mathematical Practices**
STRAND / INDICATOR	MP.8.1.	Make sense of problems and persevere in solving them.

STRAND / INDICATOR	MP.8.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.8.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.8.4.	Model with mathematics.
STRAND / INDICATOR	MP.8.5.	Use appropriate tools strategically.
STRAND / INDICATOR	MP.8.7.	Look for and make use of structure.
CONTENT STANDARD	**NV.CC.G.8.**	**Geometry**
STRAND / INDICATOR		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
INDICATOR / GRADE LEVEL EXPECTATION	G.8.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

Nevada Academic Content Standards

Science

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

CONTENT STANDARD	**NV.3-5-ETS.**	**ENGINEERING DESIGN**
STRAND / INDICATOR	**3-5-ETS1.**	**Engineering Design**
INDICATOR / GRADE LEVEL EXPECTATION		**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.

Nevada Academic Content Standards

Science

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

CONTENT STANDARD	**NV.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STRAND / INDICATOR	**MS-ESS3.**	**Earth and Human Activity**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**

GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

CONTENT STANDARD	**NV.MS-ETS.**	**ENGINEERING DESIGN**
STRAND / INDICATOR	**MS-ETS1.**	**Engineering Design**
INDICATOR / GRADE LEVEL EXPECTATION		**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**

CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Key Ideas and Details**
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Craft and Structure**
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	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	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Integration of Knowledge and Ideas**

INDICATOR / GRADE LEVEL EXPECTATION	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	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Range of Reading and Level of Text Complexity**

INDICATOR / GRADE LEVEL EXPECTATION	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	**NV.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Text Types and Purposes**
INDICATOR / GRADE LEVEL EXPECTATION	**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.

CONTENT STANDARD	**NV.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Production and Distribution of Writing**

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

INDICATOR / GRADE LEVEL EXPECTATION	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.

Nevada Academic Content Standards

Science

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

CONTENT STANDARD	**NV.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STRAND / INDICATOR	**MS-ESS3.**	**Earth and Human Activity**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**

GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

CONTENT STANDARD	**NV.MS-ETS.**	**ENGINEERING DESIGN**
STRAND / INDICATOR	**MS-ETS1.**	**Engineering Design**

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

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

CONTENT STANDARD	NV.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / INDICATOR		Key Ideas and Details
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT STANDARD	NV.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / INDICATOR		Craft and Structure
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	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	NV.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / INDICATOR		Integration of Knowledge and Ideas
INDICATOR / GRADE LEVEL EXPECTATION	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	NV.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / INDICATOR		Range of Reading and Level of Text Complexity

INDICATOR / GRADE LEVEL EXPECTATION	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	**NV.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Text Types and Purposes**
INDICATOR / GRADE LEVEL EXPECTATION	**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.

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

Nevada Academic Content Standards

Science

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

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

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

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

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

CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Key Ideas and Details**
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Craft and Structure**
INDICATOR / GRADE LEVEL EXPECTATION	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 / GRADE LEVEL EXPECTATION	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	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Integration of Knowledge and Ideas**
INDICATOR / GRADE LEVEL EXPECTATION	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	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Range of Reading and Level of Text Complexity**
INDICATOR / GRADE LEVEL EXPECTATION	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	**NV.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Text Types and Purposes**

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

Nevada Academic Content Standards

Technology Education

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

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
GRADE LEVEL EXPECTATION	P3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
GRADE LEVEL EXPECTATION	P3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
GRADE LEVEL EXPECTATION	P3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**

STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P4.**	**Developing and Using Abstractions**
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P5.**	**Creating Computational Artifacts**
GRADE LEVEL EXPECTATION	P5.1.	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.
GRADE LEVEL EXPECTATION	P5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P6.**	**Testing and Refining Computational Artifacts**
GRADE LEVEL EXPECTATION	P6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P7.**	**Communicating About Computing**
GRADE LEVEL EXPECTATION	P7.1.	Select, organize, and interpret large data sets from multiple sources to support a claim.

Nevada Academic Content Standards

Technology Education

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

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**

GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
GRADE LEVEL EXPECTATION	P3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
GRADE LEVEL EXPECTATION	P3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
GRADE LEVEL EXPECTATION	P3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P4.**	**Developing and Using Abstractions**
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P5.**	**Creating Computational Artifacts**
GRADE LEVEL EXPECTATION	P5.1.	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.
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CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P6.**	**Testing and Refining Computational Artifacts**

GRADE LEVEL EXPECTATION	P6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P7.**	**Communicating About Computing**
GRADE LEVEL EXPECTATION	P7.1.	Select, organize, and interpret large data sets from multiple sources to support a claim.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Innovative Designer**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.B.1.	Select and use digital tools to support a design process and expand their understanding to identify constraints, trade-offs, and to weigh risks.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.C.1.	Engage in a design process to inquire and analyze, develop ideas, test and revise prototypes, embracing the cyclical process of trial and error, and understanding problems or setbacks as potential opportunities for improvement.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.D.1.	Demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Computational Thinker**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.B.1.	Find or organize data and use technology to analyze and represent the data to solve problems and make decisions.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.C.1.	Break problems into component parts, identify key pieces, and use that information to problem solve.

Nevada Academic Content Standards

Technology Education

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

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**

INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
GRADE LEVEL EXPECTATION	P3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
GRADE LEVEL EXPECTATION	P3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
GRADE LEVEL EXPECTATION	P3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P4.**	**Developing and Using Abstractions**
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P5.**	**Creating Computational Artifacts**
GRADE LEVEL EXPECTATION	P5.1.	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.
GRADE LEVEL EXPECTATION	P5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**

INDICATOR / GRADE LEVEL EXPECTATION	**P6.**	**Testing and Refining Computational Artifacts**
GRADE LEVEL EXPECTATION	P6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P7.**	**Communicating About Computing**
GRADE LEVEL EXPECTATION	P7.1.	Select, organize, and interpret large data sets from multiple sources to support a claim.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Innovative Designer**
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STRAND / INDICATOR		**Computational Thinker**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.B.1.	Find or organize data and use technology to analyze and represent the data to solve problems and make decisions.
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CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**

STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
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CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
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CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P4.**	**Developing and Using Abstractions**
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P5.**	**Creating Computational Artifacts**
GRADE LEVEL EXPECTATION	P5.1.	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.
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CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**

STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P6.**	**Testing and Refining Computational Artifacts**
GRADE LEVEL EXPECTATION	P6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P7.**	**Communicating About Computing**
GRADE LEVEL EXPECTATION	P7.1.	Select, organize, and interpret large data sets from multiple sources to support a claim.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Innovative Designer**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.B.1.	Select and use digital tools to support a design process and expand their understanding to identify constraints, trade-offs, and to weigh risks.
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INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.D.1.	Demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Computational Thinker**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.B.1.	Find or organize data and use technology to analyze and represent the data to solve problems and make decisions.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.C.1.	Break problems into component parts, identify key pieces, and use that information to problem solve.

STRAND / STANDARD	NH.CC.MP.5.	Mathematical Practices
STANDARD / GLE	MP.5.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.5.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.5.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.5.4.	Model with mathematics.
STANDARD / GLE	MP.5.5.	Use appropriate tools strategically.
STANDARD / GLE	MP.5.7.	Look for and make use of structure.

STRAND / STANDARD	NH.CC.MD.5.	Measurement and Data
STANDARD / GLE		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXPECTATION	MD.5.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

STRAND / STANDARD	NH.CC.MD.5.	Measurement and Data
STANDARD / GLE		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXPECTATION	**MD.5.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
EXPECTATION	MD.5.5(a)	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
EXPECTATION	MD.5.5(b)	Apply the formulas V = l x w x h and V = b x h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

New Hampshire College and Career Ready Standards

Mathematics

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

STRAND / STANDARD	NH.CC.MP.6.	Mathematical Practices
STANDARD / GLE	MP.6.1.	Make sense of problems and persevere in solving them.

STANDARD / GLE	MP.6.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.6.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.6.4.	Model with mathematics.
STANDARD / GLE	MP.6.5.	Use appropriate tools strategically.
STANDARD / GLE	MP.6.7.	Look for and make use of structure.
STRAND / STANDARD	**NH.CC.G.6.**	**Geometry**
STANDARD / GLE		**Solve real-world and mathematical problems involving area, surface area, and volume.**
GRADE LEVEL EXPECTATION	G.6.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

New Hampshire College and Career Ready Standards

Mathematics

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

STRAND / STANDARD	**NH.CC.MP.7.**	**Mathematical Practices**
STANDARD / GLE	MP.7.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.7.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.7.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.7.4.	Model with mathematics.
STANDARD / GLE	MP.7.5.	Use appropriate tools strategically.
STANDARD / GLE	MP.7.7.	Look for and make use of structure.

New Hampshire College and Career Ready Standards

Mathematics

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

STRAND / STANDARD	NH.CC.MP.8.	Mathematical Practices
STANDARD / GLE	MP.8.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.8.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.8.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.8.4.	Model with mathematics.
STANDARD / GLE	MP.8.5.	Use appropriate tools strategically.
STANDARD / GLE	MP.8.7.	Look for and make use of structure.

STRAND / STANDARD	NH.CC.G.8.	Geometry
STANDARD / GLE		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
GRADE LEVEL EXPECTATION	G.8.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

New Hampshire College and Career Ready Standards

Science

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

STRAND / STANDARD	NGSS.3-5-ETS.	ENGINEERING DESIGN
STANDARD / GLE	**3-5-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION		**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.

New Hampshire College and Career Ready Standards

Science

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

STRAND / STANDARD	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE

STANDARD / GLE	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
STRAND / STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / GLE	**MS-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION		**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.

New Hampshire College and Career Ready Standards

Science

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

STRAND / STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STANDARD / GLE	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
STRAND / STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / GLE	**MS-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION		**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.
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New Hampshire College and Career Ready Standards

Science

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

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

STRAND / STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
STANDARD / GLE	**MS-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION		**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.

New Hampshire College and Career Ready Standards

Technology Education

Grade **5** - Adopted: **2005**

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.2.**	**USE WITH CORE SUBJECTS: Become proficient in the use of 21st century tools to access, manage, integrate, evaluate, and create information within the context of the core subjects of:**
GRADE LEVEL EXPECTATION	ICT.2.d.	Science

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.3.**	**COGNITIVE PROFICIENCY: Use 21st century tools to develop cognitive proficiency in:**
GRADE LEVEL EXPECTATION	ICT.3.c.	Problem solving

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.5.**	**DIGITAL PORTFOLIOS: Create digital portfolios which:**

GRADE LEVEL EXPECTATION	ICT.5.b.	Represent proficient, ethical, responsible use of 21st century tools within the context of the core subjects

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

STRAND / STANDARD		**Computer Science**
STANDARD / GLE		**Algorithms & Programming**
GRADE LEVEL EXPECTATION	1B-AP-13.	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences.
GRADE LEVEL EXPECTATION	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations.

STRAND / STANDARD		**Computer Science**
STANDARD / GLE		**Impacts of Computing**
GRADE LEVEL EXPECTATION	1B-IC-19.	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users.

New Hampshire College and Career Ready Standards

Technology Education

Grade **6** - Adopted: **2005**

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.2.**	**USE WITH CORE SUBJECTS: Become proficient in the use of 21st century tools to access, manage, integrate, evaluate, and create information within the context of the core subjects of:**
GRADE LEVEL EXPECTATION	ICT.2.d.	Science

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.3.**	**COGNITIVE PROFICIENCY: Use 21st century tools to develop cognitive proficiency in:**
GRADE LEVEL EXPECTATION	ICT.3.c.	Problem solving

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.5.**	**DIGITAL PORTFOLIOS: Create digital portfolios which:**
GRADE LEVEL EXPECTATION	ICT.5.b.	Represent proficient, ethical, responsible use of 21st century tools within the context of the core subjects

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

STRAND / STANDARD		**Computer Science**

STANDARD / GLE		**Algorithms & Programming**
GRADE LEVEL EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms.

New Hampshire College and Career Ready Standards

Technology Education

Grade **7** - Adopted: **2005**

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.2.**	**USE WITH CORE SUBJECTS: Become proficient in the use of 21st century tools to access, manage, integrate, evaluate, and create information within the context of the core subjects of:**
GRADE LEVEL EXPECTATION	ICT.2.d.	Science

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.3.**	**COGNITIVE PROFICIENCY: Use 21st century tools to develop cognitive proficiency in:**
GRADE LEVEL EXPECTATION	ICT.3.c.	Problem solving

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.5.**	**DIGITAL PORTFOLIOS: Create digital portfolios which:**
GRADE LEVEL EXPECTATION	ICT.5.b.	Represent proficient, ethical, responsible use of 21st century tools within the context of the core subjects

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

STRAND / STANDARD		**Computer Science**
STANDARD / GLE		**Algorithms & Programming**
GRADE LEVEL EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms.

New Hampshire College and Career Ready Standards

Technology Education

Grade **8** - Adopted: **2005**

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.2.**	**USE WITH CORE SUBJECTS: Become proficient in the use of 21st century tools to access, manage, integrate, evaluate, and create information within the context of the core subjects of:**
GRADE LEVEL EXPECTATION	ICT.2.d.	Science

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**

STANDARD / GLE	**ICT.3.**	**COGNITIVE PROFICIENCY: Use 21st century tools to develop cognitive proficiency in:**
GRADE LEVEL EXPECTATION	ICT.3.c.	Problem solving

STRAND / STANDARD	**NH.ICT.**	**Information and Communication Technologies Program**
STANDARD / GLE	**ICT.5.**	**DIGITAL PORTFOLIOS: Create digital portfolios which:**
GRADE LEVEL EXPECTATION	ICT.5.b.	Represent proficient, ethical, responsible use of 21st century tools within the context of the core subjects

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

STRAND / STANDARD		**Computer Science**
STANDARD / GLE		**Algorithms & Programming**
GRADE LEVEL EXPECTATION	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms.

New Jersey Student Learning Standards

Mathematics

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

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

CONTENT AREA / STANDARD	**NJ.5.MD.**	**Measurement and Data**
STRAND	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
CONTENT STATEMENT	5.MD.C.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.

CONTENT AREA / STANDARD	**NJ.5.MD.**	**Measurement and Data**

STRAND	**5.MD.C.**	**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
CONTENT STATEMENT	**5.MD.C.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
CUMULATIVE PROGRESS INDICATOR	5.MD.C.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication.
CUMULATIVE PROGRESS INDICATOR	5.MD.C.5.b.	Apply the formulas V = l × w × h and V = B × h for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real world and mathematical problems.

New Jersey Student Learning Standards

Mathematics

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

CONTENT AREA / STANDARD	**NJ.MP.**	**Mathematical Practices**
STRAND	MP.1.	Make sense of problems and persevere in solving them.
STRAND	MP.2.	Reason abstractly and quantitatively.
STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND	MP.4.	Model with mathematics.
STRAND	MP.5.	Use appropriate tools strategically.
STRAND	MP.7.	Look for and make use of structure.
CONTENT AREA / STANDARD	**NJ.6.G.**	**Geometry**
STRAND	**6.G.A.**	**Solve real-world and mathematical problems involving area, surface area, and volume.**
CONTENT STATEMENT	6.G.A.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

New Jersey Student Learning Standards

Mathematics

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

CONTENT AREA / STANDARD	**NJ.MP.**	**Mathematical Practices**
STRAND	MP.1.	Make sense of problems and persevere in solving them.
STRAND	MP.2.	Reason abstractly and quantitatively.

STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND	MP.4.	Model with mathematics.
STRAND	MP.5.	Use appropriate tools strategically.
STRAND	MP.7.	Look for and make use of structure.

New Jersey Student Learning Standards
Mathematics
Grade **8** - Adopted: **2016**

CONTENT AREA / STANDARD	NJ.MP.	Mathematical Practices
STRAND	MP.1.	Make sense of problems and persevere in solving them.
STRAND	MP.2.	Reason abstractly and quantitatively.
STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND	MP.4.	Model with mathematics.
STRAND	MP.5.	Use appropriate tools strategically.
STRAND	MP.7.	Look for and make use of structure.
CONTENT AREA / STANDARD	**NJ.8.G.**	**Geometry**
STRAND	**8.G.C.**	**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
CONTENT STATEMENT	8.G.C.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

New Jersey Student Learning Standards
Science
Grade **5** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	3-5-ETS.	Engineering Design
STRAND	**3-5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	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 STATEMENT	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 STATEMENT	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.

New Jersey Student Learning Standards

Science

Grade **6** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	**MS-ESS.**	**Earth and Space Science**
STRAND	**MS-ESS3:**	**Earth and Human Activity**
CONTENT STATEMENT	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 AREA / STANDARD	**MS-ETS.**	**Engineering, Technology and Applications of Science**
STRAND	**MS5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	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 STATEMENT	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 STATEMENT	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.

New Jersey Student Learning Standards

Science

Grade **7** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	**MS-ESS.**	**Earth and Space Science**
STRAND	**MS-ESS3:**	**Earth and Human Activity**
CONTENT STATEMENT	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 AREA / STANDARD	**MS-ETS.**	**Engineering, Technology and Applications of Science**
STRAND	**MS5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	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 STATEMENT	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 STATEMENT	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.

New Jersey Student Learning Standards

Science

Grade **8** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	**MS-ESS.**	**Earth and Space Science**
STRAND	**MS-ESS3:**	**Earth and Human Activity**
CONTENT STATEMENT	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 AREA / STANDARD	**MS-ETS.**	**Engineering, Technology and Applications of Science**
STRAND	**MS5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	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 STATEMENT	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 STATEMENT	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.

New Jersey Student Learning Standards

Technology Education

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

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**1 Fostering an Inclusive Computing and Design Culture**
CONTENT STATEMENT		**Building an inclusive and diverse computing culture requires strategies for incorporating perspectives from people of different genders, ethnicities, and abilities. Incorporating these perspectives involves understanding the personal, ethical, social, economic, and cultural contexts in which people operate. Considering the needs of diverse users during the design process is essential to producing inclusive computational products. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**3 Recognizing and Defining Computational Problems**
CONTENT STATEMENT		**The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate. When engaging in this practice, students:**

CUMULATIVE PROGRESS INDICATOR		Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CUMULATIVE PROGRESS INDICATOR		Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**
CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		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.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. Often, several design solutions exist, each better in some way than the others.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.2:	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements include desired features and limitations that need to be considered.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.4:	Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.5:	Describe how specifications and limitations impact the engineering design process.
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.6:	Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Interaction of Technology and Humans**
CONTENT STATEMENT		**Societal needs and wants determine which new tools are developed to address real-world problems.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.ITH.1:	Explain how societal needs and wants influence the development and function of a product and a system.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology innovation and improvement may be influenced by a variety of factors. Engineers create and modify technologies to meet people's needs and wants; scientists ask questions about the natural world.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.NT.1:	Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem.

CUMULATIVE PROGRESS INDICATOR	8.2.5.NT.2 :	Identify new technologies resulting from the demands, values, and interests of individuals, businesses, industries, and societies.

New Jersey Student Learning Standards

Technology Education

Grade **6** - Adopted: **2020**

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**1 Fostering an Inclusive Computing and Design Culture**
CONTENT STATEMENT		**Building an inclusive and diverse computing culture requires strategies for incorporating perspectives from people of different genders, ethnicities, and abilities. Incorporating these perspectives involves understanding the personal, ethical, social, economic, and cultural contexts in which people operate. Considering the needs of diverse users during the design process is essential to producing inclusive computational products. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**3 Recognizing and Defining Computational Problems**
CONTENT STATEMENT		**The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CUMULATIVE PROGRESS INDICATOR		Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**
CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**

STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		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.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Computing Systems**
CONTENT STATEMENT		**Software and hardware determine a computing system's capability to store and process information. The design or selection of a computing system involves multiple considerations and potential trade-offs.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.CS.3:	Justify design decisions and explain potential system trade-offs.
CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Data & Analysis**
CONTENT STATEMENT		**Computer models can be used to simulate events, examine theories and inferences, or make predictions.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.DA.5:	Test, analyze, and refine computational models.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design algorithms that are reusable in many situations. Algorithms that are readable are easier to follow, test, and debug.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.1:	Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design and test solutions to identify problems taking into consideration the diverse needs of the users and the community.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.8:	Systematically test and refine programs using a range of test cases and users.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design is a systematic, creative, and iterative process used to address local and global problems. The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.2:	Identify the steps in the design process that could be used to solve a problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.4:	Investigate a malfunctioning system, identify its impact, and explain the step-by-step process used to troubleshoot, evaluate, and test options to repair the product in a collaborative team.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.5:	Explain the need for optimization in a design process.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.6:	Analyze how trade-offs can impact the design of a product.

CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.7:	Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches).

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people. Sometimes a technology developed for one purpose is adapted to serve other purposes. Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.**

CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.1:	Examine a malfunctioning tool, product, or system and propose solutions to the problem.

CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.4:	Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Effects of Technology on the Natural World**
CONTENT STATEMENT		**Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment.**

CUMULATIVE PROGRESS INDICATOR	8.2.8.ETW.3:	Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact.

New Jersey Student Learning Standards

Technology Education

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

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**1 Fostering an Inclusive Computing and Design Culture**
CONTENT STATEMENT		**Building an inclusive and diverse computing culture requires strategies for incorporating perspectives from people of different genders, ethnicities, and abilities. Incorporating these perspectives involves understanding the personal, ethical, social, economic, and cultural contexts in which people operate. Considering the needs of diverse users during the design process is essential to producing inclusive computational products. When engaging in this practice, students:**

CUMULATIVE PROGRESS INDICATOR		Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**3 Recognizing and Defining Computational Problems**

CONTENT STATEMENT		**The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CUMULATIVE PROGRESS INDICATOR		Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**
CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		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.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**

CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Computing Systems**
CONTENT STATEMENT		**Software and hardware determine a computing system's capability to store and process information. The design or selection of a computing system involves multiple considerations and potential trade-offs.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.CS.3:	Justify design decisions and explain potential system trade-offs.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Data & Analysis**
CONTENT STATEMENT		**Computer models can be used to simulate events, examine theories and inferences, or make predictions.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.DA.5:	Test, analyze, and refine computational models.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design algorithms that are reusable in many situations. Algorithms that are readable are easier to follow, test, and debug.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.1:	Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design and test solutions to identify problems taking into consideration the diverse needs of the users and the community.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.8:	Systematically test and refine programs using a range of test cases and users.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**

CONTENT STATEMENT		**Engineering design is a systematic, creative, and iterative process used to address local and global problems. The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.2:	Identify the steps in the design process that could be used to solve a problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.4:	Investigate a malfunctioning system, identify its impact, and explain the step-by-step process used to troubleshoot, evaluate, and test options to repair the product in a collaborative team.
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.5:	Explain the need for optimization in a design process.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.6:	Analyze how trade-offs can impact the design of a product.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.7:	Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches).
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people. Sometimes a technology developed for one purpose is adapted to serve other purposes. Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.1:	Examine a malfunctioning tool, product, or system and propose solutions to the problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.4:	Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Effects of Technology on the Natural World**
CONTENT STATEMENT		**Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment.**

CUMULATIVE PROGRESS INDICATOR	8.2.8.ETW.3:	Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact.

New Jersey Student Learning Standards

Technology Education

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

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**1 Fostering an Inclusive Computing and Design Culture**
CONTENT STATEMENT		**Building an inclusive and diverse computing culture requires strategies for incorporating perspectives from people of different genders, ethnicities, and abilities. Incorporating these perspectives involves understanding the personal, ethical, social, economic, and cultural contexts in which people operate. Considering the needs of diverse users during the design process is essential to producing inclusive computational products. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**3 Recognizing and Defining Computational Problems**
CONTENT STATEMENT		**The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CUMULATIVE PROGRESS INDICATOR		Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**
CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**

STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		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.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Computing Systems**
CONTENT STATEMENT		**Software and hardware determine a computing system's capability to store and process information. The design or selection of a computing system involves multiple considerations and potential trade-offs.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.CS.3:	Justify design decisions and explain potential system trade-offs.
CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Data & Analysis**
CONTENT STATEMENT		**Computer models can be used to simulate events, examine theories and inferences, or make predictions.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.DA.5:	Test, analyze, and refine computational models.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design algorithms that are reusable in many situations. Algorithms that are readable are easier to follow, test, and debug.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.1:	Design and illustrate algorithms that solve complex problems using flowcharts and/or pseudocode.

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design and test solutions to identify problems taking into consideration the diverse needs of the users and the community.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.8:	Systematically test and refine programs using a range of test cases and users.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design is a systematic, creative, and iterative process used to address local and global problems. The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.2:	Identify the steps in the design process that could be used to solve a problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.4:	Investigate a malfunctioning system, identify its impact, and explain the step-by-step process used to troubleshoot, evaluate, and test options to repair the product in a collaborative team.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.5:	Explain the need for optimization in a design process.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.6:	Analyze how trade-offs can impact the design of a product.

CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.7:	Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches).

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people. Sometimes a technology developed for one purpose is adapted to serve other purposes. Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.**

CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.1:	Examine a malfunctioning tool, product, or system and propose solutions to the problem.

CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.4:	Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Effects of Technology on the Natural World**
CONTENT STATEMENT		**Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment.**

CUMULATIVE PROGRESS INDICATOR	8.2.8.ETW.3:	Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact.

New Mexico Content Standards

Mathematics

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

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

BENCHMARK / STANDARD	MP.7.	Look for and make use of structure.

STRAND / CONTENT STANDARD	**NM.5.MD.**	**Measurement and Data**
BENCHMARK / STANDARD		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

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

New Mexico Content Standards

Mathematics

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

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

BENCHMARK / STANDARD	MP.7.	Look for and make use of structure.

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

New Mexico Content Standards

Mathematics

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

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

New Mexico Content Standards

Mathematics

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

STRAND / CONTENT STANDARD	**NM.MP.**	**Mathematical Practices**
BENCHMARK / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
BENCHMARK / STANDARD	MP.2.	Reason abstractly and quantitatively.
BENCHMARK / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.

BENCHMARK / STANDARD	MP.4.	Model with mathematics.
BENCHMARK / STANDARD	MP.5.	Use appropriate tools strategically.
BENCHMARK / STANDARD	MP.7.	Look for and make use of structure.
STRAND / CONTENT STANDARD	**NM.8.G.**	**Geometry**
BENCHMARK / STANDARD		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	8.G.9.	Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

New Mexico Content Standards

Science

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

STRAND / CONTENT STANDARD	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**3-5-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.

New Mexico Content Standards

Science

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

STRAND / CONTENT STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**

PERFORMANCE STANDARD / 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.

STRAND / CONTENT STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**MS-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.

New Mexico Content Standards

Science

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

STRAND / CONTENT STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.

STRAND / CONTENT STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**MS-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.

PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.

New Mexico Content Standards

Science

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

STRAND / CONTENT STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.

STRAND / CONTENT STANDARD	**NGSS.MS-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**MS-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.
PERFORMANCE STANDARD / 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.

New Mexico Content Standards

Technology Education

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

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.1B.**	**Level 1B (Ages 8-11)**

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**1B-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Program Development**
INDICATOR	1B-AP-13.	Use an iterative process to plan the development of a program by including others'' perspectives and considering user preferences. (P1.1, P5.1)
INDICATOR	1B-AP-16.	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. (P2.2)
INDICATOR	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)
STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.1B.**	**Level 1B (Ages 8-11)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**1B-IC.**	**Impacts of Computing**
PERFORMANCE STANDARD / INDICATOR		**Culture**
INDICATOR	1B-IC-19.	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P1.2)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.1B.**	**Level 1B (Ages 8-11)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**1B-IC.**	**Impacts of Computing**
PERFORMANCE STANDARD / INDICATOR		**Social Interactions**
INDICATOR	1B-IC-20.	Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

New Mexico Content Standards

Technology Education

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

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Algorithms**
INDICATOR	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Modularity**
INDICATOR	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Program Development**
INDICATOR	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-IC.**	**Impacts of Computing**
PERFORMANCE STANDARD / INDICATOR		**Social Interactions**
INDICATOR	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

STRAND / CONTENT STANDARD		CSTA K-12 Computer Science Standards
BENCHMARK / STANDARD	CSTA.2.	Level 2 (Ages 11-14)
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	2-AP.	Algorithms & Programming
PERFORMANCE STANDARD / INDICATOR		Algorithms
INDICATOR	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

STRAND / CONTENT STANDARD		CSTA K-12 Computer Science Standards
BENCHMARK / STANDARD	CSTA.2.	Level 2 (Ages 11-14)
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	2-AP.	Algorithms & Programming
PERFORMANCE STANDARD / INDICATOR		Modularity
INDICATOR	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

STRAND / CONTENT STANDARD		CSTA K-12 Computer Science Standards
BENCHMARK / STANDARD	CSTA.2.	Level 2 (Ages 11-14)
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	2-AP.	Algorithms & Programming
PERFORMANCE STANDARD / INDICATOR		Program Development
INDICATOR	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

STRAND / CONTENT STANDARD		CSTA K-12 Computer Science Standards
BENCHMARK / STANDARD	CSTA.2.	Level 2 (Ages 11-14)
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	2-IC.	Impacts of Computing

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

New Mexico Content Standards

Technology Education

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

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Algorithms**
INDICATOR	2-AP-10.	Use flowcharts and/or pseudocode to address complex problems as algorithms. (P4.4, P4.1)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Modularity**
INDICATOR	2-AP-13.	Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs. (P3.2)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-AP.**	**Algorithms & Programming**
PERFORMANCE STANDARD / INDICATOR		**Program Development**
INDICATOR	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)

STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-IC.**	**Impacts of Computing**
PERFORMANCE STANDARD / INDICATOR		**Social Interactions**
INDICATOR	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

New York State Learning Standards and Core Curriculum

Mathematics

Grade **5** - Adopted: **2017/Updated 2019**

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.5	Use appropriate tools strategically.
CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.
STRAND / DOMAIN / UNIFYING THEME		**Grade 5**
CATEGORY / CLUSTER / KEY IDEA	**NY-5.MD.**	**Measurement and Data**

STANDARD / CONCEPTUAL UNDERSTANDING		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
EXPECTATION / CONTENT SPECIFICATION	NY-5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in., cubic ft., and improvised units.

STRAND / DOMAIN / UNIFYING THEME		**Grade 5**
CATEGORY / CLUSTER / KEY IDEA	**NY-5.MD.**	**Measurement and Data**
STANDARD / CONCEPTUAL UNDERSTANDING		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
EXPECTATION / CONTENT SPECIFICATION	**NY-5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.**
GRADE EXPECTATION	NY-5.MD.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base.
GRADE EXPECTATION	NY-5.MD.5.b.	Apply the formulas V = l × w × h and V = B × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.

New York State Learning Standards and Core Curriculum

Mathematics

Grade **6** - Adopted: **2017/Updated 2019**

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.5	Use appropriate tools strategically.

CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.

STRAND / DOMAIN / UNIFYING THEME		**Grade 6**
CATEGORY / CLUSTER / KEY IDEA	**NY-6.G.**	**Geometry**
STANDARD / CONCEPTUAL UNDERSTANDING		**Solve real-world and mathematical problems involving area, surface area, and volume.**

EXPECTATION / CONTENT SPECIFICATION	NY-6.G.2.	Find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

New York State Learning Standards and Core Curriculum

Mathematics

Grade **7** - Adopted: **2017/Updated 2019**

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.5	Use appropriate tools strategically.
CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.

STRAND / DOMAIN / UNIFYING THEME		**Grade 7**

CATEGORY / CLUSTER / KEY IDEA	**NY-7.G.**	**Geometry**
STANDARD / CONCEPTUAL UNDERSTANDING		**Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**
EXPECTATION / CONTENT SPECIFICATION	NY-7.G.6.	Solve real-world and mathematical problems involving area of two-dimensional objects composed of triangles and trapezoids. Solve surface area problems involving right prisms and right pyramids composed of triangles and trapezoids. Find the volume of right triangular prisms, and solve volume problems involving three-dimensional objects composed of right rectangular prisms.

New York State Learning Standards and Core Curriculum

Mathematics

Grade **8** - Adopted: **2017/Updated 2019**

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.5	Use appropriate tools strategically.
CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.
STRAND / DOMAIN / UNIFYING THEME		**Grade 8**
CATEGORY / CLUSTER / KEY IDEA	**NY-8.G.**	**Geometry**
STANDARD / CONCEPTUAL UNDERSTANDING		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**

EXPECTATION / CONTENT SPECIFICATION	NY-8.G.9.	Given the formulas for the volume of cones, cylinders, and spheres, solve mathematical and real-world problems.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.3-5.ED.**	**Engineering Design**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	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.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.15.**	**Human Impacts**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.ED.**	**Engineering Design**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STANDARD / CONCEPTUAL UNDERSTANDING	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
STANDARD / CONCEPTUAL UNDERSTANDING	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: **2011**

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Key Ideas and Details**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Craft and Structure**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Integration of Knowledge and Ideas**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Range of Reading and Level of Text Complexity**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Text Types and Purposes**
STANDARD / CONCEPTUAL UNDERSTANDING	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION / CONTENT SPECIFICATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Production and Distribution of Writing**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD / CONCEPTUAL UNDERSTANDING	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.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.15.**	**Human Impacts**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**

STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.ED.**	**Engineering Design**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

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

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Key Ideas and Details**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Craft and Structure**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Integration of Knowledge and Ideas**

STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Range of Reading and Level of Text Complexity**

STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Text Types and Purposes**
STANDARD / CONCEPTUAL UNDERSTANDING	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**

EXPECTATION / CONTENT SPECIFICATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Production and Distribution of Writing**

STANDARD / CONCEPTUAL UNDERSTANDING	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

STANDARD / CONCEPTUAL UNDERSTANDING	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.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.15.**	**Human Impacts**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.ED.**	**Engineering Design**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

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

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Key Ideas and Details**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Craft and Structure**
STANDARD / CONCEPTUAL UNDERSTANDING	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.
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Integration of Knowledge and Ideas**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Range of Reading and Level of Text Complexity**
STANDARD / CONCEPTUAL UNDERSTANDING	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.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Text Types and Purposes**
STANDARD / CONCEPTUAL UNDERSTANDING	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**

EXPECTATION / CONTENT SPECIFICATION	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Production and Distribution of Writing**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD / CONCEPTUAL UNDERSTANDING	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.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **5** - Adopted: **1996**

STRAND / DOMAIN / UNIFYING THEME	**NY.2.**	**Information Systems: Students will access, generate, process, and transfer information using appropriate technologies.**
CATEGORY / CLUSTER / KEY IDEA	**2.3.**	**Information Systems: Information technology can have positive and negative impacts on society, depending upon how it is used.**
STANDARD / CONCEPTUAL UNDERSTANDING	2.3.2.	Students describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.1.**	**Engineering Design: Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.1.	Students identify needs and opportunities for technical solutions from an investigation of situations of general or social interest.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.3.	Students consider constraints and generate several ideas for alternative solutions, using group and individual ideation techniques (group discussion, brainstorming, forced connections, role play); defer judgment until a number of ideas have been generated; evaluate (critique) ideas; and explain why the chosen solution is optimal.

STANDARD / CONCEPTUAL UNDERSTANDING	5.1.4.	Students develop plans, including drawings with measurements and details of construction, and construct a model of the solution, exhibiting a degree of craftsmanship.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.4.**	**Technological Systems: Technological systems are designed to achieve specific results and produce outputs, such as products, structures, services, energy, or other systems.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.4.2.	Students assemble, operate, and explain the operation of simple open- and closed-loop electrical, electronic, mechanical, and pneumatic systems.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **6** - Adopted: **1996**

STRAND / DOMAIN / UNIFYING THEME	**NY.2.**	**Information Systems: Students will access, generate, process, and transfer information using appropriate technologies.**
CATEGORY / CLUSTER / KEY IDEA	**2.3.**	**Information Systems: Information technology can have positive and negative impacts on society, depending upon how it is used.**
STANDARD / CONCEPTUAL UNDERSTANDING	2.3.2.	Students describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.1.**	**Engineering Design: Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.1.	Students identify needs and opportunities for technical solutions from an investigation of situations of general or social interest.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.3.	Students consider constraints and generate several ideas for alternative solutions, using group and individual ideation techniques (group discussion, brainstorming, forced connections, role play); defer judgment until a number of ideas have been generated; evaluate (critique) ideas; and explain why the chosen solution is optimal.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.4.	Students develop plans, including drawings with measurements and details of construction, and construct a model of the solution, exhibiting a degree of craftsmanship.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.4.**	**Technological Systems: Technological systems are designed to achieve specific results and produce outputs, such as products, structures, services, energy, or other systems.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.4.2.	Students assemble, operate, and explain the operation of simple open- and closed-loop electrical, electronic, mechanical, and pneumatic systems.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **7** - Adopted: **1996**

STRAND / DOMAIN / UNIFYING THEME	**NY.2.**	**Information Systems: Students will access, generate, process, and transfer information using appropriate technologies.**
CATEGORY / CLUSTER / KEY IDEA	**2.3.**	**Information Systems: Information technology can have positive and negative impacts on society, depending upon how it is used.**
STANDARD / CONCEPTUAL UNDERSTANDING	2.3.2.	Students describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.1.**	**Engineering Design: Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.1.	Students identify needs and opportunities for technical solutions from an investigation of situations of general or social interest.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.3.	Students consider constraints and generate several ideas for alternative solutions, using group and individual ideation techniques (group discussion, brainstorming, forced connections, role play); defer judgment until a number of ideas have been generated; evaluate (critique) ideas; and explain why the chosen solution is optimal.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.4.	Students develop plans, including drawings with measurements and details of construction, and construct a model of the solution, exhibiting a degree of craftsmanship.

STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.4.**	**Technological Systems: Technological systems are designed to achieve specific results and produce outputs, such as products, structures, services, energy, or other systems.**

STANDARD / CONCEPTUAL UNDERSTANDING	5.4.2.	Students assemble, operate, and explain the operation of simple open- and closed-loop electrical, electronic, mechanical, and pneumatic systems.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **8** - Adopted: **1996**

STRAND / DOMAIN / UNIFYING THEME	**NY.2.**	**Information Systems: Students will access, generate, process, and transfer information using appropriate technologies.**
CATEGORY / CLUSTER / KEY IDEA	**2.3.**	**Information Systems: Information technology can have positive and negative impacts on society, depending upon how it is used.**
STANDARD / CONCEPTUAL UNDERSTANDING	2.3.2.	Students describe applications of information technology in mathematics, science, and other technologies that address needs and solve problems in the community.
STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.1.**	**Engineering Design: Engineering design is an iterative process involving modeling and optimization used to develop technological solutions to problems within given constraints.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.1.	Students identify needs and opportunities for technical solutions from an investigation of situations of general or social interest.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.3.	Students consider constraints and generate several ideas for alternative solutions, using group and individual ideation techniques (group discussion, brainstorming, forced connections, role play); defer judgment until a number of ideas have been generated; evaluate (critique) ideas; and explain why the chosen solution is optimal.
STANDARD / CONCEPTUAL UNDERSTANDING	5.1.4.	Students develop plans, including drawings with measurements and details of construction, and construct a model of the solution, exhibiting a degree of craftsmanship.
STRAND / DOMAIN / UNIFYING THEME	**NY.5.**	**Technology: Students will apply technological knowledge and skills to design, construct, use, and evaluate products and systems to satisfy human and environmental needs.**
CATEGORY / CLUSTER / KEY IDEA	**5.4.**	**Technological Systems: Technological systems are designed to achieve specific results and produce outputs, such as products, structures, services, energy, or other systems.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.4.2.	Students assemble, operate, and explain the operation of simple open- and closed-loop electrical, electronic, mechanical, and pneumatic systems.

North Carolina Standard Course of Study

Mathematics

Grade **5** - Adopted: **2017/IMPL 2018**

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

CONTENT AREA / STRAND		Measurement and Data
STRAND / ESSENTIAL STANDARD		**Understand concepts of volume.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	NC.5.MD.4.	Recognize volume as an attribute of solid figures and measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.

CONTENT AREA / STRAND		Measurement and Data
STRAND / ESSENTIAL STANDARD		**Understand concepts of volume.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.5.MD.5.**	**Relate volume to the operations of multiplication and addition.**
CLARIFYING OBJECTIVE	NC.5.MD.5.a.	Find the volume of a rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths.
CLARIFYING OBJECTIVE	NC.5.MD.5.b.	Build understanding of the volume formula for rectangular prisms with whole-number edge lengths in the context of solving problems.

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

CONTENT AREA / STRAND		Geometry
STRAND / ESSENTIAL STANDARD		**Solve real-world and mathematical problems involving area, surface area, and volume.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	NC.6.G.2.	Apply and extend previous understandings of the volume of a right rectangular prism to find the volume of right rectangular prisms with fractional edge lengths. Apply this understanding to the context of solving real-world and mathematical problems.

North Carolina Standard Course of Study

Mathematics

Grade **7** - Adopted: **2017/IMPL 2018**

CONTENT AREA / STRAND		Standards for Mathematical Practice
STRAND / ESSENTIAL STANDARD	MP.1.	Make sense of problems and persevere in solving them.
STRAND / ESSENTIAL STANDARD	MP.2.	Reason abstractly and quantitatively.
STRAND / ESSENTIAL STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.

STRAND / ESSENTIAL STANDARD	MP.4.	Model with mathematics.
STRAND / ESSENTIAL STANDARD	MP.5.	Use appropriate tools strategically.
STRAND / ESSENTIAL STANDARD	MP.7.	Look for and make use of structure.

North Carolina Standard Course of Study

Mathematics

Grade **8** - Adopted: **2017/IMPL 2018**

CONTENT AREA / STRAND		Standards for Mathematical Practice
STRAND / ESSENTIAL STANDARD	MP.1.	Make sense of problems and persevere in solving them.
STRAND / ESSENTIAL STANDARD	MP.2.	Reason abstractly and quantitatively.
STRAND / ESSENTIAL STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND / ESSENTIAL STANDARD	MP.4.	Model with mathematics.
STRAND / ESSENTIAL STANDARD	MP.5.	Use appropriate tools strategically.
STRAND / ESSENTIAL STANDARD	MP.7.	Look for and make use of structure.
CONTENT AREA / STRAND		**Geometry**
STRAND / ESSENTIAL STANDARD		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	NC.8.G.9.	Understand how the formulas for the volumes of cones, cylinders, and spheres are related and use the relationship to solve real-world and mathematical problems.

North Carolina Standard Course of Study

Science

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

CONTENT AREA / STRAND	NC.CC.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / ESSENTIAL STANDARD		**Key Ideas and Details**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT AREA / STRAND	NC.CC.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / ESSENTIAL STANDARD		**Craft and Structure**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	NC.CC.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / ESSENTIAL STANDARD		**Integration of Knowledge and Ideas**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	NC.CC.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
STRAND / ESSENTIAL STANDARD		**Range of Reading and Level of Text Complexity**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	NC.CC.6-8.WHST.	Writing Standards for Literacy in Science and Technical Subjects

STRAND / ESSENTIAL STANDARD		**Text Types and Purposes**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
CLARIFYING OBJECTIVE	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT AREA / STRAND	**NC.CC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Production and Distribution of Writing**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.

North Carolina Standard Course of Study

Science

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

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Key Ideas and Details**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Craft and Structure**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.

ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Integration of Knowledge and Ideas**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Range of Reading and Level of Text Complexity**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	**NC.CC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Text Types and Purposes**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**6-8.WHST.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
CLARIFYING OBJECTIVE	6-8.WHST.2.d.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT AREA / STRAND	**NC.CC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Production and Distribution of Writing**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.

CONTENT AREA / STRAND	**NC.8.E.**	**Earth Science**
STRAND / ESSENTIAL STANDARD		**Earth Systems, Structures and Processes**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**8.E.1.**	**Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.**
CLARIFYING OBJECTIVE	**8.E.1.3.**	**Predict the safety and potability of water supplies in North Carolina based on physical and biological factors, including:**
INDICATOR	8.E.1.3.a.	Temperature
INDICATOR	8.E.1.3.b.	Dissolved oxygen
INDICATOR	8.E.1.3.c.	pH
INDICATOR	8.E.1.3.d.	Nitrates and phosphates
INDICATOR	8.E.1.3.e.	Turbidity
INDICATOR	8.E.1.3.f.	Bio-indicators

CONTENT AREA / STRAND	**NC.8.E.**	**Earth Science**
STRAND / ESSENTIAL STANDARD		**Earth Systems, Structures and Processes**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**8.E.1.**	**Understand the hydrosphere and the impact of humans on local systems and the effects of the hydrosphere on humans.**
CLARIFYING OBJECTIVE	**8.E.1.4.**	**Conclude that the good health of humans requires:**
INDICATOR	8.E.1.4.a.	Monitoring of the hydrosphere
INDICATOR	8.E.1.4.b.	Water quality standards
INDICATOR	8.E.1.4.c.	Methods of water treatment
INDICATOR	8.E.1.4.d.	Maintaining safe water quality
INDICATOR	8.E.1.4.e.	Stewardship

CONTENT AREA / STRAND	**NC.8.L.**	**Life Science**
STRAND / ESSENTIAL STANDARD		**Structures and Functions of Living Organisms**

ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**8.L.1.**	**Understand the hazards caused by agents of diseases that effect living organisms.**
CLARIFYING OBJECTIVE	8.L.1.1.	Summarize the basic characteristics of viruses, bacteria, fungi and parasites relating to the spread, treatment and prevention of disease.

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Key Ideas and Details**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Craft and Structure**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Integration of Knowledge and Ideas**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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 AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Range of Reading and Level of Text Complexity**

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

CONTENT AREA / STRAND	**NC.CC.6-8.WHST.**	**Writing Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Production and Distribution of Writing**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.WHST.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	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.

North Carolina Standard Course of Study

Technology Education

Grade **5** - Adopted: **2020 (ISTE-S)**

CONTENT AREA / STRAND		**Digital Learning Standards**
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT AREA / STRAND		**Digital Learning Standards**
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		**Grades 3-5 (Ages 8-11)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	35-AP-01.	Create multiple algorithms for the same task to determine which is the most accurate and efficient.

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		**Grades 3-5 (Ages 8-11)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Program Development**

INDICATOR	35-AP-12.	Describe choices made during program development using code comments, presentations, and demonstrations.

North Carolina Standard Course of Study

Technology Education

Grade **6** - Adopted: **2020 (ISTE-S)**

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Grade **6** - Adopted: **2020**

CONTENT AREA / STRAND		NC K-12 Computer Science Standards

STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	68-AP-01.	Implement flowcharts and/or pseudocode to address complex problems as algorithms.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Modularity**
INDICATOR	68-AP-05.	Organize problems and subproblems into parts.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Program Development**
INDICATOR	68-AP-10.	Systematically test and refine programs using a range of test cases.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Impacts of Computing**
CLARIFYING OBJECTIVE		**Social Interactions**
INDICATOR	68-IC-05.	Collaborate with many contributors to create a computational artifact.

Grade **7** - Adopted: **2020 (ISTE-S)**

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**

ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	68-AP-01.	Implement flowcharts and/or pseudocode to address complex problems as algorithms.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Modularity**
INDICATOR	68-AP-05.	Organize problems and subproblems into parts.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Program Development**
INDICATOR	68-AP-10.	Systematically test and refine programs using a range of test cases.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Impacts of Computing**
CLARIFYING OBJECTIVE		**Social Interactions**
INDICATOR	68-IC-05.	Collaborate with many contributors to create a computational artifact.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**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 STANDARD / CLARIFYING OBJECTIVE	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 STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**

CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	68-AP-01.	Implement flowcharts and/or pseudocode to address complex problems as algorithms.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Modularity**
INDICATOR	68-AP-05.	Organize problems and subproblems into parts.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Program Development**
INDICATOR	68-AP-10.	Systematically test and refine programs using a range of test cases.

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Impacts of Computing**
CLARIFYING OBJECTIVE		**Social Interactions**
INDICATOR	68-IC-05.	Collaborate with many contributors to create a computational artifact.

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.

BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.
BENCHMARK	MP.5	Use appropriate tools strategically.
BENCHMARK	MP.7	Look for and make use of structure.
CONTENT STANDARD		**Measurement and Data**
BENCHMARK		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
GRADE LEVEL EXPECTATION	5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and improvised units.

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

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.
BENCHMARK	MP.5	Use appropriate tools strategically.

BENCHMARK	MP.7	Look for and make use of structure.
CONTENT STANDARD		**Geometry**
BENCHMARK		**Solve real world and mathematical problems involving area, surface area, and volume.**
GRADE LEVEL EXPECTATION	6.G.2	Using cubes of an appropriate size, pack a right rectangular prism having fractional edge lengths to find its volume. Then show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real world and mathematical problems.

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.
BENCHMARK	MP.5	Use appropriate tools strategically.
BENCHMARK	MP.7	Look for and make use of structure.
CONTENT STANDARD		**Geometry**
BENCHMARK		**Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.**
GRADE LEVEL EXPECTATION	7.G.6	Solve real world and mathematical problems involving area of two-dimensional figures composed of polygons and/or circles, including composite figures. Use nets to solve real world and mathematical problems involving surface area of prisms and cylinders, including composite solids. Solve real world and mathematical problems involving volumes of right prisms, including composite solids.

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.

BENCHMARK	MP.5	Use appropriate tools strategically.
BENCHMARK	MP.7	Look for and make use of structure.
CONTENT STANDARD		**Geometry**
BENCHMARK		**Solve real world and mathematical problems involving volume of cylinders, cones, and spheres.**
GRADE LEVEL EXPECTATION	8.G.9	Know the formulas for the volume of cones, cylinders and spheres. Use the formulas to solve real world and mathematical problems.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**2**	**Developing and using models**
GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.
CONTENT STANDARD		**Engineering & Technology (ET)**
BENCHMARK	**5-ET1.**	**Engineering & Technology**
GRADE LEVEL EXPECTATION	5-ET1-1.	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	5-ET1-2.	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	5-ET1-3.	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.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**2**	**Developing and using models**

GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

CONTENT STANDARD		**Earth and Space Science (ESS)**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
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.

CONTENT STANDARD		**Engineering & Technology (ET)**
BENCHMARK	**MS-ET1.**	**Engineering & Technology**
GRADE LEVEL EXPECTATION	MS-ET1-1.	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-ET1-2.	Evaluate competing design solutions using systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ET1-4.	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.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**2**	**Developing and using models**
GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

CONTENT STANDARD		**Earth and Space Science (ESS)**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
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.

CONTENT STANDARD		**Engineering & Technology (ET)**
BENCHMARK	**MS-ET1.**	**Engineering & Technology**
GRADE LEVEL EXPECTATION	MS-ET1-1.	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-ET1-2.	Evaluate competing design solutions using systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ET1-4.	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.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**2**	**Developing and using models**
GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

CONTENT STANDARD		**Earth and Space Science (ESS)**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
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.

CONTENT STANDARD		**Engineering & Technology (ET)**
BENCHMARK	**MS-ET1.**	**Engineering & Technology**

GRADE LEVEL EXPECTATION	MS-ET1-1.	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-ET1-2.	Evaluate competing design solutions using systematic process to determine how well they meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	MS-ET1-4.	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.

North Dakota Content Standards

Technology Education

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

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Problem Solving & Algorithms**
INDICATOR		**Strategies for understanding and solving problems.**
INDICATOR	5.PSA.1.	Create a sequence of instructions from a previous decomposed task.

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Development & Design**
INDICATOR		**Design processes to create new, useful, and imaginative solutions to problems.**
INDICATOR	5.DD.1.	Continued growth independently or collaboratively creating programs that use sequencing, loops, and conditions.
INDICATOR	5.DD.2.	Create solutions to problems using a design method.

North Dakota Content Standards

Technology Education

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

CONTENT STANDARD		**Library and Technology**
BENCHMARK		**Media and Technology Literacy**
GRADE LEVEL EXPECTATION		**Creative and Innovative Processes and Products**
INDICATOR	6-8.MTL.7.	Create unique products and processes by selecting digital resources, tools, and formats for a real-world task.

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

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Problem Solving & Algorithms**

INDICATOR		**Strategies for understanding and solving problems.**
INDICATOR	6.PSA.1.	Identify and test an algorithm to solve a problem.

North Dakota Content Standards

Technology Education

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

CONTENT STANDARD		**Library and Technology**
BENCHMARK		**Media and Technology Literacy**
GRADE LEVEL EXPECTATION		**Creative and Innovative Processes and Products**
INDICATOR	6-8.MTL.7.	Create unique products and processes by selecting digital resources, tools, and formats for a real-world task.

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

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Problem Solving & Algorithms**
INDICATOR		**Strategies for understanding and solving problems.**
INDICATOR	7.PSA.1.	Modify and test an algorithm to solve a problem.
INDICATOR	7.PSA.2.	Continued growth debugging a program that includes sequencing, loops, or conditionals.

North Dakota Content Standards

Technology Education

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

CONTENT STANDARD		**Library and Technology**
BENCHMARK		**Media and Technology Literacy**
GRADE LEVEL EXPECTATION		**Creative and Innovative Processes and Products**
INDICATOR	6-8.MTL.7.	Create unique products and processes by selecting digital resources, tools, and formats for a real-world task.

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

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Problem Solving & Algorithms**
INDICATOR		**Strategies for understanding and solving problems.**
INDICATOR	8.PSA.1.	Create and test an algorithm to solve a problem across disciplines.
INDICATOR	8.PSA.2.	Continued growth debugging a program that includes sequencing, loops, or conditionals.

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

DOMAIN / ACADEMIC CONTENT STANDARD	OH.5.MD.	MEASUREMENT AND DATA
STANDARD / BENCHMARK		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
BENCHMARK / GRADE LEVEL INDICATOR	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

DOMAIN / ACADEMIC CONTENT STANDARD	OH.5.MD.	MEASUREMENT AND DATA
STANDARD / BENCHMARK		**Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.**
BENCHMARK / GRADE LEVEL INDICATOR	**5.MD.5.**	**Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.**
PROFICIENCY LEVEL	5.MD.5.a.	Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the Associative Property of Multiplication.
PROFICIENCY LEVEL	5.MD.5.b.	Apply the formulas V = ℓ × w × h and V = B × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems.

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

DOMAIN / ACADEMIC CONTENT STANDARD	OH.MP.	Standards for Mathematical Practice
STANDARD / BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
STANDARD / BENCHMARK	MP.2.	Reason abstractly and quantitatively.
STANDARD / BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / BENCHMARK	MP.4.	Model with mathematics.
STANDARD / BENCHMARK	MP.5.	Use appropriate tools strategically.
STANDARD / BENCHMARK	MP.7.	Look for and make use of structure.
DOMAIN / ACADEMIC CONTENT STANDARD	**OH.6.G.**	**GEOMETRY**
STANDARD / BENCHMARK		**Solve real-world and mathematical problems involving area, surface area, and volume.**
BENCHMARK / GRADE LEVEL INDICATOR	6.G.2.	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

Ohio Learning Standards

Mathematics

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

DOMAIN / ACADEMIC CONTENT STANDARD	OH.MP.	Standards for Mathematical Practice
STANDARD / BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
STANDARD / BENCHMARK	MP.2.	Reason abstractly and quantitatively.
STANDARD / BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / BENCHMARK	MP.4.	Model with mathematics.

STANDARD / BENCHMARK	MP.5.	Use appropriate tools strategically.
STANDARD / BENCHMARK	MP.7.	Look for and make use of structure.

Ohio Learning Standards
Mathematics
Grade **8** - Adopted: **2017**

DOMAIN / ACADEMIC CONTENT STANDARD	OH.MP.	Standards for Mathematical Practice
STANDARD / BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
STANDARD / BENCHMARK	MP.2.	Reason abstractly and quantitatively.
STANDARD / BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / BENCHMARK	MP.4.	Model with mathematics.
STANDARD / BENCHMARK	MP.5.	Use appropriate tools strategically.
STANDARD / BENCHMARK	MP.7.	Look for and make use of structure.
DOMAIN / ACADEMIC CONTENT STANDARD	**OH.8.G.**	**GEOMETRY**
STANDARD / BENCHMARK		**Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.**
BENCHMARK / GRADE LEVEL INDICATOR	8.G.9.	Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres.

Ohio Learning Standards
Technology Education
Grade **5** - Adopted: **2017**

DOMAIN / ACADEMIC CONTENT STANDARD		Ohio Learning Standards in Technology
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Explain how technology, society, and the individual impact one another.**

PROFICIENCY LEVEL	3-5.ST.3.a.	Describe the advantages/disadvantages of technology (past, present, future) to understand the relationship between technology, society and the individual.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**

PROFICIENCY LEVEL	3-5.DT.1.b.	Give examples of how requirements for a product can limit the design possibilities for that product.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**

PROFICIENCY LEVEL	3-5.DT.2.b.	Plan and implement a design process: identify a problem, think about ways to solve the problem, develop possible solutions, test and evaluate solution(s), present a possible solution, and redesign to improve the solution.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**

PROFICIENCY LEVEL	3-5.DT.3.b.	Explore and document connections between technology and other fields of study.

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 5**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**

PROFICIENCY LEVEL	CS.T.5.a.	Diagnose problems and develop strategies to resolve technology issues.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 5**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.5.a.	Evaluate a multi-step process to diagram the proper steps to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 5**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.5.a.	Create a variable, a placeholder for storing a value, to understand how it is used in a multi-step process (i.e., algorithm).

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 5**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.5.a.	Create a program using sequences, events, loops and conditionals to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 5**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Modularity**
PROFICIENCY LEVEL	ATP.M.5.a.	Decompose (i.e., break down) the steps needed or not needed (i.e., abstraction) into precise sequences of instructions to design an algorithm.

Ohio Learning Standards

Technology Education

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**

STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Demonstrate an understanding of technology's impact on the advancement of humanity – economically, environmentally and ethically.**
PROFICIENCY LEVEL	6-8.ST.1.b.	Explore the advantages and disadvantages of widespread use, accessibility, and reliance on technology in your world.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Explain how technology, society, and the individual impact one another.**
PROFICIENCY LEVEL	6-8.ST.3.d.	Describe the impact of an individual's wants, values and interests on the development of new technologies.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.
PROFICIENCY LEVEL	6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.
PROFICIENCY LEVEL	6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g. research, cost, time, materials, feedback, safety, etc.) to justify decisions when developing products and systems to solve problems.
PROFICIENCY LEVEL	6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of the design process.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**
PROFICIENCY LEVEL	6-8.DT.3.a.	Collaborate to solve a problem as an interdisciplinary team modeling different roles and functions.

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**
PROFICIENCY LEVEL	CS.T.6.a.	Use a systematic process to identify and evaluate the source of a routine computing problem. Select the best solution to solve the computing problem and communicate the solution to others.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.6.a.	Compare and refine multiple algorithms for the same task to determine which is the most efficient.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.6.a.	Identify unknown values that need to be represented by a variable within a multi-step process.
PROFICIENCY LEVEL	ATP.VDR.6.b.	Create variables and use them within a multi-step process.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.6.a.	Identify and trace decisions and loops that exist in a multi-step process within a program.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Modularity**
PROFICIENCY LEVEL	ATP.M.6.a.	Decompose problems into parts to facilitate the design, implementation and review of programs.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Program Development**
PROFICIENCY LEVEL	ATP.PD.6.a.	Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 6**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Natural Interactions**
PROFICIENCY LEVEL	AI.NI.6.a.	Individually and collaboratively compare language processing algorithms to solve a problem based on a given criteria (e.g., time, resource, accessibility).

Ohio Learning Standards

Technology Education

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**

STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Demonstrate an understanding of technology's impact on the advancement of humanity – economically, environmentally and ethically.**
PROFICIENCY LEVEL	6-8.ST.1.b.	Explore the advantages and disadvantages of widespread use, accessibility, and reliance on technology in your world.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Explain how technology, society, and the individual impact one another.**
PROFICIENCY LEVEL	6-8.ST.3.d.	Describe the impact of an individual's wants, values and interests on the development of new technologies.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.
PROFICIENCY LEVEL	6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.
PROFICIENCY LEVEL	6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g. research, cost, time, materials, feedback, safety, etc.) to justify decisions when developing products and systems to solve problems.
PROFICIENCY LEVEL	6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of the design process.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**
PROFICIENCY LEVEL	6-8.DT.3.a.	Collaborate to solve a problem as an interdisciplinary team modeling different roles and functions.

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**
PROFICIENCY LEVEL	CS.T.7.a.	Use a systematic process to identify and evaluate the source of a routine computing problem. Select the best solution to solve the computing problem and communicate the solution to others.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.7.a.	Select and modify pseudocode for a multi-step process to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.7.a.	Use test cases to trace variable values to determine the result.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**

BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.7.a.	Use and apply decisions and loops in a program to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Program Development**
PROFICIENCY LEVEL	ATP.PD.7.a.	Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Representation & Reasoning**
PROFICIENCY LEVEL	AI.RR.7.a.	Compare several algorithms that could be used to solve a specific type of reasoning problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 7**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Natural Interactions**
PROFICIENCY LEVEL	AI.NI.7.a.	Curate a dataset to train a language-processing algorithm to create a program that incorporates voice commands.

Ohio Learning Standards

Technology Education

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Demonstrate an understanding of technology's impact on the advancement of humanity – economically, environmentally and ethically.**

PROFICIENCY LEVEL	6-8.ST.1.b.	Explore the advantages and disadvantages of widespread use, accessibility, and reliance on technology in your world.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Explain how technology, society, and the individual impact one another.**
PROFICIENCY LEVEL	6-8.ST.3.d.	Describe the impact of an individual's wants, values and interests on the development of new technologies.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.
PROFICIENCY LEVEL	6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.
PROFICIENCY LEVEL	6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g. research, cost, time, materials, feedback, safety, etc.) to justify decisions when developing products and systems to solve problems.
PROFICIENCY LEVEL	6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of the design process.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**

BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**
PROFICIENCY LEVEL	6-8.DT.3.a.	Collaborate to solve a problem as an interdisciplinary team modeling different roles and functions.

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**
PROFICIENCY LEVEL	CS.T.8.a.	Use a systematic process to identify and evaluate the source of a routine computing problem. Select the best solution to solve the computing problem and communicate the solution to others.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.8.a.	Create multiple pseudocode to solve a multi-step process and justify the most efficient solution.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.8.a.	Analyze test cases and determine the range of valid solutions.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.8.a.	Use and apply decisions and loops in a program to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Modularity**
PROFICIENCY LEVEL	ATP.M.8.a.	Decompose problems and subproblems into parts to facilitate the design, implementation and review of complex programs.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Program Development**
PROFICIENCY LEVEL	ATP.PD.8.a.	Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Representation & Reasoning**
PROFICIENCY LEVEL	AI.RR.8.a.	Model the process of solving a graph-search problem using breadth-first search to draw a search tree.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Natural Interactions**
PROFICIENCY LEVEL	AI.NI.8.a.	Create a program, individually and collaboratively, that implements a language processing algorithm to create a functional chatbot.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**

BENCHMARK / GRADE LEVEL INDICATOR		**Societal Impacts**
PROFICIENCY LEVEL	AI.SI.8.b.	Identify bias potential in the design of artificial intelligence systems and describe how to utilize inclusive AI design to prevent algorithmic bias.
DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**IMPACTS OF COMPUTING**
BENCHMARK / GRADE LEVEL INDICATOR		**Culture**
PROFICIENCY LEVEL	IC.Cu.8.d.	Explain how computing impacts innovation in other fields.

Oklahoma Academic Standards

Mathematics

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

CONTENT STANDARD / COURSE		**Mathematical Actions and Processes**
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically
CONTENT STANDARD / COURSE	**5**	**Fifth Grade (5)**
STRAND / STANDARD	**5.GM.**	**Geometry & Measurement (GM)**
OBJECTIVE	**5.GM.2.**	**Determine volume using the object's dimensions. Compare and analyze rectangular prisms with equivalent volume to recognize their different dimensions.**

SKILL / CONCEPT	5.GM.2.1.	Determine the volume of rectangular prisms by the number of unit cubes (n) used to construct the shape and by the product of the dimensions of the prism □ □ □ □ □ = □. Understand rectangular prisms of different dimensions (p, q, and r) can have the same volume if □ □ □ □ □ = □ □ □ □ □ = □.

CONTENT STANDARD / COURSE	**5**	**Fifth Grade (5)**
STRAND / STANDARD	**5.GM.**	**Geometry & Measurement (GM)**
OBJECTIVE	**5.GM.3.**	**Understand angle, length, weight, and capacity as measurable attributes of real-world and mathematical objects, using various tools to measure them. Solve real-world problems of length.**
SKILL / CONCEPT	5.GM.3.5.	Estimate lengths and geometric measurements to the nearest whole unit, using benchmarks in customary and metric measurement systems.

Oklahoma Academic Standards

Mathematics

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

CONTENT STANDARD / COURSE		**Mathematical Actions and Processes**
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically

CONTENT STANDARD / COURSE	**6**	**Sixth Grade (6)**
STRAND / STANDARD	**6.GM.**	**Geometry & Measurement (GM)**
OBJECTIVE	**6.GM.4.**	**Choose appropriate units of measurement and use ratios to convert within measurement systems to model and solve real-world and mathematical problems.**
SKILL / CONCEPT	6.GM.4.1.	Estimate weights and capacities using benchmarks in customary and metric measurement systems with appropriate units.

Mathematics

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

CONTENT STANDARD / COURSE		Mathematical Actions and Processes
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically

CONTENT STANDARD / COURSE	7	Seventh Grade (7)
STRAND / STANDARD	**7.GM.**	**Geometry & Measurement (GM)**
OBJECTIVE	**7.GM.1.**	**Develop and understand the concept of surface area and volume of rectangular prisms with rational-valued edge lengths.**
SKILL / CONCEPT	7.GM.1.2.	Using a variety of tools and strategies, develop the concept that surface area of a rectangular prism can be found by wrapping the figure with same-sized square units without gaps or overlap. Use appropriate measurements (e.g., cm^2).
SKILL / CONCEPT	7.GM.1.3.	Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements (e.g., cm^3).

Oklahoma Academic Standards

Mathematics

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

CONTENT STANDARD / COURSE		Mathematical Actions and Processes
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency

STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically
CONTENT STANDARD / COURSE	**PA.**	**Pre-Algebra (PA)**
STRAND / STANDARD	**PA.GM.**	**Geometry & Measurement (GM)**
OBJECTIVE	**PA.GM.2.**	**Justify and use formulas to calculate surface area and volume of three-dimensional figures.**
SKILL / CONCEPT	PA.GM.2.3.	Justify why base area (B) and height (h) in the formula V=Bh are multiplied to find the volume of a rectangular prism. Use appropriate units (e.g., cm^3).
SKILL / CONCEPT	PA.GM.2.4.	Develop and use the formulas □ = (□□)^$□ and □ = □□ to determine the volume of right cylinders, in terms of π and using approximations for pi (T). Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate units (e.g., cm^3).
CONTENT STANDARD / COURSE	**G.**	**Geometry (G)**
STRAND / STANDARD	**G.3D.**	**Geometry: Three-Dimensional Shapes (G.3D)**
OBJECTIVE	**G.3D.1.**	**Solve real-world and mathematical problems involving three-dimensional figures.**
SKILL / CONCEPT	G.3D.1.1.	Represent, use, and apply mathematical models and other tools (e.g., nets, measuring devices, formulas) to solve problems involving surface area and volume of three-dimensional figures (prisms, cylinders, pyramids, cones, spheres, composites of these figures).

Oklahoma Academic Standards

Science

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

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards for Science**
STRAND / STANDARD		**Earth and Human Activity (ESS3)**
OBJECTIVE	7.ESS3.4	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Oklahoma Academic Standards

Technology Education

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Creating Computational Artifacts**
SKILL / CONCEPT		Develop computational artifacts to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to the community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing and Using Abstractions**
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing a Productive Computing Environment**
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Recognizing and Defining Computational Problems**
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**5**	**Fifth Grade (5)**
OBJECTIVE	**5.CS.**	**Computing Systems (CS)**
SKILL / CONCEPT	**5.CS.T.**	**Troubleshooting (T)**

SKILL	5.CS.T.01.	Identify, using accurate terminology, simple hardware and software problems that may occur during everyday use. Discuss problems with peers and adults, apply strategies for solving these problems and explain why the strategies should work.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	5	Fifth Grade (5)
OBJECTIVE	5.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	5.AP.A.	Algorithms (A)
SKILL	5.AP.A.01.	Model, compare and refine multiple algorithms for the same task and determine which is the most efficient.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	5	Fifth Grade (5)
OBJECTIVE	5.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	5.AP.PD.	Program Development (PD)
SKILL	5.AP.PD.01.	Use an iterative process to plan the development of a program that includes others' perspectives and user preferences while solving simple problems.
SKILL	5.AP.PD.04.	Communicate and explain program development choices using comments, presentations, and demonstrations.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	5	Fifth Grade (5)
OBJECTIVE	5.IC.	Impacts of Computing (IC)
SKILL / CONCEPT	5.IC.CU.	Culture (CU)
SKILL	5.IC.CU.02.	Develop, test, and refine digital artifacts to improve accessibility and usability.

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

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	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.
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Oklahoma Academic Standards

Technology Education

Grade **6** - Adopted: **2023**

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Creating Computational Artifacts**
SKILL / CONCEPT		Develop computational artifacts to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to the community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing and Using Abstractions**
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		Computer Science Practices
OBJECTIVE		Developing a Productive Computing Environment
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		Computer Science Practices
OBJECTIVE		Recognizing and Defining Computational Problems
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	6	Sixth Grade (6)
OBJECTIVE	6.CS.	Computing Systems (CS)
SKILL / CONCEPT	6.CS.T.	Troubleshooting (T)
SKILL	6.CS.T.01.	Identify and resolve software and hardware problems with computing devices and their components involving settings and connections.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	6	Sixth Grade (6)
OBJECTIVE	6.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	6.AP.A.	Algorithms (A)
SKILL	6.AP.A.01.	Use an existing algorithm in natural language or pseudocode to solve complex problems.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	6	Sixth Grade (6)
OBJECTIVE	6.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	6.AP.PD.	Program Development (PD)

SKILL	6.AP.PD.04.	Break down tasks and follow an individual timeline when developing a computational artifact.

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

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Oklahoma Academic Standards

Technology Education

Grade **7** - Adopted: **2023**

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Creating Computational Artifacts**
SKILL / CONCEPT		Develop computational artifacts to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to the community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		Computer Science Practices
OBJECTIVE		Developing and Using Abstractions
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		Computer Science Practices
OBJECTIVE		Developing a Productive Computing Environment
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD		Computer Science Practices
OBJECTIVE		Recognizing and Defining Computational Problems
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	7	Seventh Grade (7)
OBJECTIVE	7.CS.	Computing Systems (CS)
SKILL / CONCEPT	7.CS.T.	Troubleshooting (T)
SKILL	7.CS.T.01.	Identify and resolve complex software and hardware problems with computing devices and their components utilizing strategies such as developing and analyzing flow diagrams.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	7	Seventh Grade (7)
OBJECTIVE	7.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	7.AP.A.	Algorithms (A)

SKILL	7.AP.A.01.	Select and modify an existing algorithm in natural language or pseudocode to solve complex problems.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**7**	**Seventh Grade (7)**
OBJECTIVE	**7.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**7.AP.PD.**	**Program Development (PD)**
SKILL	7.AP.PD.01.	Seek and incorporate feedback from team members and users to refine a solution to a problem.
SKILL	7.AP.PD.04.	Distribute tasks and maintain a project timeline when collaboratively developing computational artifacts.

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

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Oklahoma Academic Standards

Technology Education

Grade **8** - Adopted: **2023**

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Creating Computational Artifacts**
SKILL / CONCEPT		Develop computational artifacts to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to the community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing and Using Abstractions**
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing a Productive Computing Environment**
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Recognizing and Defining Computational Problems**
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**8**	**Eighth Grade (8)**
OBJECTIVE	**8.CS.**	**Computing Systems (CS)**

SKILL / CONCEPT	**8.CS.T.**	**Troubleshooting (T)**
SKILL	8.CS.T.01.	Systematically identify, resolve, and document complex software and hardware problems with computing devices and their components.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**8**	**Eighth Grade (8)**
OBJECTIVE	**8.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**8.AP.A.**	**Algorithms (A)**
SKILL	8.AP.A.01.	Design algorithms in natural language, flow and control diagrams, comments within code, and/or pseudocode to solve complex problems.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**8**	**Eighth Grade (8)**
OBJECTIVE	**8.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**8.AP.PD.**	**Program Development (PD)**
SKILL	8.AP.PD.01.	Seek and incorporate feedback from team members and users to refine a solution to a problem that meets the needs of different users.
SKILL	8.AP.PD.04.	Model effective communication between participants and demonstrate successful collaboration when developing computational artifacts.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**8**	**Eighth Grade (8)**
OBJECTIVE	**8.IC.**	**Impacts of Computing (IC)**
SKILL / CONCEPT	**8.IC.CU.**	**Culture (CU)**
SKILL	8.IC.CU.01.	Explore careers related to the field of computer science, and explain how computing impacts innovation in various career fields.

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

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**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.**
OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Oregon Academic Content Standards

Mathematics

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

STANDARD / CONTENT AREA		Mathematical Practice Standards
CONTENT STANDARD / PROFICIENCY	1	Make sense of problems and persevere in solving them.
CONTENT STANDARD / PROFICIENCY	2	Reason abstractly and quantitatively.
CONTENT STANDARD / PROFICIENCY	3	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / PROFICIENCY	4	Model with mathematics.
CONTENT STANDARD / PROFICIENCY	5	Use appropriate tools strategically.

CONTENT STANDARD / PROFICIENCY	7	Look for and make use of structure.

STANDARD / CONTENT AREA		**Grade 5 Standards**
CONTENT STANDARD / PROFICIENCY	**5.GM.**	**Geometric Reasoning and Measurement (5.GM)**
BENCHMARK / STRAND	**5.GM.D.**	**Geometric measurement: understand concepts of volume.**
EXPECTATION / BENCHMARK	5.GM.D.6.	Measure the volume of a rectangular prism by counting unit cubes using standard and nonstandard units.
EXPECTATION / BENCHMARK	5.GM.D.7.	Relate volume of rectangular prisms to the operations of multiplication and addition. Solve problems in authentic contexts involving volume using a variety of strategies.

Oregon Academic Content Standards

Mathematics

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

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

STANDARD / CONTENT AREA		**Grade 6 Standards**
CONTENT STANDARD / PROFICIENCY	**6.GM.**	**Geometric Reasoning and Measurement (6.GM)**

BENCHMARK / STRAND	6.GM.A.	Solve real-world and mathematical problems involving area, surface area, and volume.
EXPECTATION / BENCHMARK	6.GM.A.2.	Find the volume of a right rectangular prism with fractional edge lengths by filling it with unit cubes of appropriate unit fraction edge lengths. Connect and apply to the formulas V = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths to solve problems in authentic contexts.

Oregon Academic Content Standards

Mathematics

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

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

Oregon Academic Content Standards

Mathematics

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

STANDARD / CONTENT AREA		Mathematical Practice Standards
CONTENT STANDARD / PROFICIENCY	1	Make sense of problems and persevere in solving them.
CONTENT STANDARD / PROFICIENCY	2	Reason abstractly and quantitatively.
CONTENT STANDARD / PROFICIENCY	3	Construct viable arguments and critique the reasoning of others.

CONTENT STANDARD / PROFICIENCY	4	Model with mathematics.
CONTENT STANDARD / PROFICIENCY	5	Use appropriate tools strategically.
CONTENT STANDARD / PROFICIENCY	7	Look for and make use of structure.

STANDARD / CONTENT AREA		**Grade 8 Standards**
CONTENT STANDARD / PROFICIENCY	**8.GM.**	**Geometric Reasoning and Measurement (8.GM)**
BENCHMARK / STRAND	**8.GM.C.**	**Solve mathematical problems in authentic contexts involving volume of cylinders, cones, and spheres.**
EXPECTATION / BENCHMARK	8.GM.C.9.	Choose and use the appropriate formula for the volume of cones, cylinders, and spheres to solve problems in authentic contexts.

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	**OR.3-5-ETS1.**	**Engineering Design**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	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.

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	**OR.MS-ETS1.**	**Engineering Design**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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.

BENCHMARK / STRAND	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
BENCHMARK / STRAND	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.
STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Key Ideas and Details**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Craft and Structure**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Integration of Knowledge and Ideas**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Range of Reading and Level of Text Complexity**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**

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

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	**OR.MS-ETS1.**	**Engineering Design**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
BENCHMARK / STRAND	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.
STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Key Ideas and Details**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Craft and Structure**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Integration of Knowledge and Ideas**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Range of Reading and Level of Text Complexity**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Text Types and Purposes**
BENCHMARK / STRAND	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION / BENCHMARK	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.

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

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	**OR.MS-ESS3.**	**Earth and Human Activity**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.MS-PS4.**	**Waves and their Applications in Technologies for Information Transfer**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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.
STANDARD / CONTENT AREA	**OR.MS-ETS1.**	**Engineering Design**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
BENCHMARK / STRAND	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.
STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Key Ideas and Details**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**

CONTENT STANDARD / PROFICIENCY		**Craft and Structure**
BENCHMARK / STRAND	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.
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Integration of Knowledge and Ideas**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Range of Reading and Level of Text Complexity**
BENCHMARK / STRAND	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 / CONTENT AREA	**OR.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Text Types and Purposes**
BENCHMARK / STRAND	**WHST.6-8.2.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
EXPECTATION / BENCHMARK	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
STANDARD / CONTENT AREA	**OR.WHST.6-8.**	**Writing Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Production and Distribution of Writing**
BENCHMARK / STRAND	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
BENCHMARK / STRAND	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.

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

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

Pennsylvania Core and Academic Standards

Mathematics

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

SUBJECT / STANDARD AREA	PA.CC.MP.	Standards for Mathematical Practice
STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.

STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.

Pennsylvania Core and Academic Standards

Mathematics

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

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

Pennsylvania Core and Academic Standards

Mathematics

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

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

STANDARD AREA / STATEMENT	CC.MP.1.	Make sense of problems and persevere in solving them.
STANDARD AREA / STATEMENT	CC.MP.2.	Reason abstractly and quantitatively.
STANDARD AREA / STATEMENT	CC.MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD AREA / STATEMENT	CC.MP.4.	Model with mathematics.
STANDARD AREA / STATEMENT	CC.MP.5.	Use appropriate tools strategically.
STANDARD AREA / STATEMENT	CC.MP.7.	Look for and make use of structure.
SUBJECT / STANDARD AREA	**PA.CC.2.3.8.**	**Geometry**
STANDARD AREA / STATEMENT	**CC.2.3.8.A.**	**Geometry**
STANDARD	CC.2.3.8.A.1.	Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.

Pennsylvania Core and Academic Standards

Science

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

SUBJECT / STANDARD AREA	**PA.SI.**	**Science as Inquiry**
STANDARD AREA / STATEMENT	SI.5.	Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations.
STANDARD AREA / STATEMENT	SI.6.	Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments, and are based on scientific principles, models, and theories.
SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**

DESCRIPTOR / STANDARD	3.4.5.A1.	Explain how people use tools and techniques to help them do things.
DESCRIPTOR / STANDARD	3.4.5.A2.	Understand that a subsystem is a system that operates as part of a larger system.
DESCRIPTOR / STANDARD	3.4.5.A3.	Describe how technologies are often combined.

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

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

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

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.E.**	**The Designed World**

DESCRIPTOR / STANDARD	3.4.5.E3.	Explain how tools, machines, products, and systems use energy in order to do work.

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

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

Pennsylvania Core and Academic Standards

Science

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

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

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**
DESCRIPTOR / STANDARD	3.4.6.A2.	Describe how systems thinking involves considering how every part relates to others.
DESCRIPTOR / STANDARD	3.4.6.A3.	Explain how knowledge from other fields of study (STEM) integrate to create new technologies.

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

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

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	3.4.6.C1.	Recognize that requirements for a design include such factors as the desired elements and features of a product or system or the limits that are placed on the design.
DESCRIPTOR / STANDARD	3.4.6.C2.	Show how models are used to communicate and test design ideas and processes.

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

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

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

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**
STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Science

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

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

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.A.**	**The Scope of Technology**
DESCRIPTOR / STANDARD	3.4.7.A2.	Explain how different technologies involve different sets of processes.
DESCRIPTOR / STANDARD	3.4.7.A3.	Explain how knowledge gained from other fields of study has a direct effect on the development of technological products and systems.

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

SUBJECT / STANDARD AREA	**PA.3.**	**Science and Technology and Engineering Education**
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.C.**	**Technology and Engineering Design**
DESCRIPTOR / STANDARD	3.4.7.C1.	Describe how design, as a creative planning process, leads to useful products and systems.

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

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

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**
STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Science

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

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

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

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

SUBJECT / STANDARD AREA	PA.3.	Science and Technology and Engineering Education
STANDARD AREA / STATEMENT	**3.4.**	**Technology and Engineering Education**
STANDARD	**3.4.D.**	**Abilities for a Technological World**

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

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

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Key Ideas and Details**
STANDARD	CC.3.5.6-8.B.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STANDARD	CC.3.5.6-8.C.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Craft and Structure**
STANDARD	CC.3.5.6-8.D.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.
STANDARD	CC.3.5.6-8.E.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Integration of Knowledge and Ideas**
STANDARD	CC.3.5.6-8.I.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

SUBJECT / STANDARD AREA	**PA.CC.3.5.6-8.**	**Reading Informational Text: Students read, understand, and respond to informational text – with emphasis on comprehension, making connections among ideas and between texts with focus on textual evidence.**
STANDARD AREA / STATEMENT		**Range and Level of Complex Texts**
STANDARD	CC.3.5.6-8.J.	By the end of grade 8, read and comprehend science/technical texts in the grades 6–8 text complexity band independently and proficiently.

SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Text Types and Purposes**
STANDARD	**CC.3.6.6-8.B.**	**Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.**
DESCRIPTOR / STANDARD	CC.3.6.6-8.B.4.	Use precise language and domain-specific vocabulary to inform about or explain the topic.

SUBJECT / STANDARD AREA	**PA.CC.3.6.6-8.**	**Writing: Students write for different purposes and audiences. Students write clear and focused text to convey a well-defined perspective and appropriate content.**
STANDARD AREA / STATEMENT		**Production and Distribution of Writing**
STANDARD	CC.3.6.6-8.C.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
STANDARD	CC.3.6.6-8.E.	Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Pennsylvania Core and Academic Standards

Technology Education

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

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-AP.**	**Algorithms & Programming**
STANDARD		**Program Development**
DESCRIPTOR / STANDARD	1B-AP-13.	Use an iterative process to plan the development of a program by including others'' perspectives and considering user preferences. (P1.1, P5.1)
DESCRIPTOR / STANDARD	1B-AP-16.	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. (P2.2)
DESCRIPTOR / STANDARD	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-IC.**	**Impacts of Computing**
STANDARD		**Culture**
DESCRIPTOR / STANDARD	1B-IC-19.	Brainstorm ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P1.2)

SUBJECT / STANDARD AREA	**CSTA.1B.**	**Level 1B (Ages 8-11)**
STANDARD AREA / STATEMENT	**1B-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**
DESCRIPTOR / STANDARD	1B-IC-20.	Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

Pennsylvania Core and Academic Standards

Technology Education

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

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

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

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

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

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-IC.**	**Impacts of Computing**
STANDARD		**Social Interactions**

DESCRIPTOR / STANDARD	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

Pennsylvania Core and Academic Standards

Technology Education

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

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

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

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

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

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

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

SUBJECT / STANDARD AREA	**CSTA.2.**	**Level 2 (Ages 11-14)**
STANDARD AREA / STATEMENT	**2-IC.**	**Impacts of Computing**

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

Pennsylvania Core and Academic Standards

Technology Education

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

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

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

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

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