

Main Criteria: Forward

Secondary Criteria: Alabama Courses of Study, Alaska Content and Performance Standards, Arizona's College and Career Ready Standards, Arkansas Standards, California Content Standards, Colorado Academic Standards (CAS), Connecticut State Standards, Delaware Standards and Instruction, Florida Standards, Georgia Standards of Excellence, Hawaii Content and Performance Standards

Subjects: Mathematics, Science, Technology Education

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

Forward

Solar Water Disinfection (SODIS)

Alabama Courses of Study

Mathematics

Grade 5 - Adopted: 2019/Impl. 2020

STRAND / DOMAIN		Mathematical Practices
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OBJECTIVE / CATEGORY	MP1	Make sense of problems and persevere in solving them.
OBJECTIVE / CATEGORY	MP2	Reason abstractly and quantitatively.
OBJECTIVE / CATEGORY	MP3	Construct viable arguments and critique the reasoning of others.
OBJECTIVE / CATEGORY	MP4	Model with mathematics.
OBJECTIVE / CATEGORY	MP5	Use appropriate tools strategically.
OBJECTIVE / CATEGORY	MP7	Look for and make use of structure.

STRAND / DOMAIN		Grade 5 Content Standards
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OBJECTIVE / CATEGORY		Measurement
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STANDARD		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
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RELATED CONTENT / EXPECTATION	19.	Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume.
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GRADE EXPECTATION	19.a.	Use the associative property of multiplication to find the volume of a right rectangular prism and relate it to packing the prism with unit cubes. Show that the volume can be determined by multiplying the three edge lengths or by multiplying the height by the area of the base.
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GRADE EXPECTATION	19.b.	Apply the formulas $V = l \times w \times h$ and $V = B \times h$ 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.
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Alabama Courses of Study

Mathematics

Grade 6 - Adopted: 2019/Impl. 2020

STRAND / DOMAIN		Mathematical Practices
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OBJECTIVE / CATEGORY	MP1	Make sense of problems and persevere in solving them.
OBJECTIVE / CATEGORY	MP2	Reason abstractly and quantitatively.
OBJECTIVE / CATEGORY	MP3	Construct viable arguments and critique the reasoning of others.
OBJECTIVE / CATEGORY	MP4	Model with mathematics.
OBJECTIVE / CATEGORY	MP5	Use appropriate tools strategically.
OBJECTIVE / CATEGORY	MP7	Look for and make use of structure.

STRAND / DOMAIN		Grade 6 Content Standards
OBJECTIVE / CATEGORY		Geometry and Measurement
STANDARD		Solve real-world and mathematical problems to determine area, surface area, and volume.
RELATED CONTENT / EXPECTATION	28.	Apply previous understanding of volume of right rectangular prisms to those with fractional edge lengths to solve real-world and mathematical problems.

GRADE EXPECTATION	28.a.	Use models (cubes or drawings) and the volume formulas ($V = lwh$ and $V = Bh$) to find and compare volumes of right rectangular prisms.
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**Alabama Courses of Study
Mathematics
Grade 7 - Adopted: 2019/Impl. 2020**

STRAND / DOMAIN		Mathematical Practices
OBJECTIVE / CATEGORY	MP1	Make sense of problems and persevere in solving them.
OBJECTIVE / CATEGORY	MP2	Reason abstractly and quantitatively.
OBJECTIVE / CATEGORY	MP3	Construct viable arguments and critique the reasoning of others.
OBJECTIVE / CATEGORY	MP4	Model with mathematics.
OBJECTIVE / CATEGORY	MP5	Use appropriate tools strategically.

OBJECTIVE / CATEGORY	MP7	Look for and make use of structure.
STRAND / DOMAIN		Grade 7 Accelerated Content Standards
OBJECTIVE / CATEGORY		Geometry and Measurement
STANDARD		Solve real-world and mathematical problems involving angle measure, area, surface area, and volume.

RELATED CONTENT / EXPECTATION 40. Informally derive the formulas for the volume of cones and spheres by experimentally comparing the volumes of cones and spheres with the same radius and height to a cylinder with the same dimensions. [Grade 8, 29]

RELATED CONTENT / EXPECTATION 41. Use formulas to calculate the volumes of three-dimensional figures to solve real-world problems. [Grade 8, 30]

**Alabama Courses of Study
Mathematics
Grade 8 - Adopted: 2019/Impl. 2020**

STRAND / DOMAIN		Mathematical Practices
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OBJECTIVE / CATEGORY MP1 Make sense of problems and persevere in solving them.

OBJECTIVE / CATEGORY MP2 Reason abstractly and quantitatively.

OBJECTIVE / CATEGORY MP3 Construct viable arguments and critique the reasoning of others.

OBJECTIVE / CATEGORY MP4 Model with mathematics.

OBJECTIVE / CATEGORY MP5 Use appropriate tools strategically.

OBJECTIVE / CATEGORY MP7 Look for and make use of structure.

STRAND / DOMAIN		Grade 8 Mathematics Content Standards
OBJECTIVE / CATEGORY		Geometry and Measurement
STANDARD		Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

RELATED CONTENT / EXPECTATION 29. Informally derive the formulas for the volume of cones and spheres by experimentally comparing the volumes of cones and spheres with the same radius and height to a cylinder with the same dimensions.

RELATED CONTENT / EXPECTATION	30.	Use formulas to calculate the volumes of three-dimensional figures (cylinders, cones, and spheres) to solve real-world problems.
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Alabama Courses of Study

Science

Grade 6 - Adopted: 2015

STRAND / DOMAIN	AL.6.ESS.	EARTH AND SPACE SCIENCE
OBJECTIVE / CATEGORY		Earth and Human Activity

STANDARD	6.ESS.15	Analyze evidence (e.g., databases on human populations, rates of consumption of food and other natural resources) to explain how changes in human population, per capita consumption of natural resources, and other human activities (e.g., land use, resource development, water and air pollution, urbanization) affect Earth's systems.
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Grade 6 - Adopted: 2014

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Key Ideas and Details

STANDARD	RH.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.
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STANDARD	RH.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
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STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Craft and Structure

STANDARD	RH.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.
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STANDARD	RH.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.
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STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Integration of Knowledge and Ideas

STANDARD	RH.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.
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STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Range of Reading and Level of Text Complexity

STANDARD	RH.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.
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STRAND / DOMAIN	AL.WHST.6-8.	Writing Standards for Literacy in Science, and Technical Subjects
OBJECTIVE / CATEGORY		Text Types and Purposes
STANDARD	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

RELATED CONTENT / EXPECTATION

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

STRAND / DOMAIN	AL.WHST.6-8.	Writing Standards for Literacy in Science, and Technical Subjects
OBJECTIVE / CATEGORY		Production and Distribution of Writing

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

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

**Alabama Courses of Study
Science
Grade 7 - Adopted: 2014**

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Key Ideas and Details

STANDARD RH.6-8.2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Craft and Structure

STANDARD RH.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.

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OBJECTIVE / CATEGORY		Integration of Knowledge and Ideas

STANDARD RH.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.

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

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

STRAND / DOMAIN	AL.WHST.6-8.	Writing Standards for Literacy in Science, and Technical Subjects
OBJECTIVE / CATEGORY		Production and Distribution of Writing

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

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**Alabama Courses of Study
Science
Grade 8 - Adopted: 2014**

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Key Ideas and Details

STANDARD RH.6-8.2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Craft and Structure

STANDARD RH.6-8.4. Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to Grades 6-8 texts and topics.

STANDARD RH.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.

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Integration of Knowledge and Ideas

STANDARD RH.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.

STRAND / DOMAIN	AL.RH.6-8.	Reading Standards for Literacy in Science and Technical Subjects
OBJECTIVE / CATEGORY		Range of Reading and Level of Text Complexity

STANDARD RH.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.

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

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

STRAND / DOMAIN	AL.WHST.6-8.	Writing Standards for Literacy in Science, and Technical Subjects
OBJECTIVE / CATEGORY		Production and Distribution of Writing

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

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

**Alabama Courses of Study
Technology Education
Grade 5 - Adopted: 2018**

STRAND / DOMAIN	AL.DLCS.5.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	5.1.	Computational Thinker
STANDARD		Algorithms

RELATED CONTENT / EXPECTATION 5.1.2. Create an algorithm to solve a problem while detecting and debugging logical errors within the algorithm.

RELATED CONTENT / EXPECTATION 5.1.3. Create an algorithm that is defined by simple pseudocode.

RELATED CONTENT / EXPECTATION 5.1.5. Develop and recommend solutions to a given problem and explain the process to an audience.

STRAND / DOMAIN	AL.DLCS. 5.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	5.1.	Computational Thinker
STANDARD		Programming and Development

RELATED CONTENT / EXPECTATION 5.1.6. Create a working program in a block-based visual programming environment using arithmetic operators, conditionals, and repetition in programs.

STRAND / DOMAIN	AL.DLCS. 5.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	5.5.	Innovative Designer
STANDARD		Design Thinking

RELATED CONTENT / EXPECTATION 5.5.28. Develop, test, and refine prototypes as part of a cyclical design process to solve a complex problem.

**Alabama Courses of Study
Technology Education
Grade 6 - Adopted: 2018**

STRAND / DOMAIN	AL.DLCS. 6.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	6.1.	Computational Thinker
STANDARD		Abstraction

RELATED CONTENT / EXPECTATION 6.1.1. Remove background details from an everyday process to highlight essential properties.

STRAND / DOMAIN	AL.DLCS. 6.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	6.1.	Computational Thinker
STANDARD		Algorithms

RELATED CONTENT / EXPECTATION 6.1.5. Identify algorithms that make use of sequencing, selection or iteration.

STRAND / DOMAIN	AL.DLCS. 6.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	6.1.	Computational Thinker
STANDARD		Programming and Development

RELATED CONTENT / EXPECTATION 6.1.6. Identify steps in developing solutions to complex problems using computational thinking.

STRAND / DOMAIN	AL.DLCS. 6.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	6.5.	Innovative Designer
STANDARD		Design Thinking

RELATED CONTENT / EXPECTATION 6.5.30. Discuss and apply the components of the problem-solving process.

**Alabama Courses of Study
Technology Education
Grade 7 - Adopted: 2018**

STRAND / DOMAIN	AL.DLCS. 7.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	7.1.	Computational Thinker
STANDARD		Algorithms

RELATED CONTENT / EXPECTATION 7.1.3. Create algorithms that demonstrate sequencing, selection or iteration.

RELATED CONTENT / EXPECTATION 7.1.4. Design a complex algorithm that contains sequencing, selection or iteration.

STRAND / DOMAIN	AL.DLCS. 7.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	7.1.	Computational Thinker
STANDARD		Programming and Development

RELATED CONTENT / EXPECTATION 7.1.5. Solve a complex problem using computational thinking.

RELATED CONTENT / EXPECTATION 7.1.6. Create and organize algorithms in order to automate a process efficiently.

STRAND / DOMAIN	AL.DLCS. 7.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	7.5.	Innovative Designer
STANDARD		Design Thinking

RELATED CONTENT / EXPECTATION 7.5.30. Apply the problem-solving process to solve real-world problems.

**Alabama Courses of Study
Technology Education
Grade 8 - Adopted: 2018**

STRAND / DOMAIN	AL.DLCS. 8.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	8.1.	Computational Thinker
STANDARD		Algorithms

RELATED CONTENT / EXPECTATION 8.1.3. Create an algorithm using a programming language that includes the use of sequencing, selections, or iterations.

STRAND / DOMAIN	AL.DLCS. 8.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	8.1.	Computational Thinker
STANDARD		Programming and Development

RELATED CONTENT / EXPECTATION 8.1.5. Discuss the efficiency of an algorithm or technology used to solve complex problems.

RELATED CONTENT / EXPECTATION 8.1.6. Describe how algorithmic processes and automation increase efficiency.

STRAND / DOMAIN	AL.DLCS. 8.	Digital Literacy and Computer Science
OBJECTIVE / CATEGORY	8.4.	Computing Analyst
STANDARD		Systems

RELATED CONTENT / EXPECTATION 8.4.23. Design a digital artifact to propose a solution for a content-related problem.

**Alaska Content and Performance Standards
Mathematics
Grade 5 - Adopted: 2012**

PERFORMANCE / CONTENT STANDARD	AK.MP.	Mathematical Practices
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GRADE LEVEL EXPECTATION / STRAND MP.1. Make sense of problems and persevere in solving them.

GRADE LEVEL EXPECTATION / STRAND	MP.2.	Reason abstractly and quantitatively.
GRADE LEVEL EXPECTATION / STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
GRADE LEVEL EXPECTATION / STRAND	MP.4.	Model with mathematics.
GRADE LEVEL EXPECTATION / STRAND	MP.5.	Use appropriate tools strategically.
GRADE LEVEL EXPECTATION / STRAND	MP.7.	Look for and make use of structure.

PERFORMANCE / CONTENT STANDARD	AK.5.MD.	Measurement and Data
GRADE LEVEL EXPECTATION / STRAND		Convert like measurement units within a given measurement system and solve problems involving time.

GOAL 5.MD.1. Identify, estimate measure, and convert equivalent measures within systems English length (inches, feet, yards, miles) weight (ounces, pounds, tons) volume (fluid ounces, cups, pints, quarts, gallons) temperature (Fahrenheit) Metric length (millimeters, centimeters, meters, kilometers) volume (milliliters, liters), temperature (Celsius), (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems using appropriate tools.

PERFORMANCE / CONTENT STANDARD	AK.5.MD.	Measurement and Data
GRADE LEVEL EXPECTATION / STRAND		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

GOAL 5.MD.6. Estimate and measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and non-standard units.

PERFORMANCE / CONTENT STANDARD	AK.5.MD.	Measurement and Data
GRADE LEVEL EXPECTATION / STRAND		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
GOAL	5.MD.7.	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

INDICATOR 5.MD.7.a. Estimate and 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. Demonstrate the associative property of multiplication by using the product of three whole-numbers to find volumes (length x width x height).

INDICATOR 5.MD.7.b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.

Alaska Content and Performance Standards

Mathematics

Grade 6 - Adopted: 2012

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

PERFORMANCE / CONTENT STANDARD	AK.6.G.	Geometry
GRADE LEVEL EXPECTATION / STRAND		Solve real-world and mathematical problems involving area, surface area, and volume.

GOAL 6.G.2. Apply the standard formulas to find volumes of prisms. Use the attributes and properties (including shapes of bases) of prisms to identify, compare or describe three-dimensional figures including prisms and cylinders.

Alaska Content and Performance Standards

Mathematics

Grade 7 - Adopted: 2012

PERFORMANCE / CONTENT STANDARD	AK.MP.	Mathematical Practices
GRADE LEVEL EXPECTATION / STRAND	MP.1.	Make sense of problems and persevere in solving them.
GRADE LEVEL EXPECTATION / STRAND	MP.2.	Reason abstractly and quantitatively.

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

**Alaska Content and Performance Standards
Mathematics**

Grade 8 - Adopted: 2012

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

PERFORMANCE / CONTENT STANDARD	AK.8.G.	Geometry
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GRADE LEVEL EXPECTATION / STRAND		Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
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GOAL	8.G.9.	Identify and apply the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
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Alaska Content and Performance Standards

Science

Grade 5 - Adopted: 2019

PERFORMANCE / CONTENT STANDARD		Engineering Design
GRADE LEVEL EXPECTATION / 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.
GRADE LEVEL EXPECTATION / 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.
GRADE LEVEL EXPECTATION / 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.

Alaska Content and Performance Standards

Science

Grade 6 - Adopted: 2019

PERFORMANCE / CONTENT STANDARD		MIDDLE SCHOOL EARTH AND SPACE SCIENCES
GRADE LEVEL EXPECTATION / STRAND		Human Impacts
GOAL	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.

Alaska Content and Performance Standards

Science

Grade 7 - Adopted: 2019

PERFORMANCE / CONTENT STANDARD		MIDDLE SCHOOL EARTH AND SPACE SCIENCES
GRADE LEVEL EXPECTATION / STRAND		Human Impacts
GOAL	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.

Alaska Content and Performance Standards

Science

Grade 8 - Adopted: 2019

PERFORMANCE / CONTENT STANDARD		MIDDLE SCHOOL EARTH AND SPACE SCIENCES
GRADE LEVEL EXPECTATION / STRAND		Human Impacts

GOAL	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.
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**Alaska Content and Performance Standards
Technology Education
Grade 5 - Adopted: 2019**

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Algorithms

INDICATOR	5.AP.A.0 1.	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.
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PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Innovative Design

GOAL	3-5.ID.4.	Students demonstrate perseverance when working with open-ended problems.
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PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Computational Thinking

GOAL	3-5.CT.1.	Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator.
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GOAL	3-5.CT.3.	Students break down problems into smaller parts, identify key information and propose solutions.
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GOAL	3-5.CT.4.	Students understand and explore basic concepts related to automation, patterns and algorithmic thinking.
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PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Global Collaboration

GOAL	3-5.GC.3.	Students perform a variety of roles within a team using age-appropriate technology to complete a project or solve a problem.
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**Alaska Content and Performance Standards
Technology Education
Grade 6 - Adopted: 2019**

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
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GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Algorithms

INDICATOR 6.AP.A.0 Use an existing algorithm in natural language or pseudocode to solve complex problems.
1.

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Program Development

INDICATOR 6.AP.PD. Seek and incorporate feedback from team members to refine a solution to a problem.
01.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Innovative Design

GOAL 6-12.ID.1. Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

GOAL 6-12.ID.3. Students engage in a design process to develop, test and revise prototypes, embracing the cyclical process of trial and error and understanding problems or setbacks as potential opportunities for improvement.

GOAL 6-12.ID.4. Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Computational Thinking

GOAL 6-12.CT.1. Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.

GOAL 6-12.CT.3. Students break problems into component parts, identify key pieces and use that information to problem solve.

GOAL 6-12.CT.4. Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Algorithms

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

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Program Development

INDICATOR 7.AP.PD.01. Seek and incorporate feedback from team members and users to refine a solution to a problem.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Innovative Design

GOAL 6-12.ID.1. Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

GOAL 6-12.ID.3. Students engage in a design process to develop, test and revise prototypes, embracing the cyclical process of trial and error and understanding problems or setbacks as potential opportunities for improvement.

GOAL 6-12.ID.4. Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Computational Thinking

GOAL 6-12.CT.1. Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.

GOAL 6-12.CT.3. Students break problems into component parts, identify key pieces and use that information to problem solve.

GOAL 6-12.CT.4. Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

PERFORMANCE / CONTENT STANDARD		Alaska Computer Science Standards
GRADE LEVEL EXPECTATION / STRAND		Algorithms and Programming
GOAL		Program Development

INDICATOR 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 diverse users.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Innovative Design

GOAL 6-12.ID.1. Students engage in a design process and employ it to generate ideas, create innovative products or solve authentic problems.

GOAL 6-12.ID.3. Students engage in a design process to develop, test and revise prototypes, embracing the cyclical process of trial and error and understanding problems or setbacks as potential opportunities for improvement.

GOAL 6-12.ID.4. Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

PERFORMANCE / CONTENT STANDARD		Alaska Digital Literacy Standards
GRADE LEVEL EXPECTATION / STRAND		Computational Thinking

GOAL 6-12.CT.1. Students practice defining problems to solve by computing for data analysis, modeling or algorithmic thinking.

GOAL 6-12.CT.3. Students break problems into component parts, identify key pieces and use that information to problem solve.

GOAL 6-12.CT.4. Students demonstrate an understanding of how automation works and use algorithmic thinking to design and automate solutions.

Arizona's College and Career Ready Standards

Mathematics

Grade 5 - Adopted: 2018

STRAND		Standards for Mathematical Practice
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CONCEPT / STANDARD MP.1 Make sense of problems and persevere in solving them.

CONCEPT / STANDARD MP.2 Reason abstractly and quantitatively.

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

STRAND		Measurement and Data (MD)
CONCEPT / STANDARD	5.MD.C	Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL
 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

STRAND		Measurement and Data (MD)
CONCEPT / STANDARD	5.MD.C	Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	5.MD.C.5	Relate volume to the operations of multiplication and addition and solve mathematical problems and problems in real-world contexts involving volume.

OBJECTIVE / GRADE LEVEL EXPECTATION
 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).

OBJECTIVE / GRADE LEVEL EXPECTATION
 5.MD.C.5.b Understand and use the formulas $V = l \times w \times h$ and $V = B \times h$, where in this case B is the area of the base ($B = l \times w$), for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve mathematical problems and problems in real-world contexts.

**Arizona's College and Career Ready Standards
 Mathematics
 Grade 6 - Adopted: 2018**

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

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

STRAND		Geometry (G)
CONCEPT / STANDARD	6.G.A	Solve mathematical problems and problems in real-world context involving area, surface area, and volume.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	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. Understand and use the formula $V = B h$, where in this case, B is the area of the base ($B = l \times w$) to find volumes of right rectangular prisms with fractional edge lengths in mathematical problems and problems in real-world context.
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**Arizona's College and Career Ready Standards
Mathematics
Grade 7 - Adopted: 2018**

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

**Arizona's College and Career Ready Standards
Mathematics
Grade 8 - Adopted: 2018**

STRAND		Standards for Mathematical Practice
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CONCEPT / STANDARD	MP.1	Make sense of problems and persevere in solving them.
CONCEPT / STANDARD	MP.2	Reason abstractly and quantitatively.

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

STRAND		Geometry (G)
CONCEPT / STANDARD	8.G.C	Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	8.G.C.9	Understand and use formulas for volumes of cones, cylinders and spheres and use them to solve real-world context and mathematical problems.
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**Arizona's College and Career Ready Standards
Science
Grade 5 - Adopted: 2018**

STRAND		Core Ideas for Knowing Science
CONCEPT / STANDARD		Life Science

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	L2:	Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms.
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STRAND		Core Ideas for Using Science
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CONCEPT / STANDARD	U2:	The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.
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CONCEPT / STANDARD	U3:	Applications of science often have both positive and negative ethical, social, economic, and/or political implications.
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**Arizona's College and Career Ready Standards
Science
Grade 6 - Adopted: 2018**

STRAND		Core Ideas for Knowing Science
CONCEPT / STANDARD		Life Science

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	L2:	Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms.
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STRAND		Core Ideas for Using Science
CONCEPT / STANDARD	U2:	The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.

CONCEPT / STANDARD	U3:	Applications of science often have both positive and negative ethical, social, economic, and/or political implications.
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STRAND		Sixth Grade: Focus on Patterns; Scale, Proportion, and Quantity; Systems and System Models; Energy and Matter
CONCEPT / STANDARD		Life Sciences: Students develop an understanding of how energy from the Sun is transferred through ecosystems.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL		Life Science Standards

OBJECTIVE / GRADE LEVEL EXPECTATION	6.L2U1.13	Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.
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**Arizona's College and Career Ready Standards
Science
Grade 7 - Adopted: 2018**

STRAND		Core Ideas for Knowing Science
CONCEPT / STANDARD		Life Science

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	L2:	Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms.
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STRAND		Core Ideas for Using Science
CONCEPT / STANDARD	U2:	The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.

CONCEPT / STANDARD	U3:	Applications of science often have both positive and negative ethical, social, economic, and/or political implications.
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**Arizona's College and Career Ready Standards
Science
Grade 8 - Adopted: 2018**

STRAND		Core Ideas for Knowing Science
CONCEPT / STANDARD		Life Science

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	L2:	Organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms.
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STRAND		Core Ideas for Using Science
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CONCEPT / STANDARD	U2:	The knowledge produced by science is used in engineering and technologies to solve problems and/or create products.
CONCEPT / STANDARD	U3:	Applications of science often have both positive and negative ethical, social, economic, and/or political implications.

**Arizona's College and Career Ready Standards
Technology Education
Grade 5 - Adopted: 2022**

STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	3-5.4.a.	Students, in collaboration with an educator, explore and practice a design process by generating ideas to solve a problem by planning, creating and testing innovative products that are shared with others.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	3-5.4.b.	Students, in collaboration with an educator, use digital and/or non-digital tools to plan and manage a design process.
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STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	3-5.5.a.	Students, in collaboration with an educator, identify, explore or solve problems by selecting technology for data analysis, modeling, and algorithmic thinking.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	3-5.5.c.	Students, in collaboration with an educator, break down problems into smaller parts, identify key information, and propose solutions.
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STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 6.	Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	3-5.6.c.	Students, in collaboration with an educator, create digital artifacts using digital tools to communicate ideas visually, graphically, and/or auditorily.
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Grade 5 - Adopted: 2018

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 3.	Recognizing and Defining Computational Problems: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
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OBJECTIVE / GRADE LEVEL EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
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STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 5.	Creating Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
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STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 6.	Testing and Refining Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
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OBJECTIVE / GRADE LEVEL EXPECTATION	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.
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STRAND		Computer Science
CONCEPT / STANDARD		Concept: Algorithms and Programming (AP)
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL		Subconcept: Algorithms (A)

OBJECTIVE / GRADE LEVEL EXPECTATION	5.AP.A.1.	Compare, test, and refine multiple algorithms for the same task and determine which is the most effective. Practice(s): Testing and Refining Computational Artifacts, Recognizing and Defining Computational Problems: 6.1, 6.3
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Arizona's College and Career Ready Standards
Technology Education
Grade 6 - Adopted: 2022

STRAND		Arizona Educational Technology Standards 2022
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CONCEPT / STANDARD	Standard 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.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.3.d.

Students explore real-world problems and issues and actively pursue solutions for them.

STRAND		Arizona Educational Technology Standards 2022
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CONCEPT / STANDARD	Standard 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.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.4.a.

Students engage in a design process for generating and testing ideas and developing innovative products to solve problems.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.4.b.

Students select and use digital tools to support a design process and expand their understanding to identify constraints and trade-offs and to weigh risks.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.4.c.

Students engage in a design process to develop, test, and revise prototypes, embrace the iterative process of trial and error, and understand setbacks as potential opportunities for improvement.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.4.d.

Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.

STRAND		Arizona Educational Technology Standards 2022
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CONCEPT / STANDARD	Standard 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.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.5.a.

Students practice defining and solving problems by selecting technology for data analysis, modeling, and algorithmic thinking.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.5.b.

Students find and organize data and use technology to analyze and represent it to solve problems and make decisions.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.5.c.

Students break problems into component parts, identify key pieces, and use that information to solve problems.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL

6-8.5.d.

Students understand how automation works and apply algorithmic thinking to design and automate solutions.

STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 6.	Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL
6-8.6.b. Students create original works or responsibly repurpose digital resources into new creative works.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL
6-8.6.c. Students create artifacts using digital tools to communicate complex ideas textually, visually, graphically, and auditorily.

Grade 6 - Adopted: 2018

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 3.	Recognizing and Defining Computational Problems: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION
3.1. Identify complex, interdisciplinary, real-world problems that can be solved computationally.

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

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 5.	Creating Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION
5.2. Create a computational artifact for practical intent, personal expression, or to address a societal issue.

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 6.	Testing and Refining Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION
6.1. Systematically test computational artifacts by considering all scenarios and using test cases.

OBJECTIVE / GRADE LEVEL EXPECTATION	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.
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**Arizona's College and Career Ready Standards
Technology Education
Grade 7 - Adopted: 2022**

STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.3.d.	Students explore real-world problems and issues and actively pursue solutions for them.
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STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.a.	Students engage in a design process for generating and testing ideas and developing innovative products to solve problems.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.b.	Students select and use digital tools to support a design process and expand their understanding to identify constraints and trade-offs and to weigh risks.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.c.	Students engage in a design process to develop, test, and revise prototypes, embrace the iterative process of trial and error, and understand setbacks as potential opportunities for improvement.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.d.	Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.
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STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.a.	Students practice defining and solving problems by selecting technology for data analysis, modeling, and algorithmic thinking.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.b.	Students find and organize data and use technology to analyze and represent it to solve problems and make decisions.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.c.	Students break problems into component parts, identify key pieces, and use that information to solve problems.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.d.	Students understand how automation works and apply algorithmic thinking to design and automate solutions.

STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 6.	Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.6.b.	Students create original works or responsibly repurpose digital resources into new creative works.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.6.c.	Students create artifacts using digital tools to communicate complex ideas textually, visually, graphically, and auditorily.

Grade 7 - Adopted: 2018

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 3.	Recognizing and Defining Computational Problems: 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.

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

STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 5.	Creating Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 6.	Testing and Refining Computational Artifacts: 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.
OBJECTIVE / GRADE LEVEL EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
OBJECTIVE / GRADE LEVEL EXPECTATION	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.

**Arizona's College and Career Ready Standards
Technology Education
Grade 8 - Adopted: 2022**

STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.3.d.	Students explore real-world problems and issues and actively pursue solutions for them.
STRAND		Arizona Educational Technology Standards 2022
CONCEPT / STANDARD	Standard 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.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.a.	Students engage in a design process for generating and testing ideas and developing innovative products to solve problems.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.b.	Students select and use digital tools to support a design process and expand their understanding to identify constraints and trade-offs and to weigh risks.
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.c.	Students engage in a design process to develop, test, and revise prototypes, embrace the iterative process of trial and error, and understand setbacks as potential opportunities for improvement.

PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.4.d.	Students demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.
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STRAND		Arizona Educational Technology Standards 2022
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CONCEPT / STANDARD	Standard 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.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.a.	Students practice defining and solving problems by selecting technology for data analysis, modeling, and algorithmic thinking.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.b.	Students find and organize data and use technology to analyze and represent it to solve problems and make decisions.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.c.	Students break problems into component parts, identify key pieces, and use that information to solve problems.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.5.d.	Students understand how automation works and apply algorithmic thinking to design and automate solutions.
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STRAND		Arizona Educational Technology Standards 2022
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CONCEPT / STANDARD	Standard 6.	Creative Communicator - Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.6.b.	Students create original works or responsibly repurpose digital resources into new creative works.
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	6-8.6.c.	Students create artifacts using digital tools to communicate complex ideas textually, visually, graphically, and auditorily.
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Grade 8 - Adopted: 2018

STRAND		Computer Science
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CONCEPT / STANDARD		Practices
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PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 3.	Recognizing and Defining Computational Problems: 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.
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OBJECTIVE / GRADE LEVEL EXPECTATION	3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
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OBJECTIVE / GRADE LEVEL EXPECTATION	3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 5.	Creating Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.
STRAND		Computer Science
CONCEPT / STANDARD		Practices
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	Practice 6.	Testing and Refining Computational Artifacts: 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.

OBJECTIVE / GRADE LEVEL EXPECTATION	6.1.	Systematically test computational artifacts by considering all scenarios and using test cases.
OBJECTIVE / GRADE LEVEL EXPECTATION	6.3.	Evaluate and refine a computational artifact multiple times to enhance its performance, reliability, usability, and accessibility.

**Arkansas Standards
Mathematics
Grade 5 - Adopted: 2023**

STRAND / TOPIC		Grade 5 Mathematics Standards
CONTENT STANDARD	5.GM.	Geometry & Measurement
PERFORMANCE EXPECTATION		Area & Volume - Students solve the area of rectangles and volume of rectangular prisms.

BENCHMARK / PROFICIENCY	5.GM.3.	Measure volumes by counting unit cubes using cubic cm (cm ³), cubic in (in ³), cubic ft (ft ³), and improvised units (in ³).
BENCHMARK / PROFICIENCY	5.GM.4.	Solve real-world and mathematical problems involving the volume of rectangular prisms with whole number side lengths by applying the formulas ($V = l \cdot w \cdot h$ or $V = \frac{1}{2}bh \cdot l$) and the properties of operations.

**Arkansas Standards
Mathematics
Grade 6 - Adopted: 2023**

STRAND / TOPIC		Grade 6 Mathematics Standards
CONTENT STANDARD	6.GM.	Geometry & Measurement
PERFORMANCE EXPECTATION		Area, Volume, & Surface Area - Students solve problems involving area, volume, and surface area.

BENCHMARK / PROFICIENCY 6.GM.2. Apply the formulas $V = lwh$ and $S = 2lw + 2lh + 2wh$ to find the volume of right rectangular prisms with fractional edge lengths to solve real-world and mathematical problems, including solving for an unknown dimension.

**Arkansas Standards
Mathematics
Grade 7 - Adopted: 2023**

STRAND / TOPIC		Grade 7 Mathematics Standards
CONTENT STANDARD	7.GM.	Geometry & Measurement
PERFORMANCE EXPECTATION		Area, Volume, & Surface Area - Students solve problems involving area, volume, and surface area.

BENCHMARK / PROFICIENCY 7.GM.3. Apply the formulas for the volume and surface area of right rectangular prisms, rectangular pyramids, triangular prisms, and triangular pyramids to solve real-world and mathematical problems.

**Arkansas Standards
Mathematics
Grade 8 - Adopted: 2023**

STRAND / TOPIC		Grade 8 Mathematics Standards
CONTENT STANDARD	8.GM.	Geometry & Measurement
PERFORMANCE EXPECTATION		Area, Volume, & Surface Area - Students solve problems involving area, volume, and surface area.

BENCHMARK / PROFICIENCY 8.GM.1. Apply the formulas for the volume and surface area of cylinders, cones, and spheres to solve real-world and mathematical problems.

**Arkansas Standards
Science
Grade 5 - Adopted: 2017**

STRAND / TOPIC	AR.SC.5.	Engineering, Technology, and Applications of Science
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION 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 EXPECTATION 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 EXPECTATION	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.
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**Arkansas Standards
Science
Grade 6 - Adopted: 2017**

STRAND / TOPIC	AR.SC.5.	Human Impacts
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION	6-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.
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STRAND / TOPIC	AR.SC.7.	Engineering, Technology, and Applications of Science
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION	6-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.
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PERFORMANCE EXPECTATION	6-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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PERFORMANCE EXPECTATION	6-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.
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Grade 6 - Adopted: 2010

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Key Ideas and Details

PERFORMANCE 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.
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PERFORMANCE EXPECTATION	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Craft and Structure

PERFORMANCE 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.
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PERFORMANCE 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.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Integration of Knowledge and Ideas

PERFORMANCE 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.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Range of Reading and Level of Text Complexity

PERFORMANCE 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.
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STRAND / TOPIC	AR.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Text Types and Purposes
PERFORMANCE EXPECTATION	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

BENCHMARK / PROFICIENCY	WHST.6-8.2(d)	Use precise language and domain-specific vocabulary to inform about or explain the topic.
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STRAND / TOPIC	AR.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Production and Distribution of Writing

PERFORMANCE EXPECTATION	WHST.6-8.4.	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
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PERFORMANCE 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.
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Arkansas Standards
Science
Grade 7 - Adopted: 2017

STRAND / TOPIC	AR.SC.8.	Engineering, Technology, and Applications of Science
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION	7-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 EXPECTATION	7-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
PERFORMANCE EXPECTATION	7-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

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Key Ideas and Details

PERFORMANCE 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.

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

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Craft and Structure

PERFORMANCE 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.

PERFORMANCE 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.

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Integration of Knowledge and Ideas

PERFORMANCE 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.

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Range of Reading and Level of Text Complexity

PERFORMANCE 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.
STRAND / TOPIC	AR.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Text Types and Purposes
PERFORMANCE EXPECTATION	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

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

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

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

PERFORMANCE 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.

**Arkansas Standards
Science
Grade 8 - Adopted: 2017**

STRAND / TOPIC	AR.SC.1.	Waves and Electromagnetic Radiation
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION 8-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.

STRAND / TOPIC	AR.SC.8.	Engineering, Technology, and Applications of Science
CONTENT STANDARD		Students who demonstrate understanding can:

PERFORMANCE EXPECTATION 8-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 EXPECTATION 8-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

PERFORMANCE EXPECTATION	8-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.
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Grade 8 - Adopted: 2010

STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Key Ideas and Details

PERFORMANCE 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.
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PERFORMANCE EXPECTATION	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Craft and Structure

PERFORMANCE 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.
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PERFORMANCE 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.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Integration of Knowledge and Ideas

PERFORMANCE 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.
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STRAND / TOPIC	AR.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Range of Reading and Level of Text Complexity

PERFORMANCE 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.
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STRAND / TOPIC	AR.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
CONTENT STANDARD		Text Types and Purposes

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

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

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

PERFORMANCE 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.

**Arkansas Standards
Technology Education
Grade 5 - Adopted: 2020/Beginning 2021**

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Computational Thinking and Problem Solving
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSK8.G5.1.1. Identify and utilize level-appropriate, algorithmic problem-solving strategies

BENCHMARK / PROFICIENCY CSK8.G5.1.3. Evaluate effective ways that collaboration can support problem solving and innovation

BENCHMARK / PROFICIENCY CSK8.G5.1.4. Apply strategies for solving simple hardware and software problems that may occur during use

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 5: Students will create, evaluate, and modify algorithms.

BENCHMARK / PROFICIENCY CSK8.G5.5.1. Create algorithms to solve problems and evaluate effectiveness

BENCHMARK / PROFICIENCY CSK8.G5.5.2. Design and test algorithms collaboratively using technology

BENCHMARK / PROFICIENCY CSK8.G5.5.4. Identify and correct multiple errors within a level-appropriate algorithm

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 6: Students will create programs to solve problems.

BENCHMARK / PROFICIENCY CSK8.G5 .6.1. Use a visual block-based or text-based programming language individually and collaboratively to solve level-appropriate problems

**Arkansas Standards
Technology Education
Grade 6 - Adopted: 2020/Beginning 2021**

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Computational Thinking and Problem Solving
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSK8.G6 .1.1. Identify and utilize level-appropriate, algorithmic problem-solving strategies

BENCHMARK / PROFICIENCY CSK8.G6 .1.2. Utilize visual representations of problem-solving logic (e.g., flowcharts) to solve problems of level-appropriate complexity

BENCHMARK / PROFICIENCY CSK8.G6 .1.3. Analyze appropriate collaborative behaviors (e.g., accepting multiple perspectives, integrating feedback, providing useful feedback, understanding and using socialization) to solve problems

BENCHMARK / PROFICIENCY CSK8.G6 .1.4. Apply strategies for solving simple hardware and software problems that may occur during use

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 5: Students will create, evaluate, and modify algorithms.

BENCHMARK / PROFICIENCY CSK8.G6 .5.1. Create algorithms to solve problems and evaluate effectiveness

BENCHMARK / PROFICIENCY CSK8.G6 .5.2. Design and test algorithms collaboratively using technology

BENCHMARK / PROFICIENCY CSK8.G6 .5.4. Identify and correct errors within multiple level-appropriate algorithms

STRAND / TOPIC		Computer Science: 5-8 Standards Document
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CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 6: Students will create programs to solve problems.

BENCHMARK / PROFICIENCY CSK8.G6 .6.1. Use a visual block-based or text-based programming language individually and collaboratively to solve level-appropriate problems

**Arkansas Standards
Technology Education
Grade 7 - Adopted: 2020/Beginning 2021**

STRAND / TOPIC		Computer Science: Coding Block for Grades 7 or 8 Standards
CONTENT STANDARD		Computational Thinking and Problem Solving
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSCB.1.2 . Describe the steps needed to efficiently solve a problem

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSK8.G7. 1.1. Identify and utilize level-appropriate, algorithmic problem-solving strategies

BENCHMARK / PROFICIENCY CSK8.G7. 1.2. Utilize visual representations of problem-solving logic (e.g., flowcharts) to solve problems of level-appropriate complexity

BENCHMARK / PROFICIENCY CSK8.G7. 1.3. Demonstrate appropriate collaborative behaviors (e.g., accepting multiple perspectives, integrating feedback, providing useful feedback, understanding and using socialization) to solve problems

BENCHMARK / PROFICIENCY CSK8.G7. 1.4. Apply strategies for identifying and solving routine hardware and software problems that occur during everyday computer use

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Professionalism and Impacts of Computing
PERFORMANCE EXPECTATION		Content Cluster 5: Students will create, evaluate, and modify algorithms.

BENCHMARK / PROFICIENCY CSK8.G7. 5.1. Create algorithms using constraints to solve problems and evaluate effectiveness

BENCHMARK / PROFICIENCY CSK8.G7. Design and test algorithms using technology 5.2.

BENCHMARK / PROFICIENCY CSK8.G7. Identify and correct multiple errors within a level-appropriate program 5.4.

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Professionalism and Impacts of Computing
PERFORMANCE EXPECTATION		Content Cluster 6: Students will create programs to solve problems.

BENCHMARK / PROFICIENCY CSK8.G7. Use a visual block-based or text-based programming language individually and collaboratively to solve level-appropriate problems 6.1.

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Professionalism and Impacts of Computing
PERFORMANCE EXPECTATION		Content Cluster 7: Students will analyze the utilization of computers within industry.

BENCHMARK / PROFICIENCY CSK8.G7. Describe ways in which computers use models of intelligent behavior (e.g., computer vision, language understanding, robot motion, speech) 7.1.

**Arkansas Standards
Technology Education
Grade 8 - Adopted: 2020/Beginning 2021**

STRAND / TOPIC		Computer Science: Coding Block for Grades 7 or 8 Standards
CONTENT STANDARD		Computational Thinking and Problem Solving
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSCB.1.2 Describe the steps needed to efficiently solve a problem .

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Algorithms and Programs
PERFORMANCE EXPECTATION		Content Cluster 1: Students will analyze and utilize problem-solving strategies.

BENCHMARK / PROFICIENCY CSK8.G8 Identify and utilize level-appropriate, algorithmic problem-solving strategies .1.1.

BENCHMARK / PROFICIENCY	CSK8.G8 .1.2.	Utilize visual representations of problem-solving logic (e.g., flowcharts) to solve problems of level-appropriate complexity
BENCHMARK / PROFICIENCY	CSK8.G8 .1.3.	Demonstrate appropriate collaborative behaviors (e.g., accepting multiple perspectives, integrating feedback, providing useful feedback, understanding and using socialization) to solve problems
BENCHMARK / PROFICIENCY	CSK8.G8 .1.4.	Apply strategies for identifying and solving routine hardware and software problems that occur in everyday computer use

STRAND / TOPIC		Computer Science: 5-8 Standards Document
CONTENT STANDARD		Professionalism and Impacts of Computing
PERFORMANCE EXPECTATION		Content Cluster 5: Students will create, evaluate, and modify algorithms.

BENCHMARK / PROFICIENCY	CSK8.G8 .5.1.	Create algorithms using constraints to solve problems and evaluate effectiveness
BENCHMARK / PROFICIENCY	CSK8.G8 .5.2.	Design and test algorithms using technology
BENCHMARK / PROFICIENCY	CSK8.G8 .5.4.	Identify and correct multiple errors within a level-appropriate program

**California Content Standards
Mathematics
Grade 5 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	C.A.CC.M.P.	Standards for Mathematical Practice
PERFORMANCE STANDARD / MODE	MP.1.	Make sense of problems and persevere in solving them.
PERFORMANCE STANDARD / MODE	MP.2.	Reason abstractly and quantitatively.
PERFORMANCE STANDARD / MODE	MP.3.	Construct viable arguments and critique the reasoning of others.
PERFORMANCE STANDARD / MODE	MP.4.	Model with mathematics.
PERFORMANCE STANDARD / MODE	MP.5.	Use appropriate tools strategically.

PERFORMANCE STANDARD / MODE	MP.7.	Look for and make use of structure.
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CONTENT STANDARD / DOMAIN / PART	CA.CC.5.MD.	Measurement and Data
PERFORMANCE STANDARD / MODE		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

EXPECTATION / SUBSTRAND	5.MD.4.	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
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CONTENT STANDARD / DOMAIN / PART	CA.CC.5.MD.	Measurement and Data
PERFORMANCE STANDARD / MODE		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
EXPECTATION / SUBSTRAND	5.MD.5.	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

FOUNDATION / 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.
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FOUNDATION / PROFICIENCY LEVEL	5.MD.5.b.	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.
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**California Content Standards
Mathematics
Grade 6 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	CA.CC.M.P.	Standards for Mathematical Practice
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PERFORMANCE STANDARD / MODE	MP.1.	Make sense of problems and persevere in solving them.
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PERFORMANCE STANDARD / MODE	MP.2.	Reason abstractly and quantitatively.
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PERFORMANCE STANDARD / MODE	MP.3.	Construct viable arguments and critique the reasoning of others.
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PERFORMANCE STANDARD / MODE	MP.4.	Model with mathematics.
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PERFORMANCE STANDARD / MODE	MP.5.	Use appropriate tools strategically.
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PERFORMANCE STANDARD / MODE	MP.7.	Look for and make use of structure.
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CONTENT STANDARD / DOMAIN / PART	CA.CC.6.G.	Geometry
PERFORMANCE STANDARD / MODE		Solve real-world and mathematical problems involving area, surface area, and volume.

EXPECTATION / SUBSTRAND	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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
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**California Content Standards
Mathematics
Grade 7 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	CA.CC.M.P.	Standards for Mathematical Practice
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PERFORMANCE STANDARD / MODE	MP.1.	Make sense of problems and persevere in solving them.
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PERFORMANCE STANDARD / MODE	MP.2.	Reason abstractly and quantitatively.
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PERFORMANCE STANDARD / MODE	MP.3.	Construct viable arguments and critique the reasoning of others.
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PERFORMANCE STANDARD / MODE	MP.4.	Model with mathematics.
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PERFORMANCE STANDARD / MODE	MP.5.	Use appropriate tools strategically.
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PERFORMANCE STANDARD / MODE	MP.7.	Look for and make use of structure.
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**California Content Standards
Mathematics
Grade 8 - Adopted: 2013**

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

CONTENT STANDARD / DOMAIN / PART	CA.CC.8.G.	Geometry
PERFORMANCE STANDARD / MODE		Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

EXPECTATION / SUBSTRAND 8.G.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

**California Content Standards
Science
Grade 5 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	CA.3-5-ETS.	ENGINEERING DESIGN
PERFORMANCE STANDARD / MODE	3-5-ETS1.	Engineering Design
EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:

FOUNDATION / PROFICIENCY LEVEL 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.

FOUNDATION / PROFICIENCY LEVEL 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.

FOUNDATION / PROFICIENCY LEVEL	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.
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**California Content Standards
Science
Grade 6 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	CA.MS-ETS.	ENGINEERING DESIGN
PERFORMANCE STANDARD / MODE	MS-ETS1.	Engineering Design
EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:

FOUNDATION / PROFICIENCY LEVEL	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.
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FOUNDATION / PROFICIENCY LEVEL	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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FOUNDATION / PROFICIENCY LEVEL	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.
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CONTENT STANDARD / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Key Ideas and Details

EXPECTATION / SUBSTRAND	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.
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EXPECTATION / SUBSTRAND	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
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CONTENT STANDARD / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Craft and Structure

EXPECTATION / SUBSTRAND	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.
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EXPECTATION / SUBSTRAND	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.
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CONTENT STANDARD / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
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PERFORMANCE STANDARD / MODE		Integration of Knowledge and Ideas
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EXPECTATION / SUBSTRAND 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 / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
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PERFORMANCE STANDARD / MODE		Range of Reading and Level of Text Complexity
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EXPECTATION / SUBSTRAND 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 / DOMAIN / PART	CA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
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PERFORMANCE STANDARD / MODE		Text Types and Purposes
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EXPECTATION / SUBSTRAND	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.
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FOUNDATION / PROFICIENCY LEVEL WHST.6-8.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / DOMAIN / PART	CA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
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PERFORMANCE STANDARD / MODE		Production and Distribution of Writing
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EXPECTATION / SUBSTRAND WHST.6-8.4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

EXPECTATION / SUBSTRAND 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.

California Content Standards

Science

Grade 7 - Adopted: 2013

CONTENT STANDARD / DOMAIN / PART	CA.MS-ETS.	ENGINEERING DESIGN
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PERFORMANCE STANDARD / MODE	MS-ETS1.	Engineering Design
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EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:
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FOUNDATION / PROFICIENCY LEVEL 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.

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

PERFORMANCE STANDARD / MODE		Text Types and Purposes
EXPECTATION / SUBSTRAND	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiments, or technical processes.

FOUNDATION / PROFICIENCY LEVEL WHST.6-8.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / DOMAIN / PART	CA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Production and Distribution of Writing

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

EXPECTATION / SUBSTRAND 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.

**California Content Standards
Science
Grade 8 - Adopted: 2013**

CONTENT STANDARD / DOMAIN / PART	CA.MS-PS.	PHYSICAL SCIENCE
PERFORMANCE STANDARD / MODE	MS-PS4.	Waves and Their Applications in Technologies for Information Transfer
EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:

FOUNDATION / PROFICIENCY LEVEL MS-PS4-3. Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.

CONTENT STANDARD / DOMAIN / PART	CA.MS-ESS.	EARTH AND SPACE SCIENCE
PERFORMANCE STANDARD / MODE	MS-ESS3.	Earth and Human Activity
EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:

FOUNDATION / PROFICIENCY LEVEL 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 / DOMAIN / PART	CA.MS-ETS.	ENGINEERING DESIGN
PERFORMANCE STANDARD / MODE	MS-ETS1.	Engineering Design

EXPECTATION / SUBSTRAND		Students who demonstrate understanding can:
FOUNDATION / PROFICIENCY LEVEL	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.
FOUNDATION / PROFICIENCY LEVEL	MS-ETS1-2.	Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
FOUNDATION / PROFICIENCY LEVEL	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.
CONTENT STANDARD / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Key Ideas and Details
EXPECTATION / SUBSTRAND	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.
EXPECTATION / SUBSTRAND	RST.6-8.3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
CONTENT STANDARD / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Craft and Structure
EXPECTATION / SUBSTRAND	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.
EXPECTATION / SUBSTRAND	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 / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Integration of Knowledge and Ideas
EXPECTATION / SUBSTRAND	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 / DOMAIN / PART	CA.RST.6-8.	Reading Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Range of Reading and Level of Text Complexity

EXPECTATION / SUBSTRAND 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 / DOMAIN / PART	CA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Text Types and Purposes
EXPECTATION / SUBSTRAND	WHST.6-8.2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

FOUNDATION / PROFICIENCY LEVEL WHST.6-8.2.d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

CONTENT STANDARD / DOMAIN / PART	CA.WHST.6-8.	Writing Standards for Literacy in Science and Technical Subjects
PERFORMANCE STANDARD / MODE		Production and Distribution of Writing

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

EXPECTATION / SUBSTRAND 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.

**California Content Standards
Technology Education
Grade 5 - Adopted: 2018**

CONTENT STANDARD / DOMAIN / PART		Computer Science Core Practices
PERFORMANCE STANDARD / MODE	P3.	Core Practice 3 – Recognizing and Defining Computational Problems

EXPECTATION / SUBSTRAND P3.1. Identify complex, interdisciplinary, real-world problems that can be solved computationally.

CONTENT STANDARD / DOMAIN / PART		Algorithms & Programming
PERFORMANCE STANDARD / MODE		Program Development

EXPECTATION / SUBSTRAND 3-5.AP.15. Use an iterative process to plan and develop a program by considering the perspectives and preferences of others. (P1.1, P5.1)

EXPECTATION / SUBSTRAND 3-5.AP.19. Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)

CONTENT STANDARD / DOMAIN / PART		Impacts of Computing
PERFORMANCE STANDARD / MODE		Culture

EXPECTATION / SUBSTRAND 3-5.IC.21. Propose ways to improve the accessibility and usability of technology products for the diverse needs and wants of users. (P1.2)

**California Content Standards
Technology Education
Grade 6 - Adopted: 2018**

CONTENT STANDARD / DOMAIN / PART		Computer Science Core Practices
PERFORMANCE STANDARD / MODE	P3.	Core Practice 3 – Recognizing and Defining Computational Problems

EXPECTATION / SUBSTRAND P3.1. Identify complex, interdisciplinary, real-world problems that can be solved computationally.

CONTENT STANDARD / DOMAIN / PART		Algorithms & Programming
PERFORMANCE STANDARD / MODE		Algorithms

EXPECTATION / SUBSTRAND 6-8.AP.10. Use flowcharts and/or pseudocode to design and illustrate algorithms that solve complex problems. (P4.1, P4.4)

**California Content Standards
Technology Education
Grade 7 - Adopted: 2018**

CONTENT STANDARD / DOMAIN / PART		Computer Science Core Practices
PERFORMANCE STANDARD / MODE	P3.	Core Practice 3 – Recognizing and Defining Computational Problems

EXPECTATION / SUBSTRAND P3.1. Identify complex, interdisciplinary, real-world problems that can be solved computationally.

CONTENT STANDARD / DOMAIN / PART		Algorithms & Programming
PERFORMANCE STANDARD / MODE		Algorithms

EXPECTATION / SUBSTRAND 6-8.AP.10. Use flowcharts and/or pseudocode to design and illustrate algorithms that solve complex problems. (P4.1, P4.4)

**California Content Standards
Technology Education
Grade 8 - Adopted: 2018**

CONTENT STANDARD / DOMAIN / PART		Computer Science Core Practices
PERFORMANCE STANDARD / MODE	P3.	Core Practice 3 – Recognizing and Defining Computational Problems

EXPECTATION / SUBSTRAND P3.1. Identify complex, interdisciplinary, real-world problems that can be solved computationally.

CONTENT STANDARD / DOMAIN / PART		Algorithms & Programming
PERFORMANCE STANDARD / MODE		Algorithms

EXPECTATION / SUBSTRAND 6-8.AP.10. Use flowcharts and/or pseudocode to design and illustrate algorithms that solve complex problems. (P4.1, P4.4)

**Colorado Academic Standards (CAS)
Mathematics
Grade 5 - Adopted: 2018**

CONTENT AREA		Prepared Graduates in Mathematics
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STANDARD MP1. Make sense of problems and persevere in solving them.

STANDARD MP2. Reason abstractly and quantitatively.

STANDARD MP3. Construct viable arguments and critique the reasoning of others.

STANDARD MP4. Model with mathematics.

STANDARD MP5. Use appropriate tools strategically.

STANDARD MP7. Look for and make use of structure.

CONTENT AREA		Fifth Grade, Standard 3. Data, Statistics, and Probability
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STANDARD 5.MD.C. **Measurement & Data: Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.**

CONCEPTS AND SKILLS / EVIDENCE OUTCOMES
Evidence Outcomes

EVIDENCE OUTCOMES 5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (CCSS: 5.MD.C.4)

CONTENT AREA		Fifth Grade, Standard 3. Data, Statistics, and Probability
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STANDARD 5.MD.C. **Measurement & Data: Geometric measurement: Understand concepts of volume and relate volume to multiplication and to addition.**

CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
EVIDENCE OUTCOMES	5.MD.C.5.	Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. (CCSS: 5.MD.C.5)
INDICATOR	5.MD.C.5.a.	Model 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. (CCSS: 5.MD.C.5.a)
INDICATOR	5.MD.C.5.b.	Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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. (CCSS: 5.MD.C.5.b)

Colorado Academic Standards (CAS)

Mathematics

Grade 6 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Mathematics
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STANDARD	MP1.	Make sense of problems and persevere in solving them.
STANDARD	MP2.	Reason abstractly and quantitatively.
STANDARD	MP3.	Construct viable arguments and critique the reasoning of others.
STANDARD	MP4.	Model with mathematics.
STANDARD	MP5.	Use appropriate tools strategically.
STANDARD	MP7.	Look for and make use of structure.

CONTENT AREA		Sixth Grade, Standard 4. Geometry
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STANDARD	6.G.A.	Geometry: Solve real-world and mathematical problems involving area, surface area, and volume.
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CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
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EVIDENCE OUTCOMES	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 $V = l \times w \times h$ and $V = b \times h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (CCSS: 6.G.A.2)
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Colorado Academic Standards (CAS)

Mathematics

Grade 7 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Mathematics
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STANDARD	MP1.	Make sense of problems and persevere in solving them.
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STANDARD	MP2.	Reason abstractly and quantitatively.
STANDARD	MP3.	Construct viable arguments and critique the reasoning of others.
STANDARD	MP4.	Model with mathematics.
STANDARD	MP5.	Use appropriate tools strategically.
STANDARD	MP7.	Look for and make use of structure.

Colorado Academic Standards (CAS)

Mathematics

Grade 8 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Mathematics
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STANDARD	MP1.	Make sense of problems and persevere in solving them.
STANDARD	MP2.	Reason abstractly and quantitatively.
STANDARD	MP3.	Construct viable arguments and critique the reasoning of others.
STANDARD	MP4.	Model with mathematics.
STANDARD	MP5.	Use appropriate tools strategically.
STANDARD	MP7.	Look for and make use of structure.

CONTENT AREA		Eighth Grade, Standard 4. Geometry
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STANDARD	8.G.C.	Geometry: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
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CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
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EVIDENCE OUTCOMES	8.G.C.9.	State the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems. (CCSS: 8.G.C.9)
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Colorado Academic Standards (CAS)

Science

Grade 5 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Science
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STANDARD	1	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.
STANDARD	2	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects.

STANDARD	3	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved.
STANDARD	4	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how waves are used to transfer energy and information.
STANDARD	5	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how individual organisms are configured and how these structures function to support life, growth, behavior and reproduction.
STANDARD	6	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how living systems interact with the biotic and abiotic environment.
STANDARD	7	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how genetic and environmental factors influence variation of organisms across generations.
STANDARD	8	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how natural selection drives biological evolution accounting for the unity and diversity of organisms.
STANDARD	9	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding the universe and Earth's place in it.
STANDARD	10	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how and why Earth is constantly changing.
STANDARD	11	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth's surface processes interact.

Colorado Academic Standards (CAS)

Science

Grade 6 - Adopted: 2018

CONTENT AREA	Prepared Graduates in Science	
STANDARD	1	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.
STANDARD	2	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects.
STANDARD	3	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved.
STANDARD	4	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how waves are used to transfer energy and information.
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STANDARD	11	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth's surface processes interact.

CONTENT AREA	SC.MS.3.	Earth and Space Science
STANDARD	SC.MS.3 .10.	Human activities have altered the biosphere, sometimes damaging it, although changes to environments can have different impacts for different living things.
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
EVIDENCE OUTCOMES		Students Can:

INDICATOR SC.MS.3.10.b. Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (MS-ESS3-4)

Colorado Academic Standards (CAS)

Science

Grade 7 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Science
STANDARD	1	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.
STANDARD	2	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects.
STANDARD	3	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how energy is transferred and conserved.
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STANDARD	11	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding how human activities and the Earth's surface processes interact.

CONTENT AREA	SC.MS.3.	Earth and Space Science
STANDARD	SC.MS.3 .10.	Human activities have altered the biosphere, sometimes damaging it, although changes to environments can have different impacts for different living things.
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
EVIDENCE OUTCOMES		Students Can:

INDICATOR	SC.MS.3.10.b.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (MS-ESS3-4)
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Colorado Academic Standards (CAS)
Science
Grade 8 - Adopted: 2018

CONTENT AREA		Prepared Graduates in Science
STANDARD	1	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding structure, properties and interactions of matter.
STANDARD	2	Students can use the full range of science and engineering practices to make sense of natural phenomena and solve problems that require understanding interactions between objects and within systems of objects.
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CONTENT AREA	SC.MS.3.	Earth and Space Science
STANDARD	SC.MS.3 .10.	Human activities have altered the biosphere, sometimes damaging it, although changes to environments can have different impacts for different living things.
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		Evidence Outcomes
EVIDENCE OUTCOMES		Students Can:

INDICATOR	SC.MS.3.10.b.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems. (MS-ESS3-4)
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**Connecticut State Standards
Mathematics
Grade 5 - Adopted: 2010**

DOMAIN / CONTENT STANDARD	CT.CC.M P.5.	Mathematical Practices
STATE FRAMEWORK	MP.5.1.	Make sense of problems and persevere in solving them.
STATE FRAMEWORK	MP.5.2.	Reason abstractly and quantitatively.

STATE FRAMEWORK	MP.5.3.	Construct viable arguments and critique the reasoning of others.
STATE FRAMEWORK	MP.5.4.	Model with mathematics.
STATE FRAMEWORK	MP.5.5.	Use appropriate tools strategically.
STATE FRAMEWORK	MP.5.7.	Look for and make use of structure.

DOMAIN / CONTENT STANDARD	CT.CC.M D.5.	Measurement and Data
STATE FRAMEWORK		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.

DOMAIN / CONTENT STANDARD	CT.CC.M D.5.	Measurement and Data
STATE FRAMEWORK		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.

INDICATOR 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.

INDICATOR MD.5.5(b) Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.

**Connecticut State Standards
Mathematics
Grade 6 - Adopted: 2010**

DOMAIN / CONTENT STANDARD	CT.CC.M P.6.	Mathematical Practices
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STATE FRAMEWORK	MP.6.1.	Make sense of problems and persevere in solving them.
STATE FRAMEWORK	MP.6.2.	Reason abstractly and quantitatively.
STATE FRAMEWORK	MP.6.3.	Construct viable arguments and critique the reasoning of others.

STATE FRAMEWORK	MP.6.4.	Model with mathematics.
STATE FRAMEWORK	MP.6.5.	Use appropriate tools strategically.
STATE FRAMEWORK	MP.6.7.	Look for and make use of structure.

DOMAIN / CONTENT STANDARD	CT.CC.G.6.	Geometry
STATE FRAMEWORK		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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
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**Connecticut State Standards
Mathematics
Grade 7 - Adopted: 2010**

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

**Connecticut State Standards
Mathematics
Grade 8 - Adopted: 2010**

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

DOMAIN / CONTENT STANDARD	CT.CC.G.8.	Geometry
STATE FRAMEWORK		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.

**Connecticut State Standards
Science
Grade 5 - Adopted: 2015**

DOMAIN / CONTENT STANDARD	NGSS.3-5-ETS.	ENGINEERING DESIGN
STATE FRAMEWORK	3-5-ETS1.	Engineering Design
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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.

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.

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.

**Connecticut State Standards
Science
Grade 6 - Adopted: 2015**

DOMAIN / CONTENT STANDARD	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STATE FRAMEWORK	MS-ESS3.	Earth and Human Activity
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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

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.

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.

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.

Connecticut State Standards

Science

Grade 7 - Adopted: 2015

DOMAIN / CONTENT STANDARD	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STATE FRAMEWORK	MS-ESS3.	Earth and Human Activity
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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

DOMAIN / CONTENT STANDARD	NGSS.MS-ETS.	ENGINEERING DESIGN
STATE FRAMEWORK	MS-ETS1.	Engineering Design
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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.

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.

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.

Connecticut State Standards

Science

DOMAIN / CONTENT STANDARD	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STATE FRAMEWORK	MS-ESS3.	Earth and Human Activity
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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

DOMAIN / CONTENT STANDARD	NGSS.MS-ETS.	ENGINEERING DESIGN
STATE FRAMEWORK	MS-ETS1.	Engineering Design
GRADE LEVEL EXPECTATION		Students who demonstrate understanding can:

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.

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.

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.

**Connecticut State Standards
Technology Education
Grade 5 - Adopted: 2017**

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.1 B.	Level 1B (Ages 8-11)
GRADE LEVEL EXPECTATION	1B-AP.	Algorithms & Programming

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)

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
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STATE FRAMEWORK	CSTA.1 B.	Level 1B (Ages 8-11)
GRADE LEVEL EXPECTATION	1B-IC.	Impacts of Computing
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)

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
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STATE FRAMEWORK	CSTA.1 B.	Level 1B (Ages 8-11)
GRADE LEVEL EXPECTATION	1B-IC.	Impacts of Computing
INDICATOR		Social Interactions

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

Grade 5 - Adopted: 2016

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
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STATE FRAMEWORK	CO.IST E-S.3.	Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
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GRADE LEVEL EXPECTATION ISTE-S.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
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STATE FRAMEWORK	CO.IST E-S.4.	Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
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GRADE LEVEL EXPECTATION ISTE-S.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

GRADE LEVEL EXPECTATION ISTE-S.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
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STATE FRAMEWORK	CO.IST E-S.5.	Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
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GRADE LEVEL EXPECTATION ISTE-S.5.a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

GRADE LEVEL EXPECTATION ISTE-S.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

GRADE LEVEL EXPECTATION	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.
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**Connecticut State Standards
Technology Education
Grade 6 - Adopted: 2017**

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Algorithms

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Modularity

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
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)

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-IC.	Impacts of Computing
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)

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.3.	Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

GRADE LEVEL EXPECTATION ISTE-S.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.4.	Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

GRADE LEVEL EXPECTATION ISTE-S.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

GRADE LEVEL EXPECTATION ISTE-S.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.5.	Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

GRADE LEVEL EXPECTATION ISTE-S.5.a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

GRADE LEVEL EXPECTATION ISTE-S.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

GRADE LEVEL EXPECTATION ISTE-S.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

**Connecticut State Standards
Technology Education
Grade 7 - Adopted: 2017**

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Algorithms

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
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STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Modularity

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
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)

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-IC.	Impacts of Computing
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)

Grade 7 - Adopted: 2016

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.3.	Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

GRADE LEVEL EXPECTATION ISTE-S.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.4.	Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

GRADE LEVEL EXPECTATION ISTE-S.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

GRADE LEVEL EXPECTATION ISTE-S.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.5.	Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
GRADE LEVEL EXPECTATION	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
GRADE LEVEL EXPECTATION	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
GRADE LEVEL EXPECTATION	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

**Connecticut State Standards
Technology Education
Grade 8 - Adopted: 2017**

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Algorithms

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
INDICATOR		Modularity

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

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-AP.	Algorithms & Programming
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)

DOMAIN / CONTENT STANDARD		CSTA K-12 Computer Science Standards
STATE FRAMEWORK	CSTA.2.	Level 2 (Ages 11-14)
GRADE LEVEL EXPECTATION	2-IC.	Impacts of Computing
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)

Grade 8 - Adopted: 2016

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.3.	Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.

GRADE LEVEL EXPECTATION ISTE-S.3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.4.	Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

GRADE LEVEL EXPECTATION ISTE-S.4.a. Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.

GRADE LEVEL EXPECTATION ISTE-S.4.b. Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

DOMAIN / CONTENT STANDARD		ISTE for Students (ISTE-S)
STATE FRAMEWORK	CO.IST E-S.5.	Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

GRADE LEVEL EXPECTATION ISTE-S.5.a. Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

GRADE LEVEL EXPECTATION ISTE-S.5.b. Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

GRADE LEVEL EXPECTATION ISTE-S.5.d. Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

**Delaware Standards and Instruction
Mathematics**

Grade 5 - Adopted: 2010

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

STANDARD / STRAND	DE.CC.5.MD.	Measurement and Data
STRAND / INDICATOR		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

ENDURING UNDERSTANDING
 CC.5.MD.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

STANDARD / STRAND	DE.CC.5.MD.	Measurement and Data
STRAND / INDICATOR		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
ENDURING UNDERSTANDING	CC.5.MD.5.	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

BENCHMARK
 CC.5.MD.5a. 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.

BENCHMARK
 CC.5.MD.5b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.

Delaware Standards and Instruction
Mathematics
 Grade 6 - Adopted: 2010

STANDARD / STRAND	DE.CC.6.MP.	Mathematical Practices
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STRAND / INDICATOR
 CC.6.MP.1. Make sense of problems and persevere in solving them.

STRAND / INDICATOR
 CC.6.MP.2. Reason abstractly and quantitatively.

STRAND / INDICATOR	CC.6.MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	CC.6.MP.4.	Model with mathematics.
STRAND / INDICATOR	CC.6.MP.5.	Use appropriate tools strategically.
STRAND / INDICATOR	CC.6.MP.7.	Look for and make use of structure.

STANDARD / STRAND	DE.CC.6.G.	Geometry
STRAND / INDICATOR		Solve real-world and mathematical problems involving area, surface area, and volume.

ENDURING UNDERSTANDING . CC.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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

**Delaware Standards and Instruction
Mathematics
Grade 7 - Adopted: 2010**

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

**Delaware Standards and Instruction
Mathematics
Grade 8 - Adopted: 2010**

STANDARD / STRAND	DE.CC.8.MP.	Mathematical Practices
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STRAND / INDICATOR	CC.8.MP .1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	CC.8.MP .2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	CC.8.MP .3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	CC.8.MP .4.	Model with mathematics.
STRAND / INDICATOR	CC.8.MP .5.	Use appropriate tools strategically.
STRAND / INDICATOR	CC.8.MP .7.	Look for and make use of structure.

STANDARD / STRAND	DE.CC.8.G.	Geometry
STRAND / INDICATOR		Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

ENDURING UNDERSTANDING . CC.8.G.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

**Delaware Standards and Instruction
Science
Grade 5 - Adopted: 2013**

STANDARD / STRAND	DE.3-5-ETS.	ENGINEERING DESIGN
STRAND / INDICATOR	3-5-ETS1.	Engineering Design
ENDURING UNDERSTANDING		Students who demonstrate understanding can:

BENCHMARK 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 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 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.

**Delaware Standards and Instruction
Science
Grade 6 - Adopted: 2013**

STANDARD / STRAND	DE.MS-ESS.	EARTH AND SPACE SCIENCE
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STRAND / INDICATOR	MS-ESS3.	Earth and Human Activity
ENDURING UNDERSTANDING		Students who demonstrate understanding can:

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

STANDARD / STRAND	DE.MS-ETS.	ENGINEERING DESIGN
STRAND / INDICATOR	MS-ETS1.	Engineering Design
ENDURING UNDERSTANDING		Students who demonstrate understanding can:

BENCHMARK 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 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 MS-ETS1-4. Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade 6 - Adopted: 2010

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Key Ideas and Details

ENDURING UNDERSTANDING CC6-8RS/TS2. Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

ENDURING UNDERSTANDING CC6-8RS/TS3. Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Craft and Structure

ENDURING UNDERSTANDING CC6-8RS/TS4. 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.

ENDURING UNDERSTANDING CC6-8RS/TS5. Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
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STRAND / INDICATOR		Integration of Knowledge and Ideas
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ENDURING UNDERSTANDING CC6-8RS/TS9. Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
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STRAND / INDICATOR		Range of Reading and Level of Text Complexity
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ENDURING UNDERSTANDING CC6-8RS/TS10. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
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STRAND / INDICATOR		Text Types and Purposes
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ENDURING UNDERSTANDING	CC6-8WH/S/TS2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.
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BENCHMARK CC6-8WH/S/TS2d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
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STRAND / INDICATOR		Production and Distribution of Writing
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ENDURING UNDERSTANDING CC6-8WH/S/TS4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

ENDURING UNDERSTANDING CC6-8WH/S/TS6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

Delaware Standards and Instruction

Science

Grade 7 - Adopted: 2013

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

STANDARD / STRAND	DE.MS-ETS.	ENGINEERING DESIGN
STRAND / INDICATOR	MS-ETS1.	Engineering Design
ENDURING UNDERSTANDING		Students who demonstrate understanding can:

BENCHMARK	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	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	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade 7 - Adopted: 2010

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Key Ideas and Details

ENDURING UNDERSTANDING	CC6-8RS/TS2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
ENDURING UNDERSTANDING	CC6-8RS/TS3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Craft and Structure

ENDURING UNDERSTANDING	CC6-8RS/TS4.	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.
ENDURING UNDERSTANDING	CC6-8RS/TS5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Integration of Knowledge and Ideas

ENDURING UNDERSTANDING	CC6-8RS/TS9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
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STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Range of Reading and Level of Text Complexity

ENDURING UNDERSTANDING CC6-8RS/TS10. By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Text Types and Purposes
ENDURING UNDERSTANDING	CC6-8WH/S/TS2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

BENCHMARK CC6-8WH/S/TS2d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Production and Distribution of Writing

ENDURING UNDERSTANDING CC6-8WH/S/TS4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

ENDURING UNDERSTANDING CC6-8WH/S/TS6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

**Delaware Standards and Instruction
Science
Grade 8 - Adopted: 2013**

STANDARD / STRAND	DE.MS-ESS.	EARTH AND SPACE SCIENCE
STRAND / INDICATOR	MS-ESS3.	Earth and Human Activity
ENDURING UNDERSTANDING		Students who demonstrate understanding can:

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

STANDARD / STRAND	DE.MS-ETS.	ENGINEERING DESIGN
STRAND / INDICATOR	MS-ETS1.	Engineering Design

ENDURING UNDERSTANDING		Students who demonstrate understanding can:
BENCHMARK	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	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	MS-ETS1-4.	Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Grade 8 - Adopted: 2010

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Key Ideas and Details

ENDURING UNDERSTANDING	CC6-8RS/TS2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
ENDURING UNDERSTANDING	CC6-8RS/TS3.	Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Craft and Structure

ENDURING UNDERSTANDING	CC6-8RS/TS4.	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.
ENDURING UNDERSTANDING	CC6-8RS/TS5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Integration of Knowledge and Ideas

ENDURING UNDERSTANDING	CC6-8RS/TS9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
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STANDARD / STRAND	DE.CC6-8RS/TS.	Reading Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Range of Reading and Level of Text Complexity

ENDURING UNDERSTANDING	CC6-8RS/TS10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.
STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Text Types and Purposes
ENDURING UNDERSTANDING	CC6-8WH/S/TS2.	Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

BENCHMARK CC6-8WH/S/TS2d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

STANDARD / STRAND	DE.CC6-8WH/S/TS.	Writing Standards for Literacy in Science and Technical Subjects 6-12
STRAND / INDICATOR		Production and Distribution of Writing

ENDURING UNDERSTANDING CC6-8WH/S/TS4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

ENDURING UNDERSTANDING CC6-8WH/S/TS6. Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas clearly and efficiently.

**Delaware Standards and Instruction
Technology Education
Grade 5 - Adopted: 2018**

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.1B.	Level 1B (Ages 8-11)
ENDURING UNDERSTANDING	1B-AP.	Algorithms & Programming

BENCHMARK **Program Development**

EXPECTATION 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)

EXPECTATION 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)

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.1B.	Level 1B (Ages 8-11)

ENDURING UNDERSTANDING	1B-IC.	Impacts of Computing
BENCHMARK		Culture

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

STANDARD / STRAND		Computer Science Content Standards
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STRAND / INDICATOR	CSTA.1 B.	Level 1B (Ages 8-11)
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ENDURING UNDERSTANDING	1B-IC.	Impacts of Computing
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BENCHMARK		Social Interactions
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EXPECTATION 1B-IC-20. Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

**Delaware Standards and Instruction
Technology Education
Grade 6 - Adopted: 2018**

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

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

STANDARD / STRAND		Computer Science Content Standards
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STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
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ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
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BENCHMARK		Program Development
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EXPECTATION	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)
STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-IC.	Impacts of Computing
BENCHMARK		Social Interactions

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

**Delaware Standards and Instruction
Technology Education
Grade 7 - Adopted: 2018**

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Algorithms

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Modularity

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Program Development

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-IC.	Impacts of Computing
BENCHMARK		Social Interactions

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

**Delaware Standards and Instruction
Technology Education
Grade 8 - Adopted: 2018**

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Algorithms

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Modularity

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

STANDARD / STRAND		Computer Science Content Standards
STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-AP.	Algorithms & Programming
BENCHMARK		Program Development

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

STANDARD / STRAND		Computer Science Content Standards
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STRAND / INDICATOR	CSTA.2.	Level 2 (Ages 11-14)
ENDURING UNDERSTANDING	2-IC.	Impacts of Computing
BENCHMARK		Social Interactions

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

**Florida Standards
Mathematics
Grade 5 - Adopted: 2020**

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 1: Actively participate in effortful learning both individually and collectively.
BENCHMARK	MA.K12. MTR.1.1	Mathematicians who participate in effortful learning both individually and with others:

INDICATOR MA.K12.
MTR.1.1a Analyze the problem in a way that makes sense given the task.

INDICATOR MA.K12.
MTR.1.1b Ask questions that will help with solving the task.

INDICATOR MA.K12.
MTR.1.1c Build perseverance by modifying methods as needed while solving a challenging task.

INDICATOR MA.K12.
MTR.1.1d Stay engaged and maintain a positive mindset when working to solve tasks.

INDICATOR MA.K12.
MTR.1.1e Help and support each other when attempting a new method or approach.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 2: Demonstrate understanding by representing problems in multiple ways.
BENCHMARK	MA.K12. MTR.2.1	Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:

INDICATOR MA.K12.
MTR.2.1a Build understanding through modeling and using manipulatives.

INDICATOR MA.K12.
MTR.2.1b Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.

INDICATOR MA.K12.
MTR.2.1e Choose a representation based on the given context or purpose.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 3: Complete tasks with mathematical fluency.

BENCHMARK	MA.K12.MTR.3.1	Complete tasks with mathematical fluency. Mathematicians who complete tasks with mathematical fluency:
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INDICATOR MA.K12.MTR.3.1a Select efficient and appropriate methods for solving problems within the given context.

INDICATOR MA.K12.MTR.3.1b Maintain flexibility and accuracy while performing procedures and mental calculations.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
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BIG IDEA		Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.
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BENCHMARK	MA.K12.MTR.4.1	Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:
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INDICATOR MA.K12.MTR.4.1a Communicate mathematical ideas, vocabulary and methods effectively.

INDICATOR MA.K12.MTR.4.1b Analyze the mathematical thinking of others.

INDICATOR MA.K12.MTR.4.1c Compare the efficiency of a method to those expressed by others.

INDICATOR MA.K12.MTR.4.1e Justify results by explaining methods and processes.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
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BIG IDEA		Standard 5: Use patterns and structure to help understand and connect mathematical concepts.
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BENCHMARK	MA.K12.MTR.5.1	Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:
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INDICATOR MA.K12.MTR.5.1a Focus on relevant details within a problem.

INDICATOR MA.K12.MTR.5.1b Create plans and procedures to logically order events, steps or ideas to solve problems.

INDICATOR MA.K12.MTR.5.1c Decompose a complex problem into manageable parts.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
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BIG IDEA		Standard 7: Apply mathematics to real-world contexts.
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BENCHMARK	MA.K12.MTR.7.1	Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:
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INDICATOR MA.K12.MTR.7.1a Connect mathematical concepts to everyday experiences.

INDICATOR	MA.K12. MTR.7.1b	Use models and methods to understand, represent and solve problems.
INDICATOR	MA.K12. MTR.7.1c	Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.

BODY OF KNOWLEDGE		Geometric Reasoning
BIG IDEA		Standard 3: Solve problems involving the volume of right rectangular prisms.

BENCHMARK MA.5.GR.3.1. Explore volume as an attribute of three-dimensional figures by packing them with unit cubes without gaps. Find the volume of a right rectangular prism with whole-number side lengths by counting unit cubes.

BENCHMARK MA.5.GR.3.2. Find the volume of a right rectangular prism with whole-number side lengths using a visual model and a formula.

**Florida Standards
Mathematics
Grade 6 - Adopted: 2020**

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 1: Actively participate in effortful learning both individually and collectively.
BENCHMARK	MA.K12. MTR.1.1	Mathematicians who participate in effortful learning both individually and with others:

INDICATOR MA.K12.MTR.1.1a. Analyze the problem in a way that makes sense given the task.

INDICATOR MA.K12.MTR.1.1b. Ask questions that will help with solving the task.

INDICATOR MA.K12.MTR.1.1c. Build perseverance by modifying methods as needed while solving a challenging task.

INDICATOR MA.K12.MTR.1.1d. Stay engaged and maintain a positive mindset when working to solve tasks.

INDICATOR MA.K12.MTR.1.1e. Help and support each other when attempting a new method or approach.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 2: Demonstrate understanding by representing problems in multiple ways.
BENCHMARK	MA.K12. MTR.2.1	Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:

INDICATOR MA.K12.MTR.2.1a. Build understanding through modeling and using manipulatives.

INDICATOR MA.K12.MTR.2.1b. Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.

INDICATOR	MA.K12. MTR.2.1e	Choose a representation based on the given context or purpose.
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BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 3: Complete tasks with mathematical fluency.
BENCHMARK	MA.K12. MTR.3.1	Complete tasks with mathematical fluency. Mathematicians who complete tasks with mathematical fluency:

INDICATOR	MA.K12. MTR.3.1a	Select efficient and appropriate methods for solving problems within the given context.
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INDICATOR	MA.K12. MTR.3.1b	Maintain flexibility and accuracy while performing procedures and mental calculations.
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BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.
BENCHMARK	MA.K12. MTR.4.1	Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:

INDICATOR	MA.K12. MTR.4.1a	Communicate mathematical ideas, vocabulary and methods effectively.
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INDICATOR	MA.K12. MTR.4.1b	Analyze the mathematical thinking of others.
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INDICATOR	MA.K12. MTR.4.1c	Compare the efficiency of a method to those expressed by others.
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INDICATOR	MA.K12. MTR.4.1e	Justify results by explaining methods and processes.
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BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 5: Use patterns and structure to help understand and connect mathematical concepts.
BENCHMARK	MA.K12. MTR.5.1	Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:

INDICATOR	MA.K12. MTR.5.1a	Focus on relevant details within a problem.
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INDICATOR	MA.K12. MTR.5.1b	Create plans and procedures to logically order events, steps or ideas to solve problems.
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INDICATOR	MA.K12. MTR.5.1c	Decompose a complex problem into manageable parts.
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BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 7: Apply mathematics to real-world contexts.

BENCHMARK	MA.K12. MTR.7.1	Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:
INDICATOR	MA.K12. MTR.7.1a	Connect mathematical concepts to everyday experiences.
INDICATOR	MA.K12. MTR.7.1b	Use models and methods to understand, represent and solve problems.
INDICATOR	MA.K12. MTR.7.1c	Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.

BODY OF KNOWLEDGE		Geometric Reasoning
BIG IDEA		Standard 2: Model and solve problems involving two-dimensional figures and three-dimensional figures.

BENCHMARK	MA.6.GR. 2.3.	Solve mathematical and real-world problems involving the volume of right rectangular prisms with positive rational number edge lengths using a visual model and a formula.
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**Florida Standards
Mathematics
Grade 7 - Adopted: 2020**

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 1: Actively participate in effortful learning both individually and collectively.
BENCHMARK	MA.K12. MTR.1.1	Mathematicians who participate in effortful learning both individually and with others:

INDICATOR	MA.K12. MTR.1.1a	Analyze the problem in a way that makes sense given the task.
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INDICATOR	MA.K12. MTR.1.1b	Ask questions that will help with solving the task.
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INDICATOR	MA.K12. MTR.1.1c	Build perseverance by modifying methods as needed while solving a challenging task.
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INDICATOR	MA.K12. MTR.1.1d	Stay engaged and maintain a positive mindset when working to solve tasks.
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INDICATOR	MA.K12. MTR.1.1e	Help and support each other when attempting a new method or approach.
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BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 2: Demonstrate understanding by representing problems in multiple ways.
BENCHMARK	MA.K12. MTR.2.1	Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:

INDICATOR	MA.K12. MTR.2.1a	Build understanding through modeling and using manipulatives.
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INDICATOR	MA.K12. MTR.2.1b	Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.
INDICATOR	MA.K12. MTR.2.1e	Choose a representation based on the given context or purpose.
BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 3: Complete tasks with mathematical fluency.
BENCHMARK	MA.K12. MTR.3.1	Complete tasks with mathematical fluency. Mathematicians who complete tasks with mathematical fluency:
INDICATOR	MA.K12. MTR.3.1a	Select efficient and appropriate methods for solving problems within the given context.
INDICATOR	MA.K12. MTR.3.1b	Maintain flexibility and accuracy while performing procedures and mental calculations.
BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.
BENCHMARK	MA.K12. MTR.4.1	Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:
INDICATOR	MA.K12. MTR.4.1a	Communicate mathematical ideas, vocabulary and methods effectively.
INDICATOR	MA.K12. MTR.4.1b	Analyze the mathematical thinking of others.
INDICATOR	MA.K12. MTR.4.1c	Compare the efficiency of a method to those expressed by others.
INDICATOR	MA.K12. MTR.4.1e	Justify results by explaining methods and processes.
BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 5: Use patterns and structure to help understand and connect mathematical concepts.
BENCHMARK	MA.K12. MTR.5.1	Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:
INDICATOR	MA.K12. MTR.5.1a	Focus on relevant details within a problem.
INDICATOR	MA.K12. MTR.5.1b	Create plans and procedures to logically order events, steps or ideas to solve problems.
INDICATOR	MA.K12. MTR.5.1c	Decompose a complex problem into manageable parts.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 7: Apply mathematics to real-world contexts.
BENCHMARK	MA.K12. MTR.7.1	Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:

INDICATOR	MA.K12. MTR.7.1a	Connect mathematical concepts to everyday experiences.
INDICATOR	MA.K12. MTR.7.1b	Use models and methods to understand, represent and solve problems.
INDICATOR	MA.K12. MTR.7.1c	Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.

BODY OF KNOWLEDGE		Geometric Reasoning
BIG IDEA		Standard 2: Solve problems involving three-dimensional figures, including right circular cylinders.

BENCHMARK	MA.7.GR. 2.3.	Solve mathematical and real-world problems involving volume of right circular cylinders.
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**Florida Standards
Mathematics
Grade 8 - Adopted: 2020**

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 1: Actively participate in effortful learning both individually and collectively.
BENCHMARK	MA.K12. MTR.1.1	Mathematicians who participate in effortful learning both individually and with others:

INDICATOR	MA.K12. MTR.1.1a	Analyze the problem in a way that makes sense given the task.
INDICATOR	MA.K12. MTR.1.1b	Ask questions that will help with solving the task.
INDICATOR	MA.K12. MTR.1.1c	Build perseverance by modifying methods as needed while solving a challenging task.
INDICATOR	MA.K12. MTR.1.1d	Stay engaged and maintain a positive mindset when working to solve tasks.
INDICATOR	MA.K12. MTR.1.1e	Help and support each other when attempting a new method or approach.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 2: Demonstrate understanding by representing problems in multiple ways.
BENCHMARK	MA.K12. MTR.2.1	Demonstrate understanding by representing problems in multiple ways. Mathematicians who demonstrate understanding by representing problems in multiple ways:

INDICATOR	MA.K12. MTR.2.1a	Build understanding through modeling and using manipulatives.
INDICATOR	MA.K12. MTR.2.1b	Represent solutions to problems in multiple ways using objects, drawings, tables, graphs and equations.
INDICATOR	MA.K12. MTR.2.1e	Choose a representation based on the given context or purpose.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 3: Complete tasks with mathematical fluency.
BENCHMARK	MA.K12. MTR.3.1	Complete tasks with mathematical fluency. Mathematicians who complete tasks with mathematical fluency:

INDICATOR	MA.K12. MTR.3.1a	Select efficient and appropriate methods for solving problems within the given context.
INDICATOR	MA.K12. MTR.3.1b	Maintain flexibility and accuracy while performing procedures and mental calculations.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 4: Engage in discussions that reflect on the mathematical thinking of self and others.
BENCHMARK	MA.K12. MTR.4.1	Engage in discussions that reflect on the mathematical thinking of self and others. Mathematicians who engage in discussions that reflect on the mathematical thinking of self and others:

INDICATOR	MA.K12. MTR.4.1a	Communicate mathematical ideas, vocabulary and methods effectively.
INDICATOR	MA.K12. MTR.4.1b	Analyze the mathematical thinking of others.
INDICATOR	MA.K12. MTR.4.1c	Compare the efficiency of a method to those expressed by others.
INDICATOR	MA.K12. MTR.4.1e	Justify results by explaining methods and processes.

BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 5: Use patterns and structure to help understand and connect mathematical concepts.
BENCHMARK	MA.K12. MTR.5.1	Use patterns and structure to help understand and connect mathematical concepts. Mathematicians who use patterns and structure to help understand and connect mathematical concepts:

INDICATOR	MA.K12. MTR.5.1a	Focus on relevant details within a problem.
INDICATOR	MA.K12. MTR.5.1b	Create plans and procedures to logically order events, steps or ideas to solve problems.

INDICATOR	MA.K12. MTR.5.1c	Decompose a complex problem into manageable parts.
BODY OF KNOWLEDGE		Mathematical Thinking and Reasoning
BIG IDEA		Standard 7: Apply mathematics to real-world contexts.
BENCHMARK	MA.K12. MTR.7.1	Apply mathematics to real-world contexts. Mathematicians who apply mathematics to real-world contexts:

INDICATOR	MA.K12. MTR.7.1a	Connect mathematical concepts to everyday experiences.
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INDICATOR	MA.K12. MTR.7.1b	Use models and methods to understand, represent and solve problems.
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INDICATOR	MA.K12. MTR.7.1c	Perform investigations to gather data or determine if a method is appropriate. • Redesign models and methods to improve accuracy or efficiency.
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**Florida Standards
Science
Grade 7 - Adopted: 2008**

BODY OF KNOWLEDGE	FL.SC.7.E	Earth and Space Science
BIG IDEA	SC.7.E.6	Earth Structures - Over geologic time, internal and external sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's internal and external energy and material resources.

BENCHMARK	SC.7.E.6. 6.	Identify the impact that humans have had on Earth, such as deforestation, urbanization, desertification, erosion, air and water quality, changing the flow of water.
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**Florida Standards
Science
Grade 8 - Adopted: 2008**

BODY OF KNOWLEDGE	FL.SC.8.N	Nature of Science
BIG IDEA	SC.8.N.1	The Practice of Science - A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation. B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method." C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge. D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

BENCHMARK	SC.8.N.1. 6.	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.
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BODY OF KNOWLEDGE	FL.SC.8.N	Nature of Science
BIG IDEA	SC.8.N.4	Science and Society - As tomorrows citizens, students should be able to identify issues about which society could provide input, formulate scientifically investigable questions about those issues, construct investigations of their questions, collect and evaluate data from their investigations, and develop scientific recommendations based upon their findings.

BENCHMARK	SC.8.N.4.1.	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.
BENCHMARK	SC.8.N.4.2.	Explain how political, social, and economic concerns can affect science, and vice versa.

**Florida Standards
Technology Education
Grade 5 - Adopted: 2016**

BODY OF KNOWLEDGE	FL.SC.35.CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.35.CS-CS.1.	Modeling and simulations

BENCHMARK	SC.35.CS-CS.1.3	Answer a question, individually and collaboratively, using data from a simulation.
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BODY OF KNOWLEDGE	FL.SC.35.CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.35.CS-CS.2.	Problem solving and Algorithms

BENCHMARK	SC.35.CS-CS.2.2	Describe how computational thinking can be used to solve real life issues in science and engineering.
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BENCHMARK	SC.35.CS-CS.2.4	Solve real-world problems in science and engineering using computational thinking skills.
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BENCHMARK	SC.35.CS-CS.2.6	Write an algorithm to solve a grade-level appropriate problem (e.g., move a character through a maze, instruct a character to draw a specific shape, have a character start, repeat or end activity as required or upon a specific event), individually or collaboratively.
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BODY OF KNOWLEDGE	FL.SC.35.CS-CP.	COMPUTER SCIENCE - COMPUTER PRACTICES AND PROGRAMMING
BIG IDEA	SC.35.CS-CP.2.	Computer programming basics

BENCHMARK	SC.35.CS-CP.2.2	Create, test, and modify a program in a graphical environment (e.g., block-based visual programming language), individually and collaboratively.
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**Florida Standards
Technology Education
Grade 6 - Adopted: 2016**

BODY OF KNOWLEDGE	FL.SC.68.CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.CS-CS.2.	Problem solving and Algorithms

BENCHMARK	SC.68.CS-CS.2.2	Solve real-life issues in science and engineering (i.e., generalize a solution to open-ended problems) using computational thinking skills.
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BENCHMARK	SC.68.CS-CS.2.5	Decompose a problem and create a function for one of its parts at a time (e.g., video game, robot obstacle course, making dinner), individually and collaboratively.
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BENCHMARK	SC.68.C S-CS.2.6	Create a program that implements an algorithm to achieve a given goal, individually and collaboratively.
BODY OF KNOWLEDGE	FL.SC.68. CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.C S-CS.6.	Human – Computer interactions and Artificial Intelligence
BENCHMARK	SC.68.C S-CS.6.2	Describe how humans and machines interact to accomplish tasks that cannot be accomplished by either alone.

**Florida Standards
Technology Education
Grade 7 - Adopted: 2016**

BODY OF KNOWLEDGE	FL.SC.68. CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.C S-CS.2.	Problem solving and Algorithms
BENCHMARK	SC.68.C S-CS.2.2	Solve real-life issues in science and engineering (i.e., generalize a solution to open-ended problems) using computational thinking skills.
BENCHMARK	SC.68.C S-CS.2.5	Decompose a problem and create a function for one of its parts at a time (e.g., video game, robot obstacle course, making dinner), individually and collaboratively.
BENCHMARK	SC.68.C S-CS.2.6	Create a program that implements an algorithm to achieve a given goal, individually and collaboratively.

BODY OF KNOWLEDGE	FL.SC.68. CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.C S-CS.6.	Human – Computer interactions and Artificial Intelligence
BENCHMARK	SC.68.C S-CS.6.2	Describe how humans and machines interact to accomplish tasks that cannot be accomplished by either alone.

**Florida Standards
Technology Education
Grade 8 - Adopted: 2016**

BODY OF KNOWLEDGE	FL.SC.68. CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.C S-CS.2.	Problem solving and Algorithms
BENCHMARK	SC.68.C S-CS.2.2	Solve real-life issues in science and engineering (i.e., generalize a solution to open-ended problems) using computational thinking skills.
BENCHMARK	SC.68.C S-CS.2.5	Decompose a problem and create a function for one of its parts at a time (e.g., video game, robot obstacle course, making dinner), individually and collaboratively.
BENCHMARK	SC.68.C S-CS.2.6	Create a program that implements an algorithm to achieve a given goal, individually and collaboratively.

BODY OF KNOWLEDGE	FL.SC.68.CS-CS.	COMPUTER SCIENCE - COMMUNICATION SYSTEMS AND COMPUTING
BIG IDEA	SC.68.CS-CS.6.	Human – Computer interactions and Artificial Intelligence

BENCHMARK SC.68.CS-CS.6.2 Describe how humans and machines interact to accomplish tasks that cannot be accomplished by either alone.

**Georgia Standards of Excellence
Mathematics
Grade 5 - Adopted: 2021**

STRAND/TOPIC		5th Grade
STANDARD / DESCRIPTION		GEOMETRIC & SPATIAL REASONING – Properties of polygons and rectangular prisms, classify polygons
ELEMENT	5.GSR.8 :	Examine properties of polygons and rectangular prisms, classify polygons by their properties, and discover volume of right rectangular prisms.

ELEMENT/GLE 5.GSR.8.3. Investigate volume of right rectangular prisms by packing them with unit cubes without gaps or overlaps. Then, determine the total volume to solve problems.

ELEMENT/GLE 5.GSR.8.4. Discover and explain how the volume of a right rectangular prism can be found by multiplying the area of the base times the height to solve authentic, mathematical problems.

**Georgia Standards of Excellence
Mathematics
Grade 6 - Adopted: 2021**

STRAND/TOPIC		6th Grade
STANDARD / DESCRIPTION		GEOMETRIC & SPATIAL REASONING – area of polygons, volume of right rectangular prisms, surface area of 3-D figures
ELEMENT	6.GSR.5 :	Solve relevant problems involving area, surface area, and volume.

ELEMENT/GLE 6.GSR.5.3. Calculate the volume of right rectangular prisms with fractional edge lengths by applying the formula, $V = (\text{area of base}) \times (\text{height})$.

**Georgia Standards of Excellence
Mathematics
Grade 7 - Adopted: 2021**

STRAND/TOPIC		7th Grade
STANDARD / DESCRIPTION		GEOMETRIC & SPATIAL REASONING – vertical, adjacent, complementary, and supplementary angles, circumference and area of circles, area and surface area, volume of cubes, right prisms, and cylinders
ELEMENT	7.GSR.5 :	Solve practical problems involving angle measurement, circles, area of circles, surface area of prisms and cylinders, and volume of cylinders and prisms composed of cubes and right prisms.

ELEMENT/GLE 7.GSR.5.8. Explore volume as a measurable attribute of cylinders and right prisms. Find the volume of these geometric figures using concrete problems.

**Georgia Standards of Excellence
Mathematics
Grade 8 - Adopted: 2021**

STRAND/TOPIC		8th Grade
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STANDARD / DESCRIPTION		GEOMETRIC & SPATIAL REASONING – Pythagorean theorem and volume of triangles, rectangles, cones, cylinders, and spheres
ELEMENT	8.GSR.8 :	Solve geometric problems involving the Pythagorean Theorem and the volume of geometric figures to explain real phenomena.

ELEMENT/GLE 8.GSR.8. Apply the formulas for the volume of cones, cylinders, and spheres and use them to solve in relevant problems.
4.

**Georgia Standards of Excellence
Science
Grade 5 - Adopted: 2016**

STRAND/TOPIC		Life Science
STANDARD / DESCRIPTION	S5L4.	Obtain, evaluate, and communicate information about how microorganisms benefit or harm larger organisms.

ELEMENT S5L4.b. Construct an argument using scientific evidence to support a claim that some microorganisms are harmful.

**Georgia Standards of Excellence
Technology Education
Grade 5 - Adopted: 2019**

STRAND/TOPIC		Computer Science Fifth Grade (11.07800)
STANDARD / DESCRIPTION		Knowledge Constructor
ELEMENT	CSS.KC.3-5.2.	Curate (analyze and evaluate) a variety of resources and digital tools to construct knowledge and produce creative artifacts.

ELEMENT/GLE CSS.KC.3-5.2.3. Explain why a real-world issue exists or was created and develop a possible solution.

STRAND/TOPIC		Computer Science Fifth Grade (11.07800)
STANDARD / DESCRIPTION		Global Collaborator
ELEMENT	CSS.GC.3-5.7.	Use digital tools to expand personal viewpoints and enrich learning by collaborating effectively both locally and globally.

ELEMENT/GLE CSS.GC.3-5.7.2. Plan the development of a program by including others' viewpoints and considering user preferences.

STRAND/TOPIC		Computer Science Fifth Grade (11.07800)
STANDARD / DESCRIPTION		Reflective Researcher
ELEMENT	CSS.RR.3-5.8.	Gather, evaluate, and organize quality information from multiple sources.

ELEMENT/GLE CSS.RR.3-5.8.3. Use information from multiple sources to identify real-world issues and create solutions.

**Georgia Standards of Excellence
Technology Education
Grade 6 - Adopted: 2019**

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Innovative Designer and Creator
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ELEMENT CSS.IDC.6-8.18. Recognize that there may be multiple approaches to solving a problem.

ELEMENT CSS.IDC.6-8.19. Approach problem solving iteratively, using a cyclical process.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Innovative Designer and Creator
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ELEMENT	CSS.IDC.6-8.20.	Design, develop, debug and implement computer programs.
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ELEMENT/GLE CSS.IDC.6-8.20.5. Implement a simple algorithm in a computer program.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE CSS.CT.6-8.30. Identify sub-problems to consider while addressing a larger problem.

ELEMENT/GLE CSS.CT.6-8.31. Recognize when it is appropriate to solve a problem computationally; Make sense of computational problems and persevere in solving them.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE CSS.CT.6-8.32. Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.

EXPECTATION CSS.CT.6-8.32.1. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).

EXPECTATION CSS.CT.6-8.32.5. Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE CSS.CT.6-8.33. Utilize computational thinking to solve problems.

EXPECTATION CSS.CT.6-8.33.3. Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.

EXPECTATION	CSS.CT. 6-8.33.4.	Develop an algorithm to decompose a problem of a daily task.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE	CSS.CT. 6-8.34.	Recognize when to use the same solution for multiple problems.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Algorithms

ELEMENT/GLE	CSS.CT. 6-8.36.	Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.
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EXPECTATION	CSS.CT. 6-8.36.1.	Select basic steps to solve algorithmic problems.
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EXPECTATION	CSS.CT. 6-8.36.2.	Evaluate basic steps of algorithmic problem solving to design solutions.
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EXPECTATION	CSS.CT. 6-8.36.3.	Solve algorithmic problems of increasing complexity.
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STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE	CSS.CT. 6-8.32.	Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.
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EXPECTATION	CSS.CT. 6-8.32.1.	Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).
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EXPECTATION	CSS.CT. 6-8.32.5.	Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.
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STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE	CSS.CT. 6-8.33.	Utilize computational thinking to solve problems.
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EXPECTATION	CSS.CT. 6-8.33.3.	Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.
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EXPECTATION CSS.CT. Develop an algorithm to decompose a problem of a daily task.
6-8.33.4.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. Recognize when to use the same solution for multiple problems.
6-8.34.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Algorithms

ELEMENT/GLE CSS.CT. 6-8.36. Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.

EXPECTATION CSS.CT. Select basic steps to solve algorithmic problems.
6-8.36.1.

EXPECTATION CSS.CT. Evaluate basic steps of algorithmic problem solving to design solutions.
6-8.36.2.

EXPECTATION CSS.CT. Solve algorithmic problems of increasing complexity.
6-8.36.3.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Creative Communicator
ELEMENT		Conceptual Category: Collaborating Around Computing

ELEMENT/GLE CSS.CT. Use online resources to participate in collaborative activities for the purpose of developing solutions or products.
6-8.41.

Grade 6 - Adopted: 2018

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-1.	Demonstrate employability skills required by business and industry to explore, research, and present careers in information technology.

ELEMENT MS-CS-FSIS-1.4. Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-3.	Develop through application logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.

ELEMENT MS-CS-FSIS-3.1. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking, and abstraction).

ELEMENT	MS-CS-FSIS-3.2.	Explain issues and analyze routine hardware and software problems current to everyday life.
STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.
ELEMENT	MS-CS-FCP-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.
STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-3.	Utilize computational thinking to solve problems.
ELEMENT	MS-CS-FCP-3.3.	Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.
ELEMENT	MS-CS-FCP-3.4.	Develop an algorithm to decompose a problem of a daily task.
STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-4.	Design, develop, debug and implement computer programs.
ELEMENT	MS-CS-FCP-4.5.	Implement a simple algorithm in a computer program.
STRAND/TOPIC		Foundations of Interactive Design (MS-CS-FID) (11.01300)
STANDARD / DESCRIPTION	MS-CS-FID-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.
ELEMENT	MS-CS-FID-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

**Georgia Standards of Excellence
Technology Education
Grade 7 - Adopted: 2019**

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Innovative Designer and Creator
ELEMENT	CSS.IDC .6-8.18.	Recognize that there may be multiple approaches to solving a problem.
ELEMENT	CSS.IDC .6-8.19.	Approach problem solving iteratively, using a cyclical process.
STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Innovative Designer and Creator
ELEMENT	CSS.IDC .6-8.20.	Design, develop, debug and implement computer programs.

ELEMENT/GLE CSS.IDC. Implement a simple algorithm in a computer program.
6-8.20.5.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. Identify sub-problems to consider while addressing a larger problem.
6-8.30.

ELEMENT/GLE CSS.CT. Recognize when it is appropriate to solve a problem computationally; Make sense of computational problems and persevere in solving them.
6-8.31.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.
6-8.32.

EXPECTATION CSS.CT. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).
6-8.32.1.

EXPECTATION CSS.CT. Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.
6-8.32.5.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. Utilize computational thinking to solve problems.
6-8.33.

EXPECTATION CSS.CT. Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.
6-8.33.3.

EXPECTATION CSS.CT. Develop an algorithm to decompose a problem of a daily task.
6-8.33.4.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. Recognize when to use the same solution for multiple problems.
6-8.34.

STRAND/TOPIC		Middle School Computer Science I (11.03000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Algorithms
ELEMENT/GLE	CSS.CT. 6-8.36.	Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.

EXPECTATION CSS.CT. 6-8.36.1. Select basic steps to solve algorithmic problems.

EXPECTATION CSS.CT. 6-8.36.2. Evaluate basic steps of algorithmic problem solving to design solutions.

EXPECTATION CSS.CT. 6-8.36.3. Solve algorithmic problems of increasing complexity.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
ELEMENT/GLE	CSS.CT. 6-8.32.	Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.

EXPECTATION CSS.CT. 6-8.32.1. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).

EXPECTATION CSS.CT. 6-8.32.5. Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
ELEMENT/GLE	CSS.CT. 6-8.33.	Utilize computational thinking to solve problems.

EXPECTATION CSS.CT. 6-8.33.3. Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.

EXPECTATION CSS.CT. 6-8.33.4. Develop an algorithm to decompose a problem of a daily task.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems

ELEMENT/GLE CSS.CT. 6-8.34. Recognize when to use the same solution for multiple problems.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Computational Thinker
ELEMENT		Conceptual Category: Algorithms
ELEMENT/GLE	CSS.CT. 6-8.36.	Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.
EXPECTATION	CSS.CT. 6-8.36.1.	Select basic steps to solve algorithmic problems.
EXPECTATION	CSS.CT. 6-8.36.2.	Evaluate basic steps of algorithmic problem solving to design solutions.
EXPECTATION	CSS.CT. 6-8.36.3.	Solve algorithmic problems of increasing complexity.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Creative Communicator
ELEMENT		Conceptual Category: Collaborating Around Computing
ELEMENT/GLE	CSS.CT. 6-8.41.	Use online resources to participate in collaborative activities for the purpose of developing solutions or products.

Grade 7 - Adopted: 2018

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-1.	Demonstrate employability skills required by business and industry to explore, research, and present careers in information technology.
ELEMENT	MS-CS-FSIS-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-3.	Develop through application logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.
ELEMENT	MS-CS-FSIS-3.1.	Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking, and abstraction).
ELEMENT	MS-CS-FSIS-3.2.	Explain issues and analyze routine hardware and software problems current to everyday life.

STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.
ELEMENT	MS-CS-FCP-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
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STANDARD / DESCRIPTION	MS-CS-FCP-3.	Utilize computational thinking to solve problems.
ELEMENT	MS-CS-FCP-3.3.	Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.

ELEMENT	MS-CS-FCP-3.4.	Develop an algorithm to decompose a problem of a daily task.
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STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
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STANDARD / DESCRIPTION	MS-CS-FCP-4.	Design, develop, debug and implement computer programs.
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ELEMENT	MS-CS-FCP-4.5.	Implement a simple algorithm in a computer program.
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STRAND/TOPIC		Foundations of Interactive Design (MS-CS-FID) (11.01300)
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STANDARD / DESCRIPTION	MS-CS-FID-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.
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ELEMENT	MS-CS-FID-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.
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**Georgia Standards of Excellence
Technology Education
Grade 8 - Adopted: 2019**

STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Innovative Designer and Creator
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ELEMENT	CSS.IDC.6-8.18.	Recognize that there may be multiple approaches to solving a problem.
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ELEMENT	CSS.IDC.6-8.19.	Approach problem solving iteratively, using a cyclical process.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Innovative Designer and Creator
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ELEMENT	CSS.IDC.6-8.20.	Design, develop, debug and implement computer programs.
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ELEMENT/GLE	CSS.IDC.6-8.20.5.	Implement a simple algorithm in a computer program.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT.6-8.30.	Identify sub-problems to consider while addressing a larger problem.
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ELEMENT/GLE	CSS.CT. 6-8.31.	Recognize when it is appropriate to solve a problem computationally; Make sense of computational problems and persevere in solving them.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT. 6-8.32.	Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.
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EXPECTATION	CSS.CT. 6-8.32.1.	Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).
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EXPECTATION	CSS.CT. 6-8.32.5.	Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT. 6-8.33.	Utilize computational thinking to solve problems.
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EXPECTATION	CSS.CT. 6-8.33.3.	Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.
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EXPECTATION	CSS.CT. 6-8.33.4.	Develop an algorithm to decompose a problem of a daily task.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT. 6-8.34.	Recognize when to use the same solution for multiple problems.
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STRAND/TOPIC		Middle School Computer Science I (11.03000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Algorithms
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ELEMENT/GLE	CSS.CT. 6-8.36.	Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.
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EXPECTATION	CSS.CT. 6-8.36.1.	Select basic steps to solve algorithmic problems.
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EXPECTATION	CSS.CT. 6-8.36.2.	Evaluate basic steps of algorithmic problem solving to design solutions.
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EXPECTATION CSS.CT. Solve algorithmic problems of increasing complexity.
6-8.36.3.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT. 6-8.32.	Develop through application, logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.
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EXPECTATION CSS.CT. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking and abstraction).
6-8.32.1.

EXPECTATION CSS.CT. Explain how technology can create ethical and legal issues in the business world and a technology-based society and how it can be used to solve & manage those issues.
6-8.32.5.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE	CSS.CT. 6-8.33.	Utilize computational thinking to solve problems.
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EXPECTATION CSS.CT. Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.
6-8.33.3.

EXPECTATION CSS.CT. Develop an algorithm to decompose a problem of a daily task.
6-8.33.4.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Recognizing and Defining Computational Problems
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ELEMENT/GLE CSS.CT. Recognize when to use the same solution for multiple problems.
6-8.34.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
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STANDARD / DESCRIPTION		Computational Thinker
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ELEMENT		Conceptual Category: Algorithms
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ELEMENT/GLE	CSS.CT. 6-8.36.	Understand and use the basic steps in algorithmic problem solving in computing and other authentic applications.
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EXPECTATION CSS.CT. Select basic steps to solve algorithmic problems.
6-8.36.1.

EXPECTATION CSS.CT. Evaluate basic steps of algorithmic problem solving to design solutions.
6-8.36.2.

EXPECTATION CSS.CT. Solve algorithmic problems of increasing complexity.
6-8.36.3.

STRAND/TOPIC		Middle School Computer Science II (11.04000)
STANDARD / DESCRIPTION		Creative Communicator
ELEMENT		Conceptual Category: Collaborating Around Computing

ELEMENT/GLE CSS.CT. Use online resources to participate in collaborative activities for the purpose of developing solutions or products.
6-8.41.

Grade 8 - Adopted: 2018

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-1.	Demonstrate employability skills required by business and industry to explore, research, and present careers in information technology.

ELEMENT MS-CS-FSIS-1.4. Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

STRAND/TOPIC		Foundations of Secure Information Systems (MS-CS-FSIS) (11.01100)
STANDARD / DESCRIPTION	MS-CS-FSIS-3.	Develop through application logical observations relative to computational thinking procedures to analyze and solve problems current to everyday life.

ELEMENT MS-CS-FSIS-3.1. Identify characteristics of computational thinking (decomposition, pattern recognition, algorithmic thinking, and abstraction).

ELEMENT MS-CS-FSIS-3.2. Explain issues and analyze routine hardware and software problems current to everyday life.

STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.

ELEMENT MS-CS-FCP-1.4. Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-3.	Utilize computational thinking to solve problems.

ELEMENT MS-CS-FCP-3.3. Analyze the problem-solving process, the input-process-output-storage model of a computer, and how computers help humans solve problems.

ELEMENT MS-CS-FCP-3.4. Develop an algorithm to decompose a problem of a daily task.

STRAND/TOPIC		Foundations of Computer Programming (MS-CS-FCP) (11.01200)
STANDARD / DESCRIPTION	MS-CS-FCP-4.	Design, develop, debug and implement computer programs.

ELEMENT	MS-CS-FCP-4.5.	Implement a simple algorithm in a computer program.
STRAND/TOPIC		Foundations of Interactive Design (MS-CS-FID) (11.01300)
STANDARD / DESCRIPTION	MS-CS-FID-1.	Demonstrate employability skills required by business and industry and explore, research, and present careers in information technology.
ELEMENT	MS-CS-FID-1.4.	Exhibit critical thinking and problem-solving skills to locate, analyze, and apply information in career planning and employment situations.

**Hawaii Content and Performance Standards
Mathematics
Grade 5 - Adopted: 2010**

CONTENT STANDARD / COURSE	HI.CC.MP.5.	Mathematical Practices
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.1.	Make sense of problems and persevere in solving them.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.2.	Reason abstractly and quantitatively.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.4.	Model with mathematics.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.5.	Use appropriate tools strategically.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.5.7.	Look for and make use of structure.
CONTENT STANDARD / COURSE	HI.CC.MD.5.	Measurement and Data
STANDARD / PERFORMANCE INDICATOR / DOMAIN		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK MD.5.4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

CONTENT STANDARD / COURSE	HI.CC.MD.5.	Measurement and Data
STANDARD / PERFORMANCE INDICATOR / DOMAIN		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	MD.5.5.	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

EXPECTATION / TOPIC 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 / TOPIC MD.5.5(b) Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.

**Hawaii Content and Performance Standards
Mathematics
Grade 6 - Adopted: 2010**

CONTENT STANDARD / COURSE	HI.CC.MP.6.	Mathematical Practices
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.1.	Make sense of problems and persevere in solving them.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.2.	Reason abstractly and quantitatively.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.4.	Model with mathematics.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.5.	Use appropriate tools strategically.

STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.6.7.	Look for and make use of structure.
CONTENT STANDARD / COURSE	HI.CC.G. 6.	Geometry
STANDARD / PERFORMANCE INDICATOR / DOMAIN		Solve real-world and mathematical problems involving area, surface area, and volume.
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	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 $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.

**Hawaii Content and Performance Standards
Mathematics
Grade 7 - Adopted: 2010**

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

**Hawaii Content and Performance Standards
Mathematics
Grade 8 - Adopted: 2010**

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

CONTENT STANDARD / COURSE	HI.CC.G.8.	Geometry
STANDARD / PERFORMANCE INDICATOR / DOMAIN		Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.

INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK

G.8.9. Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.

**Hawaii Content and Performance Standards
Science**

Grade 5 - Adopted: 2016

CONTENT STANDARD / COURSE	NGSS.3-5-ETS.	ENGINEERING DESIGN
STANDARD / PERFORMANCE INDICATOR / DOMAIN	3-5-ETS1.	Engineering Design

INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:
EXPECTATION / TOPIC	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 / TOPIC	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 / TOPIC	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.

Hawaii Content and Performance Standards

Science

Grade 6 - Adopted: 2016

CONTENT STANDARD / COURSE	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ESS3.	Earth and Human Activity
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC	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.
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CONTENT STANDARD / COURSE	NGSS.MS-ETS.	ENGINEERING DESIGN
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ETS1.	Engineering Design
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC	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.
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EXPECTATION / TOPIC	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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EXPECTATION / TOPIC	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.
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Hawaii Content and Performance Standards

Science

Grade 7 - Adopted: 2016

CONTENT STANDARD / COURSE	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ESS3.	Earth and Human Activity
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC 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 / COURSE	NGSS.MS-ETS.	ENGINEERING DESIGN
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ETS1.	Engineering Design
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC 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 / TOPIC 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 / TOPIC 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.

**Hawaii Content and Performance Standards
Science**

Grade 8 - Adopted: 2016

CONTENT STANDARD / COURSE	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ESS3.	Earth and Human Activity
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC 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 / COURSE	NGSS.MS-ETS.	ENGINEERING DESIGN
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STANDARD / PERFORMANCE INDICATOR / DOMAIN	MS-ETS1.	Engineering Design
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		Students who demonstrate understanding can:

EXPECTATION / TOPIC	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.
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EXPECTATION / TOPIC	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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EXPECTATION / TOPIC	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.
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