Main Criteria: Forward Education

Secondary Criteria: 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: 7, 8, Key Stage 3

Forward Education

Smart Farming with Hydroponics & LED Grow Lights

Arizona's College and Career Ready Standards

Mathematics

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

STRAND		Standards for Mathematical Practice
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.6	Attend to precision.
CONCEPT / STANDARD	MP.7	Look for and make use of structure.
CONCEPT / STANDARD	MP.8	Look for and express regularity in repeated reasoning.

STRAND		**The Number System (NS)**
CONCEPT / STANDARD	**7.NS.A**	**Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	**7.NS.A.1**	**Add and subtract integers and other rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.**
OBJECTIVE / GRADE LEVEL EXPECTATION	7.NS.A.1.d.	Apply properties of operations as strategies to add and subtract rational numbers.

STRAND		**The Number System (NS)**
CONCEPT / STANDARD	**7.NS.A**	**Apply and extend previous understanding of operations with fractions to add, subtract, multiply, and divide rational numbers except division by zero.**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	**7.NS.A.2**	**Multiply and divide integers and other rational numbers.**

OBJECTIVE / GRADE LEVEL EXPECTATION	7.NS.A.2.a.	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world context.
OBJECTIVE / GRADE LEVEL EXPECTATION	7.NS.A.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers.

STRAND		**Expressions and Equations (EE)**
CONCEPT / STANDARD	**7.EE.B**	**Solve mathematical problems and problems in real-world context using numerical and algebraic expressions and equations.**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	**7.EE.B.4**	**Use variables to represent quantities in mathematical problems and problems in real-world context, and construct simple equations and inequalities to solve problems.**
OBJECTIVE / GRADE LEVEL EXPECTATION	7.EE.B.4.a.	Solve word problems leading to equations of the form px+q = r and p(x+q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

Arizona's College and Career Ready Standards

Mathematics

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

STRAND		**Standards for Mathematical Practice**
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.6	Attend to precision.
CONCEPT / STANDARD	MP.7	Look for and make use of structure.
CONCEPT / STANDARD	MP.8	Look for and express regularity in repeated reasoning.

STRAND		**Expressions and Equations (EE)**
CONCEPT / STANDARD	**8.EE.C**	**Analyze and solve linear equations, inequalities, and pairs of simultaneous linear equations.**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	**8.EE.C.7**	**Fluently solve linear equations and inequalities in one variable.**

OBJECTIVE / GRADE LEVEL EXPECTATION	8.EE.C.7. a.	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solution. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
OBJECTIVE / GRADE LEVEL EXPECTATION	8.EE.C.7. b.	Solve linear equations and inequalities with rational number coefficients, including solutions that require expanding expressions using the distributive property and collecting like terms.

Arizona's College and Career Ready Standards

Science

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

STRAND		**Core Ideas for Knowing Science**
CONCEPT / STANDARD		**Earth and Space Science**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	E1:	The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.

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.

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.

Arizona's College and Career Ready Standards

Science

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

STRAND		**Core Ideas for Knowing Science**
CONCEPT / STANDARD		**Earth and Space Science**
PERFORMANCE OBJECTIVE / PROFICIENCY LEVEL	E1:	The composition of the Earth and its atmosphere and the natural and human processes occurring within them shape the Earth's surface and its climate.

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.

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.

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.

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.

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.
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.

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.
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 **8** - 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.

Arkansas Standards

Mathematics

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

STRAND / TOPIC		**Grade 7 Mathematics Standards**
CONTENT STANDARD	**7.NCC.**	**Number Concepts & Computations**
PERFORMANCE EXPECTATION		**Rational Number Operations - Students apply all properties and operations to all rational numbers.**
BENCHMARK / PROFICIENCY	7.NCC.6.	Apply properties of operations as strategies to fluently add, subtract, multiply, and divide rational numbers.
BENCHMARK / PROFICIENCY	7.NCC.7.	Use addition and subtraction with rational numbers in any form to solve multi-step problems in real-world and mathematical contexts.
BENCHMARK / PROFICIENCY	7.NCC.8.	Use multiplication and division with rational numbers in any form to solve multi-step problems in real-world and mathematical contexts.

STRAND / TOPIC		**Grade 7 Mathematics Standards**
CONTENT STANDARD	**7.ALG.**	**Algebra**
PERFORMANCE EXPECTATION		**Equations & Inequalities - Students apply previous knowledge of equations and inequalities to two-step problems.**

BENCHMARK / PROFICIENCY	7.ALG.2.	Model and solve fluently two-step equations in real-world or mathematical problems.

Arkansas Standards

Mathematics

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

STRAND / TOPIC		**Grade 8 Mathematics Standards**
CONTENT STANDARD	**8.ALG.**	**Algebra**
PERFORMANCE EXPECTATION		**Equations & Inequalities - Students solve linear equations and inequalities.**
BENCHMARK / PROFICIENCY	8.ALG.1.	Analyze and solve one-variable linear equations with rational coefficients containing solutions with one, zero, or infinitely many solutions.

Arkansas Standards

Science

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

STRAND / TOPIC	**AR.SC.3.**	**Interdependent Relationships in Ecosystems**
CONTENT STANDARD		**Students who demonstrate understanding can:**
PERFORMANCE EXPECTATION	7-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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.

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.

Arkansas Standards

Science

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.
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.

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.G7.5.2.	Design and test algorithms using technology
BENCHMARK / PROFICIENCY	CSK8.G7.5.4.	Identify and correct multiple errors within a level-appropriate program
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.G7.6.1.	Use a visual block-based or text-based programming language individually and collaboratively to solve level-appropriate problems
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.G7.7.1.	Describe ways in which computers use models of intelligent behavior (e.g., computer vision, language understanding, robot motion, speech)

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.G8.1.1.	Identify and utilize level-appropriate, algorithmic problem-solving strategies
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 **7** - Adopted: **2013**

CONTENT STANDARD / DOMAIN / PART	**CA.CC.MP.**	**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.6.	Attend to precision.
PERFORMANCE STANDARD / MODE	MP.7.	Look for and make use of structure.
PERFORMANCE STANDARD / MODE	MP.8.	Look for and express regularity in repeated reasoning.
CONTENT STANDARD / DOMAIN / PART	**CA.CC.7. NS.**	**The Number System**
PERFORMANCE STANDARD / MODE		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
EXPECTATION / SUBSTRAND	**7.NS.1.**	**Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.**
FOUNDATION / PROFICIENCY LEVEL	7.NS.1.d.	Apply properties of operations as strategies to add and subtract rational numbers.
CONTENT STANDARD / DOMAIN / PART	**CA.CC.7. NS.**	**The Number System**
PERFORMANCE STANDARD / MODE		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
EXPECTATION / SUBSTRAND	**7.NS.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
FOUNDATION / PROFICIENCY LEVEL	7.NS.2.a.	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.

FOUNDATION / PROFICIENCY LEVEL	7.NS.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers.

CONTENT STANDARD / DOMAIN / PART	**CA.CC.7.EE.**	**Expressions and Equations**
PERFORMANCE STANDARD / MODE		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
EXPECTATION / SUBSTRAND	**7.EE.4.**	**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.**
FOUNDATION / PROFICIENCY LEVEL	7.EE.4.a.	Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

California Content Standards

Mathematics

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

CONTENT STANDARD / DOMAIN / PART	**CA.CC.MP.**	**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.6.	Attend to precision.
PERFORMANCE STANDARD / MODE	MP.7.	Look for and make use of structure.
PERFORMANCE STANDARD / MODE	MP.8.	Look for and express regularity in repeated reasoning.

CONTENT STANDARD / DOMAIN / PART	**CA.CC.8.EE.**	**Expressions and Equations**

PERFORMANCE STANDARD / MODE		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
EXPECTATION / SUBSTRAND	**8.EE.7.**	**Solve linear equations in one variable.**
FOUNDATION / PROFICIENCY LEVEL	8.EE.7.a.	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
FOUNDATION / PROFICIENCY LEVEL	8.EE.7.b.	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

California Content Standards

Science

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

CONTENT STANDARD / DOMAIN / PART	**CA.MS-LS.**	**LIFE SCIENCE**
PERFORMANCE STANDARD / MODE	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
EXPECTATION / SUBSTRAND		**Students who demonstrate understanding can:**
FOUNDATION / PROFICIENCY LEVEL	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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.

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.

California Content Standards

Science

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

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.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.

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.

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

CONTENT AREA		**Prepared Graduates in Mathematics**
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	MP6.	Attend to precision.
STANDARD	MP7.	Look for and make use of structure.

STANDARD	MP8.	Look for and express regularity in repeated reasoning.

CONTENT AREA		**Seventh Grade, Standard 1. Number and Quantity**
STANDARD	**7.NS.A.**	**The Number System: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES	**7.NS.A.1.**	**Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. (CCSS: 7.NS.A.1)**
INDICATOR	7.NS.A.1.d.	Apply properties of operations as strategies to add and subtract rational numbers. (CCSS: 7.NS.A.1.d)

CONTENT AREA		**Seventh Grade, Standard 1. Number and Quantity**
STANDARD	**7.NS.A.**	**The Number System: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES	**7.NS.A.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. (CCSS: 7.NS.A.2)**
INDICATOR	7.NS.A.2.a.	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (−1)(−1)=1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. (CCSS: 7.NS.A.2.a)
INDICATOR	7.NS.A.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers. (CCSS: 7.NS.A.2.c)

CONTENT AREA		**Seventh Grade, Standard 2. Algebra and Functions**
STANDARD	**7.EE.B.**	**Expressions & Equations: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES	**7.EE.B.4.**	**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. (CCSS: 7.EE.B.4)**
INDICATOR	7.EE.B.4.a.	Solve word problems leading to equations of the form $px \pm q = r$ and $p(x \pm q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? (CCSS: 7.EE.B.4.a)

Colorado Academic Standards (CAS)

Mathematics

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

CONTENT AREA		**Prepared Graduates in Mathematics**

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	MP6.	Attend to precision.
STANDARD	MP7.	Look for and make use of structure.
STANDARD	MP8.	Look for and express regularity in repeated reasoning.
CONTENT AREA		**Eighth Grade, Standard 2. Algebra and Functions**
STANDARD	**8.EE.C.**	**Expressions & Equations: Analyze and solve linear equations and pairs of simultaneous linear equations.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES	**8.EE.C.7.**	**Solve linear equations in one variable. (CCSS: 8.EE.C.7)**
INDICATOR	8.EE.C.7.a.	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are are different numbers). (CCSS: 8.EE.C.7.a)
INDICATOR	8.EE.C.7.b.	Solve linear equations with rational number coefficients, including equations with variables on both sides and whose solutions require expanding expressions using the distributive property and collecting like terms. (CCSS: 8.EE.C.7.b)

Colorado Academic Standards (CAS)

Science

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

CONTENT AREA	**SC.MS.2.**	**Life Science**
STANDARD	**SC.MS.2.7.**	**Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES		**Students Can:**
INDICATOR	SC.MS.2.7.b.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)
CONTENT AREA	**SC.MS.2.**	**Life Science**

STANDARD	**SC.MS.2.12.**	**Biodiversity is the wide range of existing life forms that have adapted to the variety of conditions on Earth, from terrestrial to marine ecosystems.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES		**Students Can:**
INDICATOR	SC.MS.2.12.a.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)

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.a.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (MS-ESS3-3)
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 **8** - Adopted: **2018**

CONTENT AREA	**SC.MS.2.**	**Life Science**
STANDARD	**SC.MS.2.7.**	**Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES		**Students Can:**
INDICATOR	SC.MS.2.7.b.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)

CONTENT AREA	**SC.MS.2.**	**Life Science**
STANDARD	**SC.MS.2.12.**	**Biodiversity is the wide range of existing life forms that have adapted to the variety of conditions on Earth, from terrestrial to marine ecosystems.**
CONCEPTS AND SKILLS / EVIDENCE OUTCOMES		**Evidence Outcomes**
EVIDENCE OUTCOMES		**Students Can:**

INDICATOR	SC.MS.2.12.a.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services. (MS-LS2-5)

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.a.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment. (MS-ESS3-3)
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)

Connecticut State Standards

Mathematics

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

DOMAIN / CONTENT STANDARD	**CT.CC.MP.7.**	**Mathematical Practices**
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.7.6.	Attend to precision.
STATE FRAMEWORK	MP.7.7.	Look for and make use of structure.
STATE FRAMEWORK	MP.7.8.	Look for and express regularity in repeated reasoning.

DOMAIN / CONTENT STANDARD	**CT.CC.NS.7.**	**The Number System**
STATE FRAMEWORK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

GRADE LEVEL EXPECTATION	**NS.7.1.**	**Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.**
INDICATOR	NS.7.1(d)	Apply properties of operations as strategies to add and subtract rational numbers.
DOMAIN / CONTENT STANDARD	**CT.CC.NS.7.**	**The Number System**
STATE FRAMEWORK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
GRADE LEVEL EXPECTATION	**NS.7.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
INDICATOR	NS.7.2(a)	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
INDICATOR	NS.7.2(c)	Apply properties of operations as strategies to multiply and divide rational numbers.
DOMAIN / CONTENT STANDARD	**CT.CC.EE.7.**	**Expressions and Equations**
STATE FRAMEWORK		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
GRADE LEVEL EXPECTATION	**EE.7.4.**	**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.**
INDICATOR	EE.7.4(a)	Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Connecticut State Standards

Mathematics

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

DOMAIN / CONTENT STANDARD	**CT.CC.MP.8.**	**Mathematical Practices**
STATE FRAMEWORK	MP.8.1.	Make sense of problems and persevere in solving them.
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.8.6.	Attend to precision.

STATE FRAMEWORK	MP.8.7.	Look for and make use of structure.
STATE FRAMEWORK	MP.8.8.	Look for and express regularity in repeated reasoning.
DOMAIN / CONTENT STANDARD	**CT.CC.EE.8.**	**Expressions and Equations**
STATE FRAMEWORK		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
GRADE LEVEL EXPECTATION	**EE.8.7.**	**Solve linear equations in one variable.**
INDICATOR	EE.8.7(a)	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
INDICATOR	EE.8.7(b)	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Connecticut State Standards

Science

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

DOMAIN / CONTENT STANDARD	**NGSS.MS-LS.**	**LIFE SCIENCE**
STATE FRAMEWORK	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
INDICATOR	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.

Connecticut State Standards

Science

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

DOMAIN / CONTENT STANDARD	**NGSS.MS-LS.**	**LIFE SCIENCE**

STATE FRAMEWORK	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
INDICATOR	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.

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**
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.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
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.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
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.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
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.

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.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
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.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
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.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
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 **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.6.	Attend to precision.

STRAND / INDICATOR	CC.7.MP.7.	Look for and make use of structure.
STRAND / INDICATOR	CC.7.MP.8.	Look for and express regularity in repeated reasoning.

STANDARD / STRAND	**DE.CC.7.NS.**	**The Number System**
STRAND / INDICATOR		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
ENDURING UNDERSTANDING	**CC.7.NS.1.**	**Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.**
BENCHMARK	CC.7.NS.1d.	Apply properties of operations as strategies to add and subtract rational numbers.

STANDARD / STRAND	**DE.CC.7.NS.**	**The Number System**
STRAND / INDICATOR		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
ENDURING UNDERSTANDING	**CC.7.NS.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
BENCHMARK	CC.7.NS.2a.	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
BENCHMARK	CC.7.NS.2c.	Apply properties of operations as strategies to multiply and divide rational numbers.

STANDARD / STRAND	**DE.CC.7.EE.**	**Expressions and Equations**
STRAND / INDICATOR		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
ENDURING UNDERSTANDING	**CC.7.EE.4.**	**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.**
BENCHMARK	CC.7.EE.4a.	Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

Delaware Standards and Instruction

Mathematics

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

STANDARD / STRAND	**DE.CC.8.MP.**	**Mathematical Practices**
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.6.	Attend to precision.
STRAND / INDICATOR	CC.8.MP.7.	Look for and make use of structure.
STRAND / INDICATOR	CC.8.MP.8.	Look for and express regularity in repeated reasoning.
STANDARD / STRAND	**DE.CC.8.EE.**	**Expressions and Equations**
STRAND / INDICATOR		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
ENDURING UNDERSTANDING	**CC.8.EE.7.**	**Solve linear equations in one variable.**
BENCHMARK	CC.8.EE.7a.	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
BENCHMARK	CC.8.EE.7b.	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Delaware Standards and Instruction

Science

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

STANDARD / STRAND	**DE.MS-LS.**	**LIFE SCIENCE**
STRAND / INDICATOR	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
ENDURING UNDERSTANDING		**Students who demonstrate understanding can:**
BENCHMARK	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.

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.

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/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.

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.

Delaware Standards and Instruction

Science

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

STANDARD / STRAND	**DE.MS-LS.**	**LIFE SCIENCE**
STRAND / INDICATOR	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
ENDURING UNDERSTANDING		**Students who demonstrate understanding can:**

BENCHMARK	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.

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.

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/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.

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		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**
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 **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.
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.2.1d	Express connections between concepts and representations.
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.
INDICATOR	MA.K12.MTR.3.1c	Complete tasks accurately and with confidence.
INDICATOR	MA.K12.MTR.3.1e	Use feedback to improve efficiency when performing 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.4.1d	Recognize errors and suggest how to correctly solve the task.
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 6: Assess the reasonableness of solutions.**
BENCHMARK	**MA.K12.MTR.6.1**	**Assess the reasonableness of solutions. Mathematicians who assess the reasonableness of solutions:**
INDICATOR	MA.K12.MTR.6.1c	Check calculations when solving problems.
INDICATOR	MA.K12.MTR.6.1d	Verify possible solutions by explaining the methods used.
INDICATOR	MA.K12.MTR.6.1e	Evaluate results based on the given context.

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		**Algebraic Reasoning**
BIG IDEA		**Standard 2: Write and solve equations and inequalities in one variable.**
BENCHMARK	MA.7.AR.2.2.	Write and solve two-step equations in one variable within a mathematical or real-world context, where all terms are rational numbers.

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.2.1d	Express connections between concepts and representations.
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.
INDICATOR	MA.K12.MTR.3.1c	Complete tasks accurately and with confidence.
INDICATOR	MA.K12.MTR.3.1e	Use feedback to improve efficiency when performing 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.4.1d	Recognize errors and suggest how to correctly solve the task.
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 6: Assess the reasonableness of solutions.**
BENCHMARK	**MA.K12.MTR.6.1**	**Assess the reasonableness of solutions. Mathematicians who assess the reasonableness of solutions:**
INDICATOR	MA.K12.MTR.6.1c	Check calculations when solving problems.
INDICATOR	MA.K12.MTR.6.1d	Verify possible solutions by explaining the methods used.
INDICATOR	MA.K12.MTR.6.1e	Evaluate results based on the given context.

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.

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.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.
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.
BENCHMARK	SC.68.CS-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.

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.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.
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.
BENCHMARK	SC.68.CS-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 **7** - Adopted: **2021**

STRAND/TOPIC		**7th Grade**
STANDARD / DESCRIPTION		**NUMERICAL REASONING – integers, percentages, fractions, decimal numbers**
ELEMENT	**7.NR.1:**	**Solve relevant, mathematical problems, including multi-step problems, involving the four operations with rational numbers and quantities in any form (integers, percentages, fractions, and decimal numbers).**

ELEMENT/GLE	7.NR.1.2.	Show and explain p + q as the number located a distance |q| from p, in the positive or negative direction, depending on whether q is positive or negative. Interpret sums of rational numbers by describing applicable situations.
ELEMENT/GLE	7.NR.1.3.	Represent addition and subtraction with rational numbers on a horizontal or a vertical number line diagram to solve authentic problems.
ELEMENT/GLE	7.NR.1.5.	Apply properties of operations, including part-whole reasoning, as strategies to add and subtract rational numbers.
ELEMENT/GLE	7.NR.1.6.	Make sense of multiplication of rational numbers using realistic applications.
ELEMENT/GLE	7.NR.1.9.	Apply properties of operations as strategies to solve multiplication and division problems involving rational numbers represented in an applicable scenario.

Georgia Standards of Excellence

Mathematics

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

STRAND/TOPIC		**8th Grade**
STANDARD / DESCRIPTION		**FUNCTIONAL & GRAPHICAL REASONING – relate domain to linear functions, rate of change, linear vs. nonlinear relationships, graphing linear functions, systems of linear equations, parallel and perpendicular lines**
ELEMENT	**8.FGR.5 :**	**Describe the properties of functions to define, evaluate, and compare relationships, and use functions and graphs of functions to model and explain real phenomena.**
ELEMENT/GLE	8.FGR.5.9.	Graph and analyze linear functions expressed in various algebraic forms and show key characteristics of the graph to describe applicable 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.6-8.20.5.	Implement a simple algorithm in a computer program.

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. 6-8.30.	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)**
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 I (11.03000)**
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 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.
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)**
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 **8** - 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.6-8.20.5.	Implement a simple algorithm in a computer program.

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.6-8.30.	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)**
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 I (11.03000)**
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 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.
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.

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.

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.7.6.	Attend to precision.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.7.7.	Look for and make use of structure.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.7.8.	Look for and express regularity in repeated reasoning.

CONTENT STANDARD / COURSE	HI.CC.NS.7.	The Number System
STANDARD / PERFORMANCE INDICATOR / DOMAIN		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	**NS.7.1.**	**Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.**
EXPECTATION / TOPIC	NS.7.1(d)	Apply properties of operations as strategies to add and subtract rational numbers.

CONTENT STANDARD / COURSE	HI.CC.NS.7.	The Number System

STANDARD / PERFORMANCE INDICATOR / DOMAIN		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	**NS.7.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
EXPECTATION / TOPIC	NS.7.2(a)	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.
EXPECTATION / TOPIC	NS.7.2(c)	Apply properties of operations as strategies to multiply and divide rational numbers.
CONTENT STANDARD / COURSE	**HI.CC.EE.7.**	**Expressions and Equations**
STANDARD / PERFORMANCE INDICATOR / DOMAIN		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	**EE.7.4.**	**Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.**
EXPECTATION / TOPIC	EE.7.4(a)	Solve word problems leading to equations of the form px + q = r and p(x + q) = r, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

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.8.6.	Attend to precision.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.8.7.	Look for and make use of structure.
STANDARD / PERFORMANCE INDICATOR / DOMAIN	MP.8.8.	Look for and express regularity in repeated reasoning.
CONTENT STANDARD / COURSE	**HI.CC.EE.8.**	**Expressions and Equations**
STANDARD / PERFORMANCE INDICATOR / DOMAIN		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK	**EE.8.7.**	**Solve linear equations in one variable.**
EXPECTATION / TOPIC	EE.8.7(a)	Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers).
EXPECTATION / TOPIC	EE.8.7(b)	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

Hawaii Content and Performance Standards

Science

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

CONTENT STANDARD / COURSE	**NGSS.MS-LS.**	**LIFE SCIENCE**
STANDARD / PERFORMANCE INDICATOR / DOMAIN	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		**Students who demonstrate understanding can:**
EXPECTATION / TOPIC	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.

Hawaii Content and Performance Standards

Science

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

CONTENT STANDARD / COURSE	**NGSS.MS-LS.**	**LIFE SCIENCE**
STANDARD / PERFORMANCE INDICATOR / DOMAIN	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
INDICATOR / GRADE LEVEL EXPECTATION / BENCHMARK		**Students who demonstrate understanding can:**
EXPECTATION / TOPIC	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
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.