Main Criteria: Forward Education

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

Subjects: Mathematics, Science, Technology Education

Grades: 7, 8, Key Stage 3

Forward Education

Smart Farming with Hydroponics & LED Grow Lights

Nebraska Content Area Standards

Mathematics

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

CONTENT STANDARD		**Grade 7 Standards**
STRAND	**7.A.**	**ALGEBRA: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.**
INDICATOR	**7.A.1.**	**Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.**
STRAND	7.A.1.c.	Solve one- and two-step equations involving rational numbers.

Nebraska Content Area Standards

Science

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

CONTENT STANDARD	**NE.SC.7.7.**	**Interdependent Relationships in Ecosystems**
STRAND	**SC.7.7.3.**	**Gather, analyze, and communicate evidence of interdependent relationships in ecosystems.**
INDICATOR	SC.7.7.3.B.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
INDICATOR	SC.7.7.3.D.	Apply scientific principles to design a method for monitoring and increasing positive human impact on the environment.
CONTENT STANDARD	**NE.SC.7.13.**	**Earth's Systems**
STRAND	**SC.7.13.5.**	**Gather, analyze, and communicate evidence of the flow of energy and cycling of matter associated with Earth's materials and processes.**
INDICATOR	SC.7.13.5.C.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Nebraska Content Area Standards

Technology Education

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

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

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

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

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

Nebraska Content Area Standards

Technology Education

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

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

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

CONTENT STANDARD		NEBRASKA K-12 TECHNOLOGY Scope & Sequence

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

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.7.**	**Mathematical Practices**
STRAND / INDICATOR	MP.7.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.7.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.7.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.7.4.	Model with mathematics.
STRAND / INDICATOR	MP.7.6.	Attend to precision.
STRAND / INDICATOR	MP.7.7.	Look for and make use of structure.
STRAND / INDICATOR	MP.7.8.	Look for and express regularity in repeated reasoning.
CONTENT STANDARD	**NV.CC.NS.7.**	**The Number System**
STRAND / INDICATOR		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

INDICATOR / 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.**
GRADE LEVEL EXPECTATION	NS.7.1(d)	Apply properties of operations as strategies to add and subtract rational numbers.

CONTENT STANDARD	**NV.CC.NS.7.**	**The Number System**
STRAND / INDICATOR		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
INDICATOR / GRADE LEVEL EXPECTATION	**NS.7.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
GRADE LEVEL EXPECTATION	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.
GRADE LEVEL EXPECTATION	NS.7.2(c)	Apply properties of operations as strategies to multiply and divide rational numbers.

CONTENT STANDARD	**NV.CC.EE.7.**	**Expressions and Equations**
STRAND / INDICATOR		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
INDICATOR / 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.**
GRADE LEVEL EXPECTATION	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?

Nevada Academic Content Standards

Mathematics

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

CONTENT STANDARD	**NV.CC.MP.8.**	**Mathematical Practices**
STRAND / INDICATOR	MP.8.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.8.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.8.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.8.4.	Model with mathematics.
STRAND / INDICATOR	MP.8.6.	Attend to precision.

STRAND / INDICATOR	MP.8.7.	Look for and make use of structure.
STRAND / INDICATOR	MP.8.8.	Look for and express regularity in repeated reasoning.

CONTENT STANDARD	**NV.CC.EE.8.**	**Expressions and Equations**
STRAND / INDICATOR		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
INDICATOR / GRADE LEVEL EXPECTATION	**EE.8.7.**	**Solve linear equations in one variable.**
GRADE LEVEL EXPECTATION	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).
GRADE LEVEL EXPECTATION	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.

Nevada Academic Content Standards

Science

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

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

CONTENT STANDARD	**NV.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STRAND / INDICATOR	**MS-ESS3.**	**Earth and Human Activity**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

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

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

INDICATOR / GRADE LEVEL EXPECTATION	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Range of Reading and Level of Text Complexity**
INDICATOR / GRADE LEVEL EXPECTATION	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Nevada Academic Content Standards

Science

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

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

CONTENT STANDARD	**NV.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STRAND / INDICATOR	**MS-ESS3.**	**Earth and Human Activity**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

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

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

INDICATOR / GRADE LEVEL EXPECTATION	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

CONTENT STANDARD	**NV.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / INDICATOR		**Range of Reading and Level of Text Complexity**
INDICATOR / GRADE LEVEL EXPECTATION	RST.6-8.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

Nevada Academic Content Standards

Technology Education

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

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
GRADE LEVEL EXPECTATION	P3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
GRADE LEVEL EXPECTATION	P3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
GRADE LEVEL EXPECTATION	P3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE
STRAND / INDICATOR		Practices
INDICATOR / GRADE LEVEL EXPECTATION	P4.	Developing and Using Abstractions
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE
STRAND / INDICATOR		Practices
INDICATOR / GRADE LEVEL EXPECTATION	P5.	Creating Computational Artifacts
GRADE LEVEL EXPECTATION	P5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
GRADE LEVEL EXPECTATION	P5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.

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

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

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY
STRAND / INDICATOR		Innovative Designer
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.B.1.	Select and use digital tools to support a design process and expand their understanding to identify constraints, trade-offs, and to weigh risks.

INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.C.1.	Engage in a design process to inquire and analyze, develop ideas, test and revise prototypes, embracing the cyclical process of trial and error, and understanding problems or setbacks as potential opportunities for improvement.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.D.1.	Demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Computational Thinker**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.B.1.	Find or organize data and use technology to analyze and represent the data to solve problems and make decisions.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.C.1.	Break problems into component parts, identify key pieces, and use that information to problem solve.

Nevada Academic Content Standards

Technology Education

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

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.
GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P3.**	**Recognizing and Defining Computational Problems**
GRADE LEVEL EXPECTATION	P3.1.	Identify complex, interdisciplinary, real-world problems that can be solved computationally.
GRADE LEVEL EXPECTATION	P3.2.	Decompose complex real-world problems into manageable subproblems that could integrate existing solutions or procedures.
GRADE LEVEL EXPECTATION	P3.3.	Evaluate whether it is appropriate and feasible to solve a problem computationally.

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE
STRAND / INDICATOR		Practices
INDICATOR / GRADE LEVEL EXPECTATION	P4.	Developing and Using Abstractions
GRADE LEVEL EXPECTATION	P4.3.	Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE
STRAND / INDICATOR		Practices
INDICATOR / GRADE LEVEL EXPECTATION	P5.	Creating Computational Artifacts
GRADE LEVEL EXPECTATION	P5.1.	Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
GRADE LEVEL EXPECTATION	P5.2.	Create a computational artifact for practical intent, personal expression, or to address a societal issue.

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

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

CONTENT STANDARD		NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY
STRAND / INDICATOR		Innovative Designer
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.B.1.	Select and use digital tools to support a design process and expand their understanding to identify constraints, trade-offs, and to weigh risks.

INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.C.1.	Engage in a design process to inquire and analyze, develop ideas, test and revise prototypes, embracing the cyclical process of trial and error, and understanding problems or setbacks as potential opportunities for improvement.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.ID.D.1.	Demonstrate an ability to persevere and handle greater ambiguity as they work to solve open-ended problems.
CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for INTEGRATED TECHNOLOGY**
STRAND / INDICATOR		**Computational Thinker**
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.B.1.	Find or organize data and use technology to analyze and represent the data to solve problems and make decisions.
INDICATOR / GRADE LEVEL EXPECTATION	6-8.CT.C.1.	Break problems into component parts, identify key pieces, and use that information to problem solve.

New Hampshire College and Career Ready Standards

Mathematics

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

STRAND / STANDARD	**NH.CC.MP.7.**	**Mathematical Practices**
STANDARD / GLE	MP.7.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.7.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.7.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.7.4.	Model with mathematics.
STANDARD / GLE	MP.7.6.	Attend to precision.
STANDARD / GLE	MP.7.7.	Look for and make use of structure.
STANDARD / GLE	MP.7.8.	Look for and express regularity in repeated reasoning.

STRAND / STANDARD	**NH.CC.NS.7.**	**The Number System**
STANDARD / GLE		**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.**
EXPECTATION	NS.7.1(d)	Apply properties of operations as strategies to add and subtract rational numbers.
STRAND / STANDARD	**NH.CC.NS.7.**	**The Number System**
STANDARD / GLE		**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.**
EXPECTATION	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	NS.7.2(c)	Apply properties of operations as strategies to multiply and divide rational numbers.
STRAND / STANDARD	**NH.CC.EE.7.**	**Expressions and Equations**
STANDARD / GLE		**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.**
EXPECTATION	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?

New Hampshire College and Career Ready Standards

Mathematics

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

STRAND / STANDARD	**NH.CC.MP.8.**	**Mathematical Practices**
STANDARD / GLE	MP.8.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.8.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.8.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.8.4.	Model with mathematics.
STANDARD / GLE	MP.8.6.	Attend to precision.
STANDARD / GLE	MP.8.7.	Look for and make use of structure.

STANDARD / GLE	MP.8.8.	Look for and express regularity in repeated reasoning.

STRAND / STANDARD	NH.CC.EE.8.	Expressions and Equations
STANDARD / GLE		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
GRADE LEVEL EXPECTATION	**EE.8.7.**	**Solve linear equations in one variable.**
EXPECTATION	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	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.

New Hampshire College and Career Ready Standards

Science

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

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

STRAND / STANDARD	NGSS.MS-ESS.	EARTH AND SPACE SCIENCE
STANDARD / GLE	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

New Hampshire College and Career Ready Standards

Science

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

STRAND / STANDARD	NGSS.MS-LS.	LIFE SCIENCE
STANDARD / GLE	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**

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

STRAND / STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
STANDARD / GLE	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

New Hampshire College and Career Ready Standards

Technology Education

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

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

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

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

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

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

New Hampshire College and Career Ready Standards

Technology Education

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

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

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

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

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

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

New Jersey Student Learning Standards

Mathematics

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

CONTENT AREA / STANDARD	NJ.MP.	Mathematical Practices
STRAND	MP.1.	Make sense of problems and persevere in solving them.
STRAND	MP.2.	Reason abstractly and quantitatively.
STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND	MP.4.	Model with mathematics.
STRAND	MP.6.	Attend to precision.
STRAND	MP.7.	Look for and make use of structure.
STRAND	MP.8.	Look for and express regularity in repeated reasoning.

CONTENT AREA / STANDARD	**NJ.7.NS.**	**The Number System**
STRAND	**7.NS.A.**	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
CONTENT STATEMENT	**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.**
CUMULATIVE PROGRESS INDICATOR	7.NS.A.1.d.	Apply properties of operations as strategies to add and subtract rational numbers.

CONTENT AREA / STANDARD	**NJ.7.NS.**	**The Number System**
STRAND	**7.NS.A.**	**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
CONTENT STATEMENT	**7.NS.A.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
CUMULATIVE PROGRESS 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.
CUMULATIVE PROGRESS INDICATOR	7.NS.A.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers.

CONTENT AREA / STANDARD	**NJ.7.EE.**	**Expressions and Equations**
STRAND	**7.EE.B.**	**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
CONTENT STATEMENT	**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.**
CUMULATIVE PROGRESS INDICATOR	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. For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?

New Jersey Student Learning Standards

Mathematics

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

CONTENT AREA / STANDARD	**NJ.MP.**	**Mathematical Practices**
STRAND	MP.1.	Make sense of problems and persevere in solving them.
STRAND	MP.2.	Reason abstractly and quantitatively.
STRAND	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND	MP.4.	Model with mathematics.

STRAND	MP.6.	Attend to precision.
STRAND	MP.7.	Look for and make use of structure.
STRAND	MP.8.	Look for and express regularity in repeated reasoning.
CONTENT AREA / STANDARD	**NJ.8.EE.**	**Expressions and Equations**
STRAND	**8.EE.C.**	**Analyze and solve linear equations and pairs of simultaneous linear equations.**
CONTENT STATEMENT	**8.EE.C.7.**	**Solve linear equations in one variable.**
CUMULATIVE PROGRESS 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 different numbers).
CUMULATIVE PROGRESS INDICATOR	8.EE.C.7.b.	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

New Jersey Student Learning Standards

Science

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

CONTENT AREA / STANDARD	**MS-LS.**	**Life Science**
STRAND	**MS-LS2:**	**Ecosystems: Interactions, Energy, and Dynamics**
CONTENT STATEMENT	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
CONTENT AREA / STANDARD	**MS-ESS.**	**Earth and Space Science**
STRAND	**MS-ESS3:**	**Earth and Human Activity**
CONTENT STATEMENT	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
CONTENT STATEMENT	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

New Jersey Student Learning Standards

Science

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

CONTENT AREA / STANDARD	**MS-LS.**	**Life Science**
STRAND	**MS-LS2:**	**Ecosystems: Interactions, Energy, and Dynamics**

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

CONTENT AREA / STANDARD	**MS-ESS.**	**Earth and Space Science**
STRAND	**MS-ESS3:**	**Earth and Human Activity**
CONTENT STATEMENT	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
CONTENT STATEMENT	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

New Jersey Student Learning Standards

Technology Education

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

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

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

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**

CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Computing Systems**
CONTENT STATEMENT		**Software and hardware determine a computing system's capability to store and process information. The design or selection of a computing system involves multiple considerations and potential trade-offs.**
CUMULATIVE PROGRESS INDICATOR	8.1.8.CS.3:	Justify design decisions and explain potential system trade-offs.

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

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

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

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

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

CONTENT STATEMENT		**Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.5:	Explain the need for optimization in a design process.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.6:	Analyze how trade-offs can impact the design of a product.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.7:	Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches).
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people. Sometimes a technology developed for one purpose is adapted to serve other purposes. Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.1:	Examine a malfunctioning tool, product, or system and propose solutions to the problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.4:	Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Effects of Technology on the Natural World**
CONTENT STATEMENT		**Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ETW.3:	Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact.

New Jersey Student Learning Standards

Technology Education

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

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

CUMULATIVE PROGRESS INDICATOR		Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**3 Recognizing and Defining Computational Problems**
CONTENT STATEMENT		**The ability to recognize appropriate and worthwhile opportunities to apply computation is a skill that develops over time and is central to computing. Solving a problem with a computational approach requires defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Decompose complex real-world problems into manageable sub-problems that could integrate existing solutions or procedures.
CUMULATIVE PROGRESS INDICATOR		Evaluate whether it is appropriate and feasible to solve a problem computationally.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**4 Developing and Using Abstractions**
CONTENT STATEMENT		**Abstractions are formed by identifying patterns and extracting common features from specific examples in order to create generalizations. Using generalized solutions and parts of solutions designed for broad reuse simplifies the development process by managing complexity. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Evaluate existing technological functionalities and incorporate them into new designs.
CUMULATIVE PROGRESS INDICATOR		Create modules and develop points of interaction that can apply to multiple situations and reduce complexity.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.

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

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

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

CONTENT AREA / STANDARD	**8.1.**	**Computer Science and Design Thinking – Computer Science**
STRAND		**Algorithms & Programming**
CONTENT STATEMENT		**Individuals design and test solutions to identify problems taking into consideration the diverse needs of the users and the community.**

CUMULATIVE PROGRESS INDICATOR	8.1.8.AP.8:	Systematically test and refine programs using a range of test cases and users.

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

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.5:	Explain the need for optimization in a design process.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.6:	Analyze how trade-offs can impact the design of a product.
CUMULATIVE PROGRESS INDICATOR	8.2.8.ED.7:	Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches).

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology advances through the processes of innovation and invention which relies upon the imaginative and inventive nature of people. Sometimes a technology developed for one purpose is adapted to serve other purposes. Engineers use a systematic process of creating or modifying technologies that is fueled and constrained by physical laws, cultural norms, and economic resources. Scientists use systematic investigation to understand the natural world.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.1:	Examine a malfunctioning tool, product, or system and propose solutions to the problem.
CUMULATIVE PROGRESS INDICATOR	8.2.8.NT.4:	Explain how a product designed for a specific demand was modified to meet a new demand and led to a new product.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Effects of Technology on the Natural World**
CONTENT STATEMENT		**Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment.**
CUMULATIVE PROGRESS INDICATOR	8.2.8.ETW.3:	Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact.

New Mexico Content Standards

Mathematics

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

STRAND / CONTENT STANDARD	**NM.MP.**	**Mathematical Practices**
BENCHMARK / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
BENCHMARK / STANDARD	MP.2.	Reason abstractly and quantitatively.
BENCHMARK / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
BENCHMARK / STANDARD	MP.4.	Model with mathematics.
BENCHMARK / STANDARD	MP.6.	Attend to precision.
BENCHMARK / STANDARD	MP.7.	Look for and make use of structure.
BENCHMARK / STANDARD	MP.8.	Look for and express regularity in repeated reasoning.

STRAND / CONTENT STANDARD	**NM.7.NS.**	**The Number System**
BENCHMARK / STANDARD		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**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.**
PERFORMANCE STANDARD / INDICATOR	7.NS.1(d)	Apply properties of operations as strategies to add and subtract rational numbers.

STRAND / CONTENT STANDARD	**NM.7.NS.**	**The Number System**
BENCHMARK / STANDARD		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**7.NS.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
PERFORMANCE STANDARD / INDICATOR	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.
PERFORMANCE STANDARD / INDICATOR	7.NS.2(c)	Apply properties of operations as strategies to multiply and divide rational numbers.

STRAND / CONTENT STANDARD	**NM.7.EE.**	**Expressions and Equations**
BENCHMARK / STANDARD		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**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.**
PERFORMANCE STANDARD / INDICATOR	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?

New Mexico Content Standards

Mathematics

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

STRAND / CONTENT STANDARD	**NM.MP.**	**Mathematical Practices**
BENCHMARK / STANDARD	MP.1.	Make sense of problems and persevere in solving them.
BENCHMARK / STANDARD	MP.2.	Reason abstractly and quantitatively.
BENCHMARK / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
BENCHMARK / STANDARD	MP.4.	Model with mathematics.
BENCHMARK / STANDARD	MP.6.	Attend to precision.

BENCHMARK / STANDARD	MP.7.	Look for and make use of structure.
BENCHMARK / STANDARD	MP.8.	Look for and express regularity in repeated reasoning.

STRAND / CONTENT STANDARD	**NM.8.EE.**	**Expressions and Equations**
BENCHMARK / STANDARD		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**8.EE.7.**	**Solve linear equations in one variable.**
PERFORMANCE STANDARD / INDICATOR	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).
PERFORMANCE STANDARD / INDICATOR	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.

New Mexico Content Standards

Science

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

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

STRAND / CONTENT STANDARD	**NGSS.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK / STANDARD	**MS-ESS3.**	**Earth and Human Activity**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.

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

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

PERFORMANCE STANDARD / INDICATOR	MS-ESS3-3 NM.	Describe the advantages and disadvantages associated with technologies related to local industries and energy production.

New Mexico Content Standards

Science

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

STRAND / CONTENT STANDARD	**NGSS.MS-LS.**	**LIFE SCIENCE**
BENCHMARK / STANDARD	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**

PERFORMANCE STANDARD / INDICATOR	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

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

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

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

STRAND / CONTENT STANDARD	**NM.MS-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK / STANDARD	**MS-ESS3.**	**Human Impacts**

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	MS-ESS3-3 NM.	Describe the advantages and disadvantages associated with technologies related to local industries and energy production.

New Mexico Content Standards

Technology Education

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

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

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

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

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

New Mexico Content Standards

Technology Education

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

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

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

STRAND / CONTENT STANDARD		CSTA K-12 Computer Science Standards
BENCHMARK / STANDARD	CSTA.2.	Level 2 (Ages 11-14)
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	2-AP.	Algorithms & Programming

PERFORMANCE STANDARD / INDICATOR		**Program Development**
INDICATOR	2-AP-15.	Seek and incorporate feedback from team members and users to refine a solution that meets user needs. (P2.3, P1.1)
STRAND / CONTENT STANDARD		**CSTA K-12 Computer Science Standards**
BENCHMARK / STANDARD	**CSTA.2.**	**Level 2 (Ages 11-14)**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY	**2-IC.**	**Impacts of Computing**
PERFORMANCE STANDARD / INDICATOR		**Social Interactions**
INDICATOR	2-IC-22.	Collaborate with many contributors through strategies such as crowdsourcing or surveys when creating a computational artifact. (P2.4, P5.2)

New York State Learning Standards and Core Curriculum

Mathematics

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

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.6	Attend to precision.
CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.
CATEGORY / CLUSTER / KEY IDEA	MP.8	Look for and express regularity in repeated reasoning.

STRAND / DOMAIN / UNIFYING THEME		**Grade 7**
CATEGORY / CLUSTER / KEY IDEA	**NY-7.NS.**	**The Number System**
STANDARD / CONCEPTUAL UNDERSTANDING		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
EXPECTATION / CONTENT SPECIFICATION	**NY-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.**
GRADE EXPECTATION	NY-7.NS.1.d.	Apply properties of operations as strategies to add and subtract rational numbers.

STRAND / DOMAIN / UNIFYING THEME		**Grade 7**
CATEGORY / CLUSTER / KEY IDEA	**NY-7.NS.**	**The Number System**
STANDARD / CONCEPTUAL UNDERSTANDING		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
EXPECTATION / CONTENT SPECIFICATION	**NY-7.NS.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
GRADE EXPECTATION	NY-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.
GRADE EXPECTATION	NY-7.NS.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers.

STRAND / DOMAIN / UNIFYING THEME		**Grade 7**
CATEGORY / CLUSTER / KEY IDEA	**NY-7.EE.**	**Expressions, Equations, and Inequalities**
STANDARD / CONCEPTUAL UNDERSTANDING		**Solve real-life and mathematical problems using numerical and algebraic expressions, equations, and inequalities.**
EXPECTATION / CONTENT SPECIFICATION	**NY-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.**

GRADE EXPECTATION	NY-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 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.

New York State Learning Standards and Core Curriculum

Mathematics

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

STRAND / DOMAIN / UNIFYING THEME		**Mathematical Practices**
CATEGORY / CLUSTER / KEY IDEA	MP.1	Make sense of problems and persevere in solving them.
CATEGORY / CLUSTER / KEY IDEA	MP.2	Reason abstractly and quantitatively.
CATEGORY / CLUSTER / KEY IDEA	MP.3	Construct viable arguments and critique the reasoning of others.
CATEGORY / CLUSTER / KEY IDEA	MP.4	Model with mathematics.
CATEGORY / CLUSTER / KEY IDEA	MP.6	Attend to precision.
CATEGORY / CLUSTER / KEY IDEA	MP.7	Look for and make use of structure.
CATEGORY / CLUSTER / KEY IDEA	MP.8	Look for and express regularity in repeated reasoning.

STRAND / DOMAIN / UNIFYING THEME		**Grade 8**
CATEGORY / CLUSTER / KEY IDEA	**NY-8.EE.**	**Expressions, Equations, and Inequalities**
STANDARD / CONCEPTUAL UNDERSTANDING		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
EXPECTATION / CONTENT SPECIFICATION	**NY-8.EE.7.**	**Solve linear equations in one variable.**

GRADE EXPECTATION	NY-8.EE.7.a.	Recognize when linear equations in one variable have one solution, infinitely many solutions, or no solutions. Give examples and show which of these possibilities is the case by successively transforming the given equation into simpler forms.
GRADE EXPECTATION	NY-8.EE.7.b.	Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and combining like terms.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.8.**	**Interdependent Relationships in Ecosystems**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and protecting ecosystem stability.
STRAND / DOMAIN / UNIFYING THEME	**NY.MS.15.**	**Human Impacts**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

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

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Key Ideas and Details**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**

CATEGORY / CLUSTER / KEY IDEA		**Craft and Structure**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.4.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.
STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Integration of Knowledge and Ideas**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Range of Reading and Level of Text Complexity**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

New York State Learning Standards and Core Curriculum

Science

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

STRAND / DOMAIN / UNIFYING THEME	**NY.MS.8.**	**Interdependent Relationships in Ecosystems**
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and protecting ecosystem stability.
STRAND / DOMAIN / UNIFYING THEME	**NY.MS.15.**	**Human Impacts**

CATEGORY / CLUSTER / KEY IDEA		Students who demonstrate understanding can:
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
STANDARD / CONCEPTUAL UNDERSTANDING	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

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

STRAND / DOMAIN / UNIFYING THEME	NY.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
CATEGORY / CLUSTER / KEY IDEA		Key Ideas and Details
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

STRAND / DOMAIN / UNIFYING THEME	NY.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
CATEGORY / CLUSTER / KEY IDEA		Craft and Structure
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.4.	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

STRAND / DOMAIN / UNIFYING THEME	NY.6-8.RST.	Reading Standards for Literacy in Science and Technical Subjects
CATEGORY / CLUSTER / KEY IDEA		Integration of Knowledge and Ideas
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.

STRAND / DOMAIN / UNIFYING THEME	**NY.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
CATEGORY / CLUSTER / KEY IDEA		**Range of Reading and Level of Text Complexity**
STANDARD / CONCEPTUAL UNDERSTANDING	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

New York State Learning Standards and Core Curriculum

Technology Education

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

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

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

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

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

New York State Learning Standards and Core Curriculum

Technology Education

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

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

North Carolina Standard Course of Study

Mathematics

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

CONTENT AREA / STRAND		Standards for Mathematical Practice
STRAND / ESSENTIAL STANDARD	MP.1.	Make sense of problems and persevere in solving them.
STRAND / ESSENTIAL STANDARD	MP.2.	Reason abstractly and quantitatively.
STRAND / ESSENTIAL STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND / ESSENTIAL STANDARD	MP.4.	Model with mathematics.
STRAND / ESSENTIAL STANDARD	MP.6.	Attend to precision.
STRAND / ESSENTIAL STANDARD	MP.7.	Look for and make use of structure.
STRAND / ESSENTIAL STANDARD	MP.8.	Look for and express regularity in repeated reasoning.

CONTENT AREA / STRAND		The Number System
STRAND / ESSENTIAL STANDARD		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	NC.7.NS.1.	Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers, using the properties of operations, and describing real-world contexts using sums and differences.

CONTENT AREA / STRAND		The Number System
STRAND / ESSENTIAL STANDARD		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.7.NS.2.**	**Apply and extend previous understandings of multiplication and division.**
CLARIFYING OBJECTIVE	NC.7.NS.2.a.	Understand that a rational number is any number that can be written as a quotient of integers with a non-zero divisor.

CLARIFYING OBJECTIVE	NC.7.NS.2.b.	Apply properties of operations as strategies, including the standard algorithms, to multiply and divide rational numbers and describe the product and quotient in real-world contexts.

CONTENT AREA / STRAND		**Expressions and Equations**
STRAND / ESSENTIAL STANDARD		**Use properties of operations to generate equivalent expressions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.7.EE.1.**	**Apply properties of operations as strategies to:**
CLARIFYING OBJECTIVE	NC.7.EE.1.a.	Add, subtract, and expand linear expressions with rational coefficients.

CONTENT AREA / STRAND		**Expressions and Equations**
STRAND / ESSENTIAL STANDARD		**Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.7.EE.4.**	**Use variables to represent quantities to solve real-world or mathematical problems.**
CLARIFYING OBJECTIVE	**NC.7.EE.4.a.**	**Construct equations to solve problems by reasoning about the quantities.**
INDICATOR	NC.7.EE.4.a.1.	Fluently solve multistep equations with the variable on one side, including those generated by word problems.

CONTENT AREA / STRAND		**Expressions and Equations**
STRAND / ESSENTIAL STANDARD		**Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.7.EE.4.**	**Use variables to represent quantities to solve real-world or mathematical problems.**
CLARIFYING OBJECTIVE	**NC.7.EE.4.b.**	**Construct inequalities to solve problems by reasoning about the quantities.**
INDICATOR	NC.7.EE.4.b.2.	Compare an algebraic solution process for equations and an algebraic solution process for inequalities.

North Carolina Standard Course of Study

Mathematics

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

CONTENT AREA / STRAND		**Standards for Mathematical Practice**
STRAND / ESSENTIAL STANDARD	MP.1.	Make sense of problems and persevere in solving them.

STRAND / ESSENTIAL STANDARD	MP.2.	Reason abstractly and quantitatively.
STRAND / ESSENTIAL STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
STRAND / ESSENTIAL STANDARD	MP.4.	Model with mathematics.
STRAND / ESSENTIAL STANDARD	MP.6.	Attend to precision.
STRAND / ESSENTIAL STANDARD	MP.7.	Look for and make use of structure.
STRAND / ESSENTIAL STANDARD	MP.8.	Look for and express regularity in repeated reasoning.
CONTENT AREA / STRAND		**Expressions and Equations**
STRAND / ESSENTIAL STANDARD		**Analyze and solve linear equations and inequalities.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**NC.8.EE.7.**	**Solve real-world and mathematical problems by writing and solving equations and inequalities in one variable.**
CLARIFYING OBJECTIVE	NC.8.EE.7.a.	Recognize linear equations in one variable as having one solution, infinitely many solutions, or no solutions.
CLARIFYING OBJECTIVE	NC.8.EE.7.b.	Solve linear equations and inequalities including multi-step equations and inequalities with the same variable on both sides.

North Carolina Standard Course of Study

Science

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

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Key Ideas and Details**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**

STRAND / ESSENTIAL STANDARD		**Craft and Structure**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.5.	Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic.

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

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

North Carolina Standard Course of Study

Science

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

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Key Ideas and Details**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**

STRAND / ESSENTIAL STANDARD		**Integration of Knowledge and Ideas**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.9.	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
CONTENT AREA / STRAND	**NC.CC.6-8.RST.**	**Reading Standards for Literacy in Science and Technical Subjects**
STRAND / ESSENTIAL STANDARD		**Range of Reading and Level of Text Complexity**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	6-8.RST.10.	By the end of grade 8, read and comprehend science/technical texts in the grades 6-8 text complexity band independently and proficiently.

North Carolina Standard Course of Study

Technology Education

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

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

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

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

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	68-AP-01.	Implement flowcharts and/or pseudocode to address complex problems as algorithms.

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

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

INDICATOR	68-AP-10.	Systematically test and refine programs using a range of test cases.

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

North Carolina Standard Course of Study

Technology Education

Grade **8** - Adopted: **2020 (ISTE-S)**

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

CONTENT AREA / STRAND		Digital Learning Standards
STRAND / ESSENTIAL STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.

ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**
STRAND / ESSENTIAL STANDARD		**Grades 6-8 (Ages 11-14)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Algorithms**
INDICATOR	68-AP-01.	Implement flowcharts and/or pseudocode to address complex problems as algorithms.

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

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

CONTENT AREA / STRAND		**NC K-12 Computer Science Standards**

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

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.
BENCHMARK	MP.6	Attend to precision.
BENCHMARK	MP.7	Look for and make use of structure.
BENCHMARK	MP.8	Look for and express regularity in repeated reasoning.
CONTENT STANDARD		**The Number system**
BENCHMARK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
GRADE LEVEL EXPECTATION	**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.**
INDICATOR	7.NS.1.d.	Apply properties of operations as strategies to fluently add and subtract rational numbers.
CONTENT STANDARD		**The Number system**
BENCHMARK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
GRADE LEVEL EXPECTATION	**7.NS.2**	**Apply and extend previous understandings of multiplication, division, and fractions to multiply and divide rational numbers.**
INDICATOR	7.NS.2.a.	eading to products such as (−1)(−1)=1 and the rules for multiplying rational numbers. Interpret products of rational numbers by describing real world contexts.
INDICATOR	7.NS.2.c.	Apply properties of operations as strategies to fluently multiply and divide rational numbers.

CONTENT STANDARD		**Expressions and Equations**
BENCHMARK		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
GRADE LEVEL EXPECTATION	**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.**
INDICATOR	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 the algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

North Dakota Content Standards

Mathematics

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

CONTENT STANDARD		**Standards for Mathematical Practice**
BENCHMARK	MP.1	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2	Reason abstractly and quantitatively.
BENCHMARK	MP.3	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4	Model with mathematics.
BENCHMARK	MP.6	Attend to precision.
BENCHMARK	MP.7	Look for and make use of structure.
BENCHMARK	MP.8	Look for and express regularity in repeated reasoning.
CONTENT STANDARD		**Expressions and Equations**
BENCHMARK		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
GRADE LEVEL EXPECTATION	**8.EE.7**	**Solve linear equations in one variable.**
INDICATOR	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).
INDICATOR	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.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**

GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.
CONTENT STANDARD		**Earth and Space Science (ESS)**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD		**Life Science (LS)**
BENCHMARK	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
GRADE LEVEL EXPECTATION	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

North Dakota Content Standards

Science

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

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.
CONTENT STANDARD		**Earth and Space Science (ESS)**
BENCHMARK	**MS-ESS3.**	**Earth and Human Activity**
GRADE LEVEL EXPECTATION	MS-ESS3-3.	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
GRADE LEVEL EXPECTATION	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
CONTENT STANDARD		**Life Science (LS)**
BENCHMARK	**MS-LS2.**	**Ecosystems: Interactions, Energy, and Dynamics**
GRADE LEVEL EXPECTATION	MS-LS2-5.	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

North Dakota Content Standards

Technology Education

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

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

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

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

North Dakota Content Standards

Technology Education

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

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

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

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

Nova Scotia Curriculum

Mathematics

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

GENERAL LEARNING OUTCOME	NS.7.SCO.	Specific Curriculum Outcomes
CURRICULUM OUTCOME	**7.SCO.N.**	**Number (N)**
GRADE LEVEL EXPECTATION	**7.SCO.N02.**	**Students will be expected to demonstrate an understanding of the addition, subtraction, multiplication, and division of decimals to solve problems (for more than one-digit divisors or more than two-digit multipliers, the use of technology is expected). [ME, PS, T]**
EXPECTATION	7.SCO.N02.04.	Represent concretely, pictorially, and symbolically the multiplication and division of decimal numbers.
EXPECTATION	7.SCO.N02.05.	Create and solve a given problem involving the addition of two or more decimal numbers.
EXPECTATION	7.SCO.N02.07.	Create and solve a given problem involving the multiplication of decimal numbers.
EXPECTATION	7.SCO.N02.08.	Create and solve a given problem involving the division of decimal numbers.
EXPECTATION	7.SCO.N02.09.	Solve a given problem involving the multiplication or division of decimal numbers with two-digit multipliers or one-digit divisors (whole numbers or decimals) without the use of technology.
EXPECTATION	7.SCO.N02.10.	Solve a given problem involving the multiplication or division of decimal numbers with more than two-digit multipliers or more than one-digit divisors (whole numbers or decimals) with the use of technology.
EXPECTATION	7.SCO.N02.12.	Solve a given problem that involves operations on decimals (limited to thousandths), taking into consideration the order of operations.

GENERAL LEARNING OUTCOME	NS.7.SCO.	Specific Curriculum Outcomes
CURRICULUM OUTCOME	**7.SCO.PR.**	**Patterns and Relations (PR)**
GRADE LEVEL EXPECTATION	**7.SCO.PR06.**	**Students will be expected to model and solve, concretely, pictorially, and symbolically, problems that can be represented by one-step linear equations of the form x + a = b, where a and b are integers. [CN, PS, R, V]**
EXPECTATION	7.SCO.PR06.01.	Represent a given problem with a linear equation, and solve the equation using concrete models.
EXPECTATION	7.SCO.PR06.02.	Draw a visual representation of the steps required to solve a given linear equation.
EXPECTATION	7.SCO.PR06.03.	Solve a given problem using a linear equation and record the process.
EXPECTATION	7.SCO.PR06.04.	Verify the solution to a given linear equation using concrete materials and diagrams.

GENERAL LEARNING OUTCOME	NS.7.SCO.	Specific Curriculum Outcomes

CURRICULUM OUTCOME	**7.SCO.PR.**	**Patterns and Relations (PR)**
GRADE LEVEL EXPECTATION	**7.SCO.PR07.**	**Students will be expected to model and solve, concretely, pictorially, and symbolically, where a, b, and c are whole numbers, problems that can be represented by linear equations of the form: ax + b = c; ax = b; x/a=b, a ≠ 0 [CN, PS, R, V]**
EXPECTATION	7.SCO.PR07.01.	Represent a given problem with a linear equation, and solve the equation using concrete models.
EXPECTATION	7.SCO.PR07.02.	Draw a visual representation of the steps used to solve a given linear equation.
EXPECTATION	7.SCO.PR07.03.	Solve a given problem using a linear equation and record the process.
EXPECTATION	7.SCO.PR07.04.	Verify the solution to a given linear equation using concrete materials and diagrams.

GENERAL LEARNING OUTCOME	**NS.7.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**7.SCO.SP.**	**Statistics and Probability**
GRADE LEVEL EXPECTATION	**7.SCO.SP05.**	**Students will be expected to identify the sample space (where the combined sample space has 36 or fewer elements) for a probability experiment involving two independent events. [C, ME, PS]**
EXPECTATION	7.SCO.SP05.02.	Identify the sample space (all possible outcomes) for each of two independent events using a tree diagram, table, or other graphic organizer.

Nova Scotia Curriculum

Mathematics

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

GENERAL LEARNING OUTCOME	**NS.8.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**8.SCO.PR.**	**Patterns and Relations (PR)**
GRADE LEVEL EXPECTATION	**8.SCO.PR01.**	**Students will be expected to graph and analyze two-variable linear relations. [C, ME, PS, R, T, V]**
EXPECTATION	8.SCO.PR01.01.	Determine the missing value in an ordered pair for a given equation.

GENERAL LEARNING OUTCOME	**NS.8.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**8.SCO.PR.**	**Patterns and Relations (PR)**
GRADE LEVEL EXPECTATION	**8.SCO.PR02.**	**Students will be expected to model and solve problems, concretely, pictorially, and symbolically, where a, b, and c are integers, using linear equations of the form ax = b; x/a = b, a ≠ 0; ax + b = c; x/a + b = c, a ≠ 0; a(x + b) = c [C, CN, PS, V]**
EXPECTATION	8.SCO.PR02.01.	Model a given problem with a linear equation, and solve the equation using concrete models.

EXPECTATION	8.SCO.PR02.02.	Verify the solution to a given linear equation, using a variety of methods, including concrete materials, diagrams, and substitution.
EXPECTATION	8.SCO.PR02.04.	Solve a given linear equation symbolically.
EXPECTATION	8.SCO.PR02.05.	Identify and correct an error in a given incorrect solution of a linear equation.
EXPECTATION	8.SCO.PR02.07.	Solve a given problem, using a linear equation, and record the process.

Nova Scotia Curriculum

Science

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

GENERAL LEARNING OUTCOME	**NS.7.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**7.GCO.1.**	**STSE**
GRADE LEVEL EXPECTATION	7.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships

GENERAL LEARNING OUTCOME	**NS.7.GCO.**	**General Curriculum Outcomes**
CURRICULUM OUTCOME	**7.GCO.4.**	**ATTITUDES**
GRADE LEVEL EXPECTATION	7.GCO.4.4.	Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

GENERAL LEARNING OUTCOME	**NS.7.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**7.SCO.LS.**	**Life Science: Interactions Within Ecosystems (25%)**
GRADE LEVEL EXPECTATION	**7.SCO.LS.2.**	**FOOD CHAINS, FOOD WEBS, AND DECOMPOSERS**
EXPECTATION	7.SCO.LS.2.3.	Describe essential conditions to the growth and reproduction of plants and microorganisms in an ecosystem, providing examples related to aspects of the human food supply (304-3, 111-1)

GENERAL LEARNING OUTCOME	**NS.7.SCO.**	**Specific Curriculum Outcomes**
CURRICULUM OUTCOME	**7.SCO.LS.**	**Life Science: Interactions Within Ecosystems (25%)**
GRADE LEVEL EXPECTATION	**7.SCO.LS.4.**	**ACTION**
EXPECTATION	7.SCO.LS.4.1.	Defend a proposal to protect a habitat and provide examples of various issues that can be addressed in multiple ways (113-11, 211-5, 113-10)

Nova Scotia Curriculum

Science

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

GENERAL LEARNING OUTCOME	NS.8.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	**8.GCO.1.**	**STSE**
GRADE LEVEL EXPECTATION	8.GCO.1.1.	Students will develop an understanding of the nature of science and technology, of the relationships between science and technology, and of the social and environmental contexts of science and technology.

GENERAL LEARNING OUTCOME	NS.8.GCO.	General Curriculum Outcomes
CURRICULUM OUTCOME	**8.GCO.4.**	**ATTITUDES**
GRADE LEVEL EXPECTATION	8.GCO.4.1.	Students will be encouraged to develop attitudes that support the responsible acquisition and application of scientific and technological knowledge to the mutual benefit of self, society, and the environment.

Ohio Learning Standards

Mathematics

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

DOMAIN / ACADEMIC CONTENT STANDARD	OH.MP.	Standards for Mathematical Practice
STANDARD / BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
STANDARD / BENCHMARK	MP.2.	Reason abstractly and quantitatively.
STANDARD / BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / BENCHMARK	MP.4.	Model with mathematics.
STANDARD / BENCHMARK	MP.6.	Attend to precision.
STANDARD / BENCHMARK	MP.7.	Look for and make use of structure.
STANDARD / BENCHMARK	MP.8.	Look for and express regularity in repeated reasoning.

DOMAIN / ACADEMIC CONTENT STANDARD	OH.7.NS.	THE NUMBER SYSTEM
STANDARD / BENCHMARK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**

BENCHMARK / GRADE LEVEL INDICATOR	**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.**
PROFICIENCY LEVEL	7.NS.1.d.	Apply properties of operations as strategies to add and subtract rational numbers.

DOMAIN / ACADEMIC CONTENT STANDARD	**OH.7.NS.**	**THE NUMBER SYSTEM**
STANDARD / BENCHMARK		**Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.**
BENCHMARK / GRADE LEVEL INDICATOR	**7.NS.2.**	**Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.**
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.
PROFICIENCY LEVEL	7.NS.2.c.	Apply properties of operations as strategies to multiply and divide rational numbers.

DOMAIN / ACADEMIC CONTENT STANDARD	**OH.7.EE.**	**EXPRESSIONS AND EQUATIONS**
STANDARD / BENCHMARK		**Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**
BENCHMARK / GRADE LEVEL INDICATOR	**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.**
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?
PROFICIENCY LEVEL	7.EE.4.b.	Solve word problems leading to inequalities of the form px + q > r or px + q < r, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. For example, as a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.

Ohio Learning Standards

Mathematics

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

DOMAIN / ACADEMIC CONTENT STANDARD	**OH.MP.**	**Standards for Mathematical Practice**
STANDARD / BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
STANDARD / BENCHMARK	MP.2.	Reason abstractly and quantitatively.

STANDARD / BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / BENCHMARK	MP.4.	Model with mathematics.
STANDARD / BENCHMARK	MP.6.	Attend to precision.
STANDARD / BENCHMARK	MP.7.	Look for and make use of structure.
STANDARD / BENCHMARK	MP.8.	Look for and express regularity in repeated reasoning.

DOMAIN / ACADEMIC CONTENT STANDARD	**OH.8.EE.**	**EXPRESSIONS AND EQUATIONS**
STANDARD / BENCHMARK		**Analyze and solve linear equations and pairs of simultaneous linear equations.**
BENCHMARK / GRADE LEVEL INDICATOR	**8.EE.7.**	**Solve linear equations in one variable.**
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).
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.

Ohio Learning Standards

Technology Education

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

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**

BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Analyze the impact of communication and collaboration in both digital and physical environments.**
PROFICIENCY LEVEL	6-8.ST.2.b.	Explain the positive and negative impact the use of technology can have on personal, professional and community relationships.
DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Explain how technology, society, and the individual impact one another.**
PROFICIENCY LEVEL	6-8.ST.3.d.	Describe the impact of an individual's wants, values and interests on the development of new technologies.
DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.
PROFICIENCY LEVEL	6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.
DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.
PROFICIENCY LEVEL	6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g. research, cost, time, materials, feedback, safety, etc.) to justify decisions when developing products and systems to solve problems.
PROFICIENCY LEVEL	6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of the design process.

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

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

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

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

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

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

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

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

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

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

Ohio Learning Standards

Technology Education

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

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

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

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Society and Technology: The interconnectedness of technology, self, society and the natural world, specifically addressing the ethical, legal, political and global impact of technology.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Analyze the impact of communication and collaboration in both digital and physical environments.**

PROFICIENCY LEVEL	6-8.ST.2.b.	Explain the positive and negative impact the use of technology can have on personal, professional and community relationships.

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

PROFICIENCY LEVEL	6-8.ST.3.d.	Describe the impact of an individual's wants, values and interests on the development of new technologies.

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

PROFICIENCY LEVEL	6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.

PROFICIENCY LEVEL	6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.

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

PROFICIENCY LEVEL	6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.

PROFICIENCY LEVEL	6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g. research, cost, time, materials, feedback, safety, etc.) to justify decisions when developing products and systems to solve problems.
PROFICIENCY LEVEL	6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of the design process.

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

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

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

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

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

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

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

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

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

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

BENCHMARK / GRADE LEVEL INDICATOR		**Natural Interactions**
PROFICIENCY LEVEL	AI.NI.8.a.	Create a program, individually and collaboratively, that implements a language processing algorithm to create a functional chatbot.
DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**ARTIFICIAL INTELLIGENCE**
BENCHMARK / GRADE LEVEL INDICATOR		**Societal Impacts**
PROFICIENCY LEVEL	AI.SI.8.b.	Identify bias potential in the design of artificial intelligence systems and describe how to utilize inclusive AI design to prevent algorithmic bias.
DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 8**
STANDARD / BENCHMARK		**IMPACTS OF COMPUTING**
BENCHMARK / GRADE LEVEL INDICATOR		**Culture**
PROFICIENCY LEVEL	IC.Cu.8.d.	Explain how computing impacts innovation in other fields.

Oklahoma Academic Standards

Mathematics

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

CONTENT STANDARD / COURSE		**Mathematical Actions and Processes**
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition

STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically
CONTENT STANDARD / COURSE	**7**	**Seventh Grade (7)**
STRAND / STANDARD	**7.A.**	**Algebraic Reasoning & Algebra (A)**
OBJECTIVE	**7.A.3.**	**Represent mathematical situations using equations and inequalities involving variables and rational numbers.**
SKILL / CONCEPT	7.A.3.1.	Write and solve problems leading to linear equations with one variable in the form px + q = r and p(x + q) = r, where p, q, and r are rational numbers.

Oklahoma Academic Standards

Mathematics

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

CONTENT STANDARD / COURSE		**Mathematical Actions and Processes**
STRAND / STANDARD		Develop a Deep and Flexible Conceptual Understanding
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop a Productive Mathematical Disposition
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize
STRAND / STANDARD		Develop the Ability to Communicate Mathematically
CONTENT STANDARD / COURSE	**PA.**	**Pre-Algebra (PA)**
STRAND / STANDARD	**PA.A.**	**Algebraic Reasoning & Algebra (A)**
OBJECTIVE	**PA.A.2.**	**Identify and justify linear functions using mathematical models and situations; solve problems involving linear functions and interpret results in the original context.**

SKILL / CONCEPT	PA.A.2.2.	Identify, describe, and analyze linear relationships between two variables.

CONTENT STANDARD / COURSE	**A1.**	**Algebra 1 (A1)**
STRAND / STANDARD	**A1.A.**	**Algebraic Reasoning & Algebra (A)**
OBJECTIVE	**A1.A.4.**	**Analyze real-world and mathematical problems involving linear equations.**
SKILL / CONCEPT	A1.A.4.5.	Analyze and interpret associations between graphical representations and written scenarios.

Oklahoma Academic Standards

Science

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

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards for Science**
STRAND / STANDARD		**Ecosystems: Interactions, Energy, and Dynamics (LS2)**
OBJECTIVE	7.LS2.5	Evaluate competing design solutions for maintaining biodiversity and ecosystem services.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards for Science**
STRAND / STANDARD		**Earth and Human Activity (ESS3)**
OBJECTIVE	7.ESS3.3	Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.
OBJECTIVE	7.ESS3.4	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

Oklahoma Academic Standards

Technology Education

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

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

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**

OBJECTIVE		**Developing and Using Abstractions**
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing a Productive Computing Environment**
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Recognizing and Defining Computational Problems**
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**7**	**Seventh Grade (7)**
OBJECTIVE	**7.CS.**	**Computing Systems (CS)**
SKILL / CONCEPT	**7.CS.T.**	**Troubleshooting (T)**
SKILL	7.CS.T.01.	Identify and resolve complex software and hardware problems with computing devices and their components utilizing strategies such as developing and analyzing flow diagrams.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**7**	**Seventh Grade (7)**
OBJECTIVE	**7.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**7.AP.A.**	**Algorithms (A)**
SKILL	7.AP.A.01.	Select and modify an existing algorithm in natural language or pseudocode to solve complex problems.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**

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

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

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**ISTE-S.3.**	**Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**ISTE-S.4.**	**Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

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

Oklahoma Academic Standards

Technology Education

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

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**

STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Creating Computational Artifacts**
SKILL / CONCEPT		Develop computational artifacts to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to the community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing and Using Abstractions**
SKILL / CONCEPT		Identify patterns and extract common features from specific examples to create generalizations. Students will manage complexity by using generalized solutions and parts of solutions designed for broad reuse to simplify the development process.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Developing a Productive Computing Environment**
SKILL / CONCEPT		Understand the contexts in which people operate and consider the needs of different users during the design process. Students will address the needs of different end users to produce artifacts with broad accessibility and usability and to meet the needs of all potential end users (including themselves).
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD		**Computer Science Practices**
OBJECTIVE		**Recognizing and Defining Computational Problems**
SKILL / CONCEPT		Recognize appropriate and worthwhile opportunities to apply computation. Students will work to solve a problem by defining the problem, breaking it down into parts, and evaluating each part to determine whether a computational solution is appropriate.
CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**8**	**Eighth Grade (8)**
OBJECTIVE	**8.CS.**	**Computing Systems (CS)**
SKILL / CONCEPT	**8.CS.T.**	**Troubleshooting (T)**
SKILL	8.CS.T.01.	Systematically identify, resolve, and document complex software and hardware problems with computing devices and their components.

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

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

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

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

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	ISTE-S.3.	Knowledge Constructor: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
OBJECTIVE	ISTE-S.3.d.	Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

CONTENT STANDARD / COURSE		ISTE for Students 2016 (ISTE-S)
STRAND / STANDARD	ISTE-S.4.	Innovative Designer: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.

OBJECTIVE	ISTE-S.4.a.	Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
OBJECTIVE	ISTE-S.4.b.	Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
CONTENT STANDARD / COURSE		**ISTE for Students 2016 (ISTE-S)**
STRAND / STANDARD	**ISTE-S.5.**	**Computational Thinker: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
OBJECTIVE	ISTE-S.5.a.	Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
OBJECTIVE	ISTE-S.5.b.	Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
OBJECTIVE	ISTE-S.5.d.	Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Oregon Academic Content Standards

Mathematics

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

STANDARD / CONTENT AREA		**Mathematical Practice Standards**
CONTENT STANDARD / PROFICIENCY	1	Make sense of problems and persevere in solving them.
CONTENT STANDARD / PROFICIENCY	2	Reason abstractly and quantitatively.
CONTENT STANDARD / PROFICIENCY	3	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / PROFICIENCY	4	Model with mathematics.
CONTENT STANDARD / PROFICIENCY	6	Attend to precision.
CONTENT STANDARD / PROFICIENCY	7	Look for and make use of structure.
CONTENT STANDARD / PROFICIENCY	8	Look for and express regularity in repeated reasoning

Oregon Academic Content Standards

Mathematics

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

STANDARD / CONTENT AREA		Mathematical Practice Standards
CONTENT STANDARD / PROFICIENCY	1	Make sense of problems and persevere in solving them.
CONTENT STANDARD / PROFICIENCY	2	Reason abstractly and quantitatively.
CONTENT STANDARD / PROFICIENCY	3	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / PROFICIENCY	4	Model with mathematics.
CONTENT STANDARD / PROFICIENCY	6	Attend to precision.
CONTENT STANDARD / PROFICIENCY	7	Look for and make use of structure.
CONTENT STANDARD / PROFICIENCY	8	Look for and express regularity in repeated reasoning

STANDARD / CONTENT AREA		Grade 8 Standards
CONTENT STANDARD / PROFICIENCY	**8.AEE.**	**Algebraic Reasoning: Expressions and Equations (8.AEE)**
BENCHMARK / STRAND	**8.AEE.C.**	**Analyze and solve linear equations and pairs of simultaneous linear equations.**
EXPECTATION / BENCHMARK	8.AEE.C.7.	Solve linear equations with one variable including equations with rational number coefficients, with the variable on both sides, or whose solutions require using the distributive property and/or combining like terms.

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	OR.MS-LS2.	Ecosystems: Interactions, Energy, and Dynamics
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**

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

STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Key Ideas and Details**
BENCHMARK / STRAND	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

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

Oregon Academic Content Standards

Science

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

STANDARD / CONTENT AREA	**OR.MS-ESS3.**	**Earth and Human Activity**
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	MS-ESS3-4.	Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.

STANDARD / CONTENT AREA	**OR.RST.6-8.**	**Reading Standards for Literacy in Science and Technical Subjects**
CONTENT STANDARD / PROFICIENCY		**Key Ideas and Details**
BENCHMARK / STRAND	RST.6-8.2.	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.

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

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

The Ontario Curriculum

Mathematics

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

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 7**
STRAND / OVERALL EXPECTATION	**B.**	**NUMBER**
STAGE / SKILLS	**B2.**	**use knowledge of numbers and operations to solve mathematical problems encountered in everyday life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Multiplication and Division**
EXPECTATION	B2.9.	multiply and divide decimal numbers by decimal numbers, in various contexts

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 7**
STRAND / OVERALL EXPECTATION	**C.**	**ALGEBRA**
STAGE / SKILLS	**C2.**	**demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Equalities and Inequalities**
EXPECTATION	C2.3.	solve equations that involve multiple terms, whole numbers, and decimal numbers in various contexts, and verify solutions

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 7**
STRAND / OVERALL EXPECTATION	**D.**	**DATA**

STAGE / SKILLS	**D1.**	**manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Data Visualization**
EXPECTATION	D1.4.	create an infographic about a data set, representing the data in appropriate ways, including in tables and circle graphs, and incorporating any other relevant information that helps to tell a story about the data

The Ontario Curriculum

Mathematics

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

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 8**
STRAND / OVERALL EXPECTATION	**C.**	**ALGEBRA**
STAGE / SKILLS	**C2.**	**demonstrate an understanding of variables, expressions, equalities, and inequalities, and apply this understanding in various contexts**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Equalities and Inequalities**
EXPECTATION	C2.3.	solve equations that involve multiple terms, integers, and decimal numbers in various contexts, and verify solutions

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 8**
STRAND / OVERALL EXPECTATION	**D.**	**DATA**
STAGE / SKILLS	**D1.**	**manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Data Collection and Organization**
EXPECTATION	D1.2.	collect continuous data to answer questions of interest involving two variables, and organize the data sets as appropriate in a table of values

STRAND / COURSE		**Ontario Mathematics Curriculum Expectations – Grade 8**
STRAND / OVERALL EXPECTATION	**D.**	**DATA**
STAGE / SKILLS	**D1.**	**manage, analyse, and use data to make convincing arguments and informed decisions, in various contexts drawn from real life**
SUB-ORGANIZER / SPECIFIC EXPECTATION		**Data Visualization**
EXPECTATION	D1.4.	create an infographic about a data set, representing the data in appropriate ways, including in tables and scatter plots, and incorporating any other relevant information that helps to tell a story about the data

The Ontario Curriculum

Science

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 7, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies, such as artificial intelligence systems, on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 7, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND B:**	**Life Systems - Interactions in the Environment By the end of Grade 7, students will:**
STAGE / SKILLS	**B1.**	**Relating Science and Technology to Our Changing World: assess the impact of human activities and technologies on the environment, and analyse ways to mitigate negative impacts and contribute to environmental sustainability**
SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.1.	assess the impact of various technologies on the environment
SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.2.	assess the effectiveness of various ways of mitigating the negative and enhancing the positive impact of human activities on the environment
SUB-ORGANIZER / SPECIFIC EXPECTATION	B1.3.	analyse how diverse First Nations, Métis, and Inuit practices and perspectives contribute to environmental sustainability, including by using approaches such as Two-Eyed Seeing

STRAND / COURSE		**Science and Technology Grade 7**
STRAND / OVERALL EXPECTATION	**STRAND B:**	**Life Systems - Interactions in the Environment By the end of Grade 7, students will:**

STAGE / SKILLS	**B2.**	**Exploring and Understanding Concepts: demonstrate an understanding of interactions between and among biotic and abiotic components in the environment**
SUB-ORGANIZER / SPECIFIC EXPECTATION	B2.8.	describe how different approaches to agriculture and to harvesting food from the natural environment can impact an ecosystem, and identify strategies that can be used to maintain and/or restore balance to ecosystems

The Ontario Curriculum

Science

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

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 8, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A2.**	**Coding and Emerging Technologies: use coding in investigations and to model concepts, and assess the impact of coding and of emerging technologies on everyday life and in STEM-related fields**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A2.2.	identify and describe impacts of coding and of emerging technologies, such as artificial intelligence systems, on everyday life, including skilled trades

STRAND / COURSE		**Science and Technology Grade 8**
STRAND / OVERALL EXPECTATION	**STRAND A:**	**STEM Skills and Connections - Throughout Grade 8, in connection with the learning in the Life Systems, Matter and Energy, Structures and Mechanisms, and Earth and Space Systems strands, students will:**
STAGE / SKILLS	**A3.**	**Applications, Connections, and Contributions: demonstrate an understanding of the practical applications of science and technology, and of contributions to science and technology from people with diverse lived experiences**
SUB-ORGANIZER / SPECIFIC EXPECTATION	A3.2.	investigate how science and technology can be used with other subject areas to address real-world problems