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, Ohio Learning Standards, Oklahoma Academic Standards, Oregon Academic Content Standards

Subjects: Mathematics, Science, Technology Education

Grades: 3, 4, Key Stage 1, Key Stage 2

Forward Education

Protecting Pollinators with a Bee Counter

Nebraska Content Area Standards

Science

Grade **3** - Adopted: **2017**

CONTENT STANDARD	**NE.SC.3.7.**	**Interdependent Relationships in Ecosystems**
STRAND	**SC.3.7.2.**	**Gather and analyze data to communicate an understanding of the interdependent relations in ecosystems.**
INDICATOR	SC.3.7.2.D.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Nebraska Content Area Standards

Science

Grade **4** - Adopted: **2017**

CONTENT STANDARD	**NE.SC.4.4.**	**Energy: Conservation and Transfer**
STRAND	**SC.4.4.2.**	**Gather, analyze and communicate evidence of energy conservation and transfer.**
INDICATOR	SC.4.4.2.E.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

CONTENT STANDARD	**NE.SC.4.6.**	**Structure, Function, and Information Processing**
STRAND	**SC.4.6.3.**	**Gather and analyze data to communicate an understanding of structure, function and information processing of living things.**
INDICATOR	SC.4.6.3.B.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Nebraska Content Area Standards

Technology Education

Grade **3** - Adopted: **2018**

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

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**

STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
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 **4** - Adopted: **2018**

CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**BASIC TECHNOLOGY - Operations/Concepts**
INDICATOR		**HARDWARE/SOFTWARE STANDARDS**
STRAND		Apply strategies for identifying and solving routine problems that occur during everyday computer use.
CONTENT STANDARD		**NEBRASKA K-12 TECHNOLOGY Scope & Sequence**
STRAND		**COMPUTER SCIENCE/PROGRAMMING**
INDICATOR		**COMPUTATIONAL THINKING STANDARDS**
STRAND		Create algorithms, or series of ordered steps, to solve problems.
STRAND		Decompose a problem into smaller more manageable parts.
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 **3** - Adopted: **2010**

CONTENT STANDARD	**NV.CC.MP.3.**	**Mathematical Practices**
STRAND / INDICATOR	MP.3.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.3.2.	Reason abstractly and quantitatively.

STRAND / INDICATOR	MP.3.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.3.4.	Model with mathematics.
STRAND / INDICATOR	MP.3.5.	Use appropriate tools strategically.

Nevada Academic Content Standards

Mathematics

Grade **4** - Adopted: **2010**

CONTENT STANDARD	NV.CC.MP.4.	Mathematical Practices
STRAND / INDICATOR	MP.4.1.	Make sense of problems and persevere in solving them.
STRAND / INDICATOR	MP.4.2.	Reason abstractly and quantitatively.
STRAND / INDICATOR	MP.4.3.	Construct viable arguments and critique the reasoning of others.
STRAND / INDICATOR	MP.4.4.	Model with mathematics.
STRAND / INDICATOR	MP.4.5.	Use appropriate tools strategically.

Nevada Academic Content Standards

Science

Grade **3** - Adopted: **2014**

CONTENT STANDARD	NV.3-LS.	LIFE SCIENCE
STRAND / INDICATOR	**3-LS4.**	**Biological Evolution: Unity and Diversity**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

CONTENT STANDARD	NV.3-5-ETS.	ENGINEERING DESIGN
STRAND / INDICATOR	**3-5-ETS1.**	**Engineering Design**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

GRADE LEVEL EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Nevada Academic Content Standards

Science

Grade **4** - Adopted: **2014**

CONTENT STANDARD	**NV.4-LS.**	**LIFE SCIENCE**
STRAND / INDICATOR	**4-LS1.**	**From Molecules to Organisms: Structures and Processes**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

CONTENT STANDARD	**NV.3-5-ETS.**	**ENGINEERING DESIGN**
STRAND / INDICATOR	**3-5-ETS1.**	**Engineering Design**
INDICATOR / GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
GRADE LEVEL EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
GRADE LEVEL EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Nevada Academic Content Standards

Technology Education

Grade **3** - Adopted: **2019**

CONTENT STANDARD		**NEVADA ACADEMIC CONTENT STANDARDS for COMPUTER SCIENCE**
STRAND / INDICATOR		**Practices**
INDICATOR / GRADE LEVEL EXPECTATION	**P1.**	**Fostering an Inclusive Computing Culture**
GRADE LEVEL EXPECTATION	P1.2.	Address the needs of diverse end users during the design process to produce artifacts with broad accessibility and usability.

GRADE LEVEL EXPECTATION	P1.3.	Employ self- and peer-advocacy to address bias in interactions, product design, and development methods.

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

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

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

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

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

Nevada Academic Content Standards

Technology Education

Grade **4** - 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	4.ID.D.1.	Demonstrate perseverance when working with open-ended problems.

New Hampshire College and Career Ready Standards

Mathematics

Grade **3** - Adopted: **2010**

STRAND / STANDARD	**NH.CC.MP.3.**	**Mathematical Practices**

STANDARD / GLE	MP.3.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.3.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.3.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.3.4.	Model with mathematics.
STANDARD / GLE	MP.3.5.	Use appropriate tools strategically.

New Hampshire College and Career Ready Standards

Mathematics

Grade **4** - Adopted: **2010**

STRAND / STANDARD	NH.CC.MP.4.	Mathematical Practices
STANDARD / GLE	MP.4.1.	Make sense of problems and persevere in solving them.
STANDARD / GLE	MP.4.2.	Reason abstractly and quantitatively.
STANDARD / GLE	MP.4.3.	Construct viable arguments and critique the reasoning of others.
STANDARD / GLE	MP.4.4.	Model with mathematics.
STANDARD / GLE	MP.4.5.	Use appropriate tools strategically.

New Hampshire College and Career Ready Standards

Science

Grade **3** - Adopted: **2016**

STRAND / STANDARD	NGSS.3-LS.	LIFE SCIENCE
STANDARD / GLE	**3-LS4.**	**Biological Evolution: Unity and Diversity**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

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

GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New Hampshire College and Career Ready Standards

Science

Grade **4** - Adopted: **2016**

STRAND / STANDARD	**NGSS.4-LS.**	**LIFE SCIENCE**
STANDARD / GLE	**4-LS1.**	**From Molecules to Organisms: Structures and Processes**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

STRAND / STANDARD	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**
STANDARD / GLE	**3-5-ETS1.**	**Engineering Design**
GRADE LEVEL EXPECTATION		**Students who demonstrate understanding can:**
EXPECTATION	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
EXPECTATION	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
EXPECTATION	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New Hampshire College and Career Ready Standards

Technology Education

Grade **3** - 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 **3** - Adopted: **2018**

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

New Hampshire College and Career Ready Standards

Technology Education

Grade **4** - 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 **4** - Adopted: **2018**

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

New Jersey Student Learning Standards

Mathematics

Grade **3** - Adopted: **2016**

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

New Jersey Student Learning Standards

Mathematics

Grade **4** - Adopted: **2016**

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

New Jersey Student Learning Standards

Science

Grade **3** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	3-5-ETS.	Engineering Design

STRAND	**3-5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
CONTENT STATEMENT	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
CONTENT STATEMENT	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
CONTENT AREA / STANDARD	**3-LS.**	**Life Science**
STRAND	**3-LS4:**	**Biological Evolution: Unity and Diversity**
CONTENT STATEMENT	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

New Jersey Student Learning Standards

Science

Grade **4** - Adopted: **2020/Effective 2021**

CONTENT AREA / STANDARD	**3-5-ETS.**	**Engineering Design**
STRAND	**3-5-ETS1:**	**Engineering Design**
CONTENT STATEMENT	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
CONTENT STATEMENT	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
CONTENT STATEMENT	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
CONTENT AREA / STANDARD	**4-LS.**	**Life Science**
STRAND	**4-LS1:**	**From Molecules to Organisms: Structures and Processes**
CONTENT STATEMENT	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

New Jersey Student Learning Standards

Technology Education

Grade **3** - Adopted: **2020**

CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**1 Fostering an Inclusive Computing and Design Culture**

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

CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.

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

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

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. Often, several design solutions exist, each better in some way than the others.**

CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.2:	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements include desired features and limitations that need to be considered.**

CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.4:	Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.5:	Describe how specifications and limitations impact the engineering design process.
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.6:	Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.

CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Nature of Technology**
CONTENT STATEMENT		**Technology innovation and improvement may be influenced by a variety of factors. Engineers create and modify technologies to meet people's needs and wants; scientists ask questions about the natural world.**

CUMULATIVE PROGRESS INDICATOR	8.2.5.NT.1 :	Troubleshoot a product that has stopped working and brainstorm ideas to correct the problem.

New Jersey Student Learning Standards

Technology Education

Grade **4** - Adopted: **2020**

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

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

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

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

STRAND		**5 Creating Computational Artifacts**
CONTENT STATEMENT		**The process of developing computational artifacts embraces both creative expression and the exploration of ideas to create prototypes and solve computational problems. Students create artifacts that are personally relevant or beneficial to their community and beyond. Computational artifacts can be created by combining and modifying existing artifacts or by developing new artifacts. Examples of computational artifacts include programs, simulations, visualizations, digital animations, robotic systems, and apps. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Plan the development of a computational artifact using an iterative process that includes reflection on and modification of the plan, taking into account key features, time and resource constraints, and user expectations.
CUMULATIVE PROGRESS INDICATOR		Create a computational artifact for practical intent, personal expression, or to address a societal issue.
CONTENT AREA / STANDARD		**Computer Science and Design Thinking Practices**
STRAND		**6 Testing and Refining Computational Artifacts**
CONTENT STATEMENT		**Testing and refinement is the deliberate and iterative process of improving a computational artifact. This process includes debugging (identifying and fixing errors) and comparing actual outcomes to intended outcomes. Students also respond to the changing needs and expectations of end users and improve the performance, reliability, usability, and accessibility of artifacts. When engaging in this practice, students:**
CUMULATIVE PROGRESS INDICATOR		Systematically test computational artifacts by considering all scenarios and using test cases.
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. Often, several design solutions exist, each better in some way than the others.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.2:	Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models.
CONTENT AREA / STANDARD	**8.2.**	**Computer Science and Design Thinking – Design Thinking**
STRAND		**Engineering Design**
CONTENT STATEMENT		**Engineering design requirements include desired features and limitations that need to be considered.**
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.4:	Explain factors that influence the development and function of products and systems (e.g., resources, criteria, desired features, constraints).

CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.5:	Describe how specifications and limitations impact the engineering design process.
CUMULATIVE PROGRESS INDICATOR	8.2.5.ED.6:	Evaluate and test alternative solutions to a problem using the constraints and tradeoffs identified in the design process.

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

New Mexico Content Standards

Mathematics

Grade **3** - Adopted: **2012**

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

New Mexico Content Standards

Mathematics

Grade **4** - Adopted: **2012**

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

BENCHMARK / STANDARD	MP.3.	Construct viable arguments and critique the reasoning of others.
BENCHMARK / STANDARD	MP.4.	Model with mathematics.
BENCHMARK / STANDARD	MP.5.	Use appropriate tools strategically.

New Mexico Content Standards

Science

Grade **3** - Adopted: **2013**

STRAND / CONTENT STANDARD	**NGSS.3-LS.**	**LIFE SCIENCE**
BENCHMARK / STANDARD	**3-LS4.**	**Biological Evolution: Unity and Diversity**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

STRAND / CONTENT STANDARD	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**3-5-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New Mexico Content Standards

Science

Grade **4** - Adopted: **2013**

STRAND / CONTENT STANDARD	**NGSS.4-LS.**	**LIFE SCIENCE**
BENCHMARK / STANDARD	**4-LS1.**	**From Molecules to Organisms: Structures and Processes**

PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
STRAND / CONTENT STANDARD	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**
BENCHMARK / STANDARD	**3-5-ETS1.**	**Engineering Design**
PERFORMANCE STANDARD / BENCHMARK / PROFICIENCY		**Students who demonstrate understanding can:**
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
PERFORMANCE STANDARD / INDICATOR	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New Mexico Content Standards

Technology Education

Grade **3** - Adopted: **2019**

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

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

New Mexico Content Standards

Technology Education

Grade **4** - Adopted: **2019**

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

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

New York State Learning Standards and Core Curriculum

Mathematics

Grade **3** - Adopted: **2017/Updated 2019**

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

New York State Learning Standards and Core Curriculum

Mathematics

Grade **4** - Adopted: **2017/Updated 2019**

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

New York State Learning Standards and Core Curriculum

Science

Grade **3** - Adopted: **2016**

STRAND / DOMAIN / UNIFYING THEME	NY.3.2.	Interdependent Relationships in Ecosystems
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

STRAND / DOMAIN / UNIFYING THEME	NY.3-5.ED.	Engineering Design
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New York State Learning Standards and Core Curriculum

Science

Grade **4** - Adopted: **2016**

STRAND / DOMAIN / UNIFYING THEME	NY.4.3.	Structure, Function, and Information Processing
CATEGORY / CLUSTER / KEY IDEA		**Students who demonstrate understanding can:**
STANDARD / CONCEPTUAL UNDERSTANDING	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

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

STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
STANDARD / CONCEPTUAL UNDERSTANDING	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **3** - Adopted: **1996**

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	5.1.2.	Students investigate prior solutions and ideas from books, magazines, family, friends, neighbors, and community members.

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	**5.3.**	**Computer Technology: Computers, as tools for design, modeling, information processing, communication, and system control, have greatly increased human productivity and knowledge.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.3.2.	Students use the computer as a tool for generating and drawing ideas.

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	**5.7.**	**Management of Technology: Project management is essential to ensuring that technological endeavors are profitable and that products and systems are of high quality and built safely, on schedule, and within budget.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.7.2.	Students speculate on and model possible technological solutions that can improve the safety and quality of the school or community environment.

New York State Learning Standards and Core Curriculum

Technology Education

Grade **4** - Adopted: **1996**

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	5.1.2.	Students investigate prior solutions and ideas from books, magazines, family, friends, neighbors, and community members.

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	**5.3.**	**Computer Technology: Computers, as tools for design, modeling, information processing, communication, and system control, have greatly increased human productivity and knowledge.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.3.2.	Students use the computer as a tool for generating and drawing ideas.

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	**5.7.**	**Management of Technology: Project management is essential to ensuring that technological endeavors are profitable and that products and systems are of high quality and built safely, on schedule, and within budget.**
STANDARD / CONCEPTUAL UNDERSTANDING	5.7.2.	Students speculate on and model possible technological solutions that can improve the safety and quality of the school or community environment.

North Carolina Standard Course of Study

Mathematics

Grade **3** - Adopted: **2017/IMPL 2018**

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

STRAND / ESSENTIAL STANDARD	MP.4.	Model with mathematics.
STRAND / ESSENTIAL STANDARD	MP.5.	Use appropriate tools strategically.

North Carolina Standard Course of Study

Mathematics

Grade **4** - Adopted: **2017/IMPL 2018**

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

North Carolina Standard Course of Study

Science

Grade **3** - Adopted: **2010**

CONTENT AREA / STRAND	NC.3.L.	Life Science
STRAND / ESSENTIAL STANDARD		**Ecosystems**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**3.L.2.**	**Understand how plants survive in their environments.**
CLARIFYING OBJECTIVE	**3.L.2.1.**	**Remember the function of the following structures as it relates to the survival of plants in their environments:**
INDICATOR	3.L.2.1.a.	Roots - absorb nutrients
INDICATOR	3.L.2.1.b.	Stems - provide support
INDICATOR	3.L.2.1.c.	Leaves - synthesize food

INDICATOR	3.L.2.1.d.	Flowers - attract pollinators and produce seeds for reproduction

North Carolina Standard Course of Study

Science

Grade **4** - Adopted: **2010**

CONTENT AREA / STRAND	NC.4.L.	Life Science
STRAND / ESSENTIAL STANDARD		**Ecosystems**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE	**4.L.1.**	**Understand the effects of environmental changes, adaptations and behaviors that enable animals (including humans) to survive in changing habitats.**
CLARIFYING OBJECTIVE	4.L.1.2.	Explain how animals meet their needs by using behaviors in response to information received from the environment.

North Carolina Standard Course of Study

Technology Education

Grade **3** - 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 **3** - Adopted: **2020**

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

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		**Grades 3-5 (Ages 8-11)**
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		**Algorithms & Programming**
CLARIFYING OBJECTIVE		**Program Development**
INDICATOR	35-AP-12.	Describe choices made during program development using code comments, presentations, and demonstrations.

North Carolina Standard Course of Study

Technology Education

Grade **4** - 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 **4** - Adopted: **2020**

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

CONTENT AREA / STRAND		NC K-12 Computer Science Standards
STRAND / ESSENTIAL STANDARD		Grades 3-5 (Ages 8-11)
ESSENTIAL STANDARD / CLARIFYING OBJECTIVE		Algorithms & Programming
CLARIFYING OBJECTIVE		Program Development
INDICATOR	35-AP-12.	Describe choices made during program development using code comments, presentations, and demonstrations.

North Dakota Content Standards

Mathematics

Grade **3** - Adopted: **2017**

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

North Dakota Content Standards

Mathematics

Grade **4** - Adopted: **2017**

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

North Dakota Content Standards

Science

Grade **3** - Adopted: **2019**

CONTENT STANDARD		Science and Engineering Practices

BENCHMARK	**2**	**Developing and using models**
GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.
CONTENT STANDARD		**Engineering & Technology (ET)**
BENCHMARK	**3-ET1.**	**Engineering & Technology**
GRADE LEVEL EXPECTATION	3-ET1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
GRADE LEVEL EXPECTATION	3-ET1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	3-ET1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

North Dakota Content Standards

Science

Grade **4** - Adopted: **2019**

CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**2**	**Developing and using models**
GRADE LEVEL EXPECTATION		Modeling in K-12 builds on prior experiences and progresses to include using and developing models (i.e., diagrams, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.
CONTENT STANDARD		**Science and Engineering Practices**
BENCHMARK	**6**	**Constructing explanations and designing solutions**
GRADE LEVEL EXPECTATION		Constructing explanations and designing solutions in K-12 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.
CONTENT STANDARD		**Life Science (LS)**
BENCHMARK	**4-LS1.**	**From Molecules to Organisms: Structures and Processes**
GRADE LEVEL EXPECTATION	4-LS1-1.	Construct an argument that plants, and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
CONTENT STANDARD		**Engineering & Technology (ET)**

BENCHMARK	**4-ET1.**	**Engineering & Technology**
GRADE LEVEL EXPECTATION	4-ET1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
GRADE LEVEL EXPECTATION	4-ET1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
GRADE LEVEL EXPECTATION	4-ET1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

North Dakota Content Standards

Technology Education

Grade **3** - 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	3.PSA.1.	Solve a task by breaking it into smaller pieces.

CONTENT STANDARD		**Computer Science and Cybersecurity Standards**
BENCHMARK		**Computational Thinking**
GRADE LEVEL EXPECTATION		**Development & Design**
INDICATOR		**Design processes to create new, useful, and imaginative solutions to problems.**
INDICATOR	3.DD.2.	Convert an algorithm into code.

North Dakota Content Standards

Technology Education

Grade **4** - 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	4.PSA.1.	Decompose (break down) a large task into smaller, manageable subtasks.

Ohio Learning Standards

Mathematics

Grade **3** - Adopted: **2017**

DOMAIN / ACADEMIC CONTENT STANDARD	**OH.MP.**	**Standards for Mathematical Practice**

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

Ohio Learning Standards

Mathematics

Grade **4** - Adopted: **2017**

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

Ohio Learning Standards

Science

Grade **4** - Adopted: **2018**

DOMAIN / ACADEMIC CONTENT STANDARD		LIFE SCIENCE (LS)
STANDARD / BENCHMARK		**Topic: Earth's Living History - This topic focuses on using fossil evidence and living organisms to observe that suitable habitats depend upon a combination of biotic and abiotic factors.**
BENCHMARK / GRADE LEVEL INDICATOR	**4.LS.1:**	**Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.**
PROFICIENCY LEVEL		Ecosystems are based on interrelationships among and between biotic and abiotic factors. These include the diversity of other organisms present, the availability of food and other resources, and the physical attributes of the environment.

Ohio Learning Standards

Technology Education

Grade **3** - Adopted: **2017**

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	3-5.DT.1.b.	Give examples of how requirements for a product can limit the design possibilities for that product.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	3-5.DT.2.b.	Plan and implement a design process: identify a problem, think about ways to solve the problem, develop possible solutions, test and evaluate solution(s), present a possible solution, and redesign to improve the solution.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**
PROFICIENCY LEVEL	3-5.DT.3.b.	Explore and document connections between technology and other fields of study.

Grade **3** - Adopted: **2022**

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 3**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**
PROFICIENCY LEVEL	CS.T.3.a.	Apply troubleshooting strategies given problems and solutions to resolve hardware and software problems.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 3**

STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.3.a.	Construct and reflect on errors in an algorithm to accomplish a given task.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 3**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.3.a.	Define and identify a variable, a placeholder for storing a value, to understand how it is used in a multi-step process (i.e., algorithm).

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 3**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.3.a.	Create a program using sequences, events, loops and conditionals to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 3**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Modularity**
PROFICIENCY LEVEL	ATP.M.3.a.	Decompose (i.e., break down) the steps needed or not needed (i.e., abstraction) into precise sequences of instructions to design an algorithm.

Ohio Learning Standards

Technology Education

Grade **4** - Adopted: **2017**

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

BENCHMARK / GRADE LEVEL INDICATOR	**Topic 1:**	**Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.**
PROFICIENCY LEVEL	3-5.DT.1.b.	Give examples of how requirements for a product can limit the design possibilities for that product.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 2:**	**Identify a problem and use an engineering design process to solve the problem.**
PROFICIENCY LEVEL	3-5.DT.2.b.	Plan and implement a design process: identify a problem, think about ways to solve the problem, develop possible solutions, test and evaluate solution(s), present a possible solution, and redesign to improve the solution.

DOMAIN / ACADEMIC CONTENT STANDARD		**Ohio Learning Standards in Technology**
STANDARD / BENCHMARK		**Design and Technology: Addresses the nature of technology to develop and improve products and systems over time to meet human/societal needs and wants through design processes.**
BENCHMARK / GRADE LEVEL INDICATOR	**Topic 3:**	**Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding, and systems thinking.**
PROFICIENCY LEVEL	3-5.DT.3.b.	Explore and document connections between technology and other fields of study.

Grade **4** - Adopted: **2022**

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 4**
STANDARD / BENCHMARK		**COMPUTING SYSTEMS**
BENCHMARK / GRADE LEVEL INDICATOR		**Troubleshooting**
PROFICIENCY LEVEL	CS.T.4.a.	Diagnose problems and select an appropriate solution from a list of problems and solutions to resolve hardware and software issues.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 4**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Algorithms**
PROFICIENCY LEVEL	ATP.A.4.a.	Construct and refine an algorithm to accomplish a given task.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 4**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Variables and Data Representation**
PROFICIENCY LEVEL	ATP.VDR.4.a.	Identify and use a variable, a placeholder for storing a value, to understand how it works in a multi-step process (i.e., algorithm).

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 4**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Control Structures**
PROFICIENCY LEVEL	ATP.CS.4.a.	Create a program using sequences, events, loops and conditionals to solve a problem.

DOMAIN / ACADEMIC CONTENT STANDARD		**Computer Science, Grade 4**
STANDARD / BENCHMARK		**ALGORITHMIC THINKING AND PROGRAMMING**
BENCHMARK / GRADE LEVEL INDICATOR		**Modularity**
PROFICIENCY LEVEL	ATP.M.4.a.	Decompose (i.e., break down) the steps needed or not needed (i.e., abstraction) into precise sequences of instructions to design an algorithm.

Oklahoma Academic Standards

Mathematics

Grade **3** - Adopted: **2022**

CONTENT STANDARD / COURSE		**Mathematical Actions and Processes**
STRAND / STANDARD		Develop Accurate and Appropriate Procedural Fluency
STRAND / STANDARD		Develop Strategies for Problem Solving
STRAND / STANDARD		Develop Mathematical Reasoning
STRAND / STANDARD		Develop the Ability to Make Conjectures, Model, and Generalize

STRAND / STANDARD		Develop the Ability to Communicate Mathematically

Oklahoma Academic Standards

Mathematics

Grade **4** - Adopted: **2022**

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

Oklahoma Academic Standards

Science

Grade **3** - Adopted: **2020**

CONTENT STANDARD / COURSE		Oklahoma Academic Standards for Science
STRAND / STANDARD		Biological Unity and Diversity (LS4)
OBJECTIVE	3.LS4.4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Oklahoma Academic Standards

Science

Grade **4** - Adopted: **2020**

CONTENT STANDARD / COURSE		Oklahoma Academic Standards for Science
STRAND / STANDARD		From Molecules to Organisms: Structure and Processes (LS1)
OBJECTIVE	4.LS.1.1	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

Oklahoma Academic Standards

Technology Education

Grade **3** - 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	**3**	**Third Grade (3)**
OBJECTIVE	**3.CS.**	**Computing Systems (CS)**
SKILL / CONCEPT	**3.CS.T.**	**Troubleshooting (T)**
SKILL	3.CS.T.01.	Identify, using accurate terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, and apply strategies for solving these problems (e.g., refresh screen, closing/reopening an application or file).

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	3	Third Grade (3)
OBJECTIVE	3.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	3.AP.A.	Algorithms (A)
SKILL	3.AP.A.01.	Model and compare multiple algorithms for the same task.

CONTENT STANDARD / COURSE		Oklahoma Academic Standards - Computer Science
STRAND / STANDARD	3	Third Grade (3)
OBJECTIVE	3.AP.	Algorithms & Programming (AP)
SKILL / CONCEPT	3.AP.PD.	Program Development (PD)
SKILL	3.AP.PD.01.	Use an iterative process to plan the development of a program while solving simple problems.
SKILL	3.AP.PD.04.	Communicate and explain program development choices using comments, presentations, and demonstrations.

Grade **3** - 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 **4** - 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	**4**	**Fourth Grade (4)**
OBJECTIVE	**4.CS.**	**Computing Systems (CS)**
SKILL / CONCEPT	**4.CS.T.**	**Troubleshooting (T)**
SKILL	4.CS.T.01.	Identify, using accurate terminology, simple hardware and software problems that may occur during everyday use, discuss problems with peers and adults, and apply strategies for solving these problems (e.g., rebooting the device, force shut down).

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**4**	**Fourth Grade (4)**
OBJECTIVE	**4.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**4.AP.A.**	**Algorithms (A)**
SKILL	4.AP.A.01.	Model, compare, and refine multiple algorithms for the same task.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**4**	**Fourth Grade (4)**
OBJECTIVE	**4.AP.**	**Algorithms & Programming (AP)**
SKILL / CONCEPT	**4.AP.PD.**	**Program Development (PD)**
SKILL	4.AP.PD.01.	Use an iterative process to plan the development of a program that includes user preferences while solving simple problems.
SKILL	4.AP.PD.04.	Communicate and explain program development choices using comments, presentations, and demonstrations.

CONTENT STANDARD / COURSE		**Oklahoma Academic Standards - Computer Science**
STRAND / STANDARD	**4**	**Fourth Grade (4)**
OBJECTIVE	**4.IC.**	**Impacts of Computing (IC)**
SKILL / CONCEPT	**4.IC.CU.**	**Culture (CU)**

SKILL	4.IC.CU.02.	Consider a variety of users' backgrounds and needs to brainstorm ways to improve computing devices to increase accessibility.

Grade **4** - 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 **3** - Adopted: **2021**

STANDARD / CONTENT AREA		Mathematical Practice Standards
CONTENT STANDARD / PROFICIENCY	1	Make sense of problems and persevere in solving them.
CONTENT STANDARD / PROFICIENCY	2	Reason abstractly and quantitatively.

CONTENT STANDARD / PROFICIENCY	3	Construct viable arguments and critique the reasoning of others.
CONTENT STANDARD / PROFICIENCY	4	Model with mathematics.
CONTENT STANDARD / PROFICIENCY	5	Use appropriate tools strategically.

Oregon Academic Content Standards

Mathematics

Grade **4** - Adopted: **2021**

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

Oregon Academic Content Standards

Science

Grade **3** - Adopted: **2022**

STANDARD / CONTENT AREA	OR.3-LS4.	Biological Evolution: Unity and Diversity
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	3-LS4-4.	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.
STANDARD / CONTENT AREA	**OR.3-5-ETS1.**	**Engineering Design**

CONTENT STANDARD / PROFICIENCY		Students who demonstrate understanding can:
BENCHMARK / STRAND	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
BENCHMARK / STRAND	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
BENCHMARK / STRAND	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Oregon Academic Content Standards

Science

Grade **4** - Adopted: **2022**

STANDARD / CONTENT AREA	OR.4-LS1.	From Molecules to Organisms: Structures and Processes
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	4-LS1-1.	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

STANDARD / CONTENT AREA	OR.3-5-ETS1.	Engineering Design
CONTENT STANDARD / PROFICIENCY		**Students who demonstrate understanding can:**
BENCHMARK / STRAND	3-5-ETS1-1.	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
BENCHMARK / STRAND	3-5-ETS1-2.	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
BENCHMARK / STRAND	3-5-ETS1-3.	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.