Main Criteria: Forward Education

Secondary Criteria: Idaho Content Standards, Illinois Learning Standards, Indiana Academic Standards, Iowa Student Standards, Kansas Academic Standards, Kentucky Academic Standards, Louisiana Academic Standards, Maine Learning Results, Maryland College and Career-Ready Standards, Massachusetts Curriculum Frameworks, Michigan Academic Standards, Minnesota Academic Standards, Mississippi College & Career Readiness Standards, Missouri Learning Standards

Subjects: Mathematics, Science, Technology Education

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

Forward Education

Powering the Future with Wind Energy

Idaho Content Standards

Mathematics

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

STANDARD / COURSE		Third Grade Standards for Mathematical Practice
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.1.	Make sense of problems and persevere in solving them.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.2.	Reason abstractly and quantitatively.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.3.	Construct viable arguments and critique the reasoning of others.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.4.	Model with mathematics.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.5.	Use appropriate tools strategically.
STANDARD / COURSE	**3.NBT.**	**Number and Operations in Base Ten**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
GLE / BIG IDEA	3.NBT.A.2.	Fluently add and subtract whole numbers within 1,000 using understanding of place value and properties of operations.

Idaho Content Standards

Mathematics

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

STANDARD / COURSE		Fourth Grade Standards for Mathematical Practice

CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.1.	Make sense of problems and persevere in solving them.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.2.	Reason abstractly and quantitatively.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.3.	Construct viable arguments and critique the reasoning of others.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.4.	Model with mathematics.
CONTENT KNOWLEDGE AND SKILLS / GOAL	MP.5.	Use appropriate tools strategically.
STANDARD / COURSE	**4.NBT.**	**Number and Operations in Base Ten**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**4.NBT.B.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic on whole numbers less than or equal to 1,000,000.**
GLE / BIG IDEA	4.NBT.B.4.	Fluently use the standard algorithm for multi-digit whole-number addition and subtraction.
STANDARD / COURSE	**4.MD.**	**Measurement and Data**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**4.MD.B.**	**Represent and interpret data.**
GLE / BIG IDEA	4.MD.B.4.	Make a line plot (dot plot) to show a set of measurements in fractions of a unit (1/2,1/4,1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots (dot plots).

Idaho Content Standards

Science

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

STANDARD / COURSE	**3-PS.**	**Physical Science**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-PS-1.**	**Motion and Stability: Forces and Interactions**
GLE / BIG IDEA	3-PS-1.2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Idaho Content Standards

Science

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

STANDARD / COURSE	**4-PS.**	**Physical Science**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**4-PS-1.**	**Energy**
GLE / BIG IDEA	4-PS-1.4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STANDARD / COURSE	**4-ESS.**	**Earth and Space Science**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**4-ESS-3.**	**Earth and Human Activity**
GLE / BIG IDEA	4-ESS-3.1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

Idaho Content Standards

Technology Education

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

STANDARD / COURSE	**ID.ICT.3-5.3.**	**STANDARD 3: KNOWLEDGE CONSTRUCTOR**
CONTENT KNOWLEDGE AND SKILLS / GOAL		**Goal 3: 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.**
GLE / BIG IDEA	ICT.3-5.3.d.	Students explore real-world problems and issues and collaborate with others to find answers or solutions.

STANDARD / COURSE	**ID.ICT.3-5.4.**	**STANDARD 4: INNOVATIVE DESIGNER**
CONTENT KNOWLEDGE AND SKILLS / GOAL		**Goal 4: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
GLE / BIG IDEA	ICT.3-5.4.d.	Students demonstrate perseverance when working with open-ended problems.

STANDARD / COURSE	**ID.ICT.3-5.5.**	**STANDARD 5: COMPUTATIONAL THINKER**
CONTENT KNOWLEDGE AND SKILLS / GOAL		**Goal 5: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
GLE / BIG IDEA	ICT.3-5.5.a.	Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator.
GLE / BIG IDEA	ICT.3-5.5.c.	Students break down problems into smaller parts, identify key information, and propose solutions.

GLE / BIG IDEA	ICT.3-5.5.d.	Students understand and explore basic concepts related to automation, patterns and algorithmic thinking.

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.IC.**	**Impacts of Computing (IC)**
GLE / BIG IDEA		**Fostering an Inclusive Computing Culture**
OBJECTIVE	3-5.IC.02.	Explore the connections between computer science and other fields. (Grades 3-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Creating Computational Artifacts**
OBJECTIVE	3-5.AP.02.	Construct and test problem solutions using a block-based visual programming language, both independently and collaboratively (e.g. pair programming). (Grades K-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Testing and Refining Computational Artifacts**
OBJECTIVE	3-5.AP.05.	Understand, explain and debug the sequencing in an algorithm. (Grades 3-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Creating Computational Artifacts**
OBJECTIVE	3-5.AP.06.	Construct and test problem solutions using a block-based visual programming language, both independently and collaboratively (e.g. pair programming). (Grades K-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**

GLE / BIG IDEA		**Developing and Using Abstractions**
OBJECTIVE	3-5.AP.07.	Construct an algorithm to accomplish a task, both independently and collaboratively. (Grades K-5)

Idaho Content Standards

Technology Education

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

STANDARD / COURSE	**ID.ICT.3-5.3.**	**STANDARD 3: KNOWLEDGE CONSTRUCTOR**
CONTENT KNOWLEDGE AND SKILLS / GOAL		**Goal 3: 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.**
GLE / BIG IDEA	ICT.3-5.3.d.	Students explore real-world problems and issues and collaborate with others to find answers or solutions.

STANDARD / COURSE	**ID.ICT.3-5.5.**	**STANDARD 5: COMPUTATIONAL THINKER**
CONTENT KNOWLEDGE AND SKILLS / GOAL		**Goal 5: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
GLE / BIG IDEA	ICT.3-5.5.a.	Students explore or solve problems by selecting technology for data analysis, modeling and algorithmic thinking, with guidance from an educator.
GLE / BIG IDEA	ICT.3-5.5.c.	Students break down problems into smaller parts, identify key information, and propose solutions.
GLE / BIG IDEA	ICT.3-5.5.d.	Students understand and explore basic concepts related to automation, patterns and algorithmic thinking.

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.IC.**	**Impacts of Computing (IC)**
GLE / BIG IDEA		**Fostering an Inclusive Computing Culture**
OBJECTIVE	3-5.IC.02.	Explore the connections between computer science and other fields. (Grades 3-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Creating Computational Artifacts**

OBJECTIVE	3-5.AP.02.	Construct and test problem solutions using a block-based visual programming language, both independently and collaboratively (e.g. pair programming). (Grades K-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Testing and Refining Computational Artifacts**

OBJECTIVE	3-5.AP.05.	Understand, explain and debug the sequencing in an algorithm. (Grades 3-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Creating Computational Artifacts**

OBJECTIVE	3-5.AP.06.	Construct and test problem solutions using a block-based visual programming language, both independently and collaboratively (e.g. pair programming). (Grades K-5)

STANDARD / COURSE	**ID.CS.3-5.**	**COMPUTER SCIENCE**
CONTENT KNOWLEDGE AND SKILLS / GOAL	**3-5.AP.**	**Algorithms and Programming (AP)**
GLE / BIG IDEA		**Developing and Using Abstractions**

OBJECTIVE	3-5.AP.07.	Construct an algorithm to accomplish a task, both independently and collaboratively. (Grades K-5)

Illinois Learning Standards

Mathematics

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

STATE GOAL / DISCIPLINARY CONCEPT	**IL.K-12.MP.**	**Mathematical Practices**
LEARNING STANDARD / DISCIPLINE	K-12.MP.1.	Make sense of problems and persevere in solving them.
LEARNING STANDARD / DISCIPLINE	K-12.MP.2.	Reason abstractly and quantitatively.

LEARNING STANDARD / DISCIPLINE	K-12.MP.3.	Construct viable arguments and critique the reasoning of others.
LEARNING STANDARD / DISCIPLINE	K-12.MP.4.	Model with mathematics.
LEARNING STANDARD / DISCIPLINE	K-12.MP.5.	Use appropriate tools strategically.
STATE GOAL / DISCIPLINARY CONCEPT	**IL.3.NBT.**	**Number and Operations in Base Ten**
LEARNING STANDARD / DISCIPLINE		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
DESCRIPTOR / CONTENT DISCIPLINE	CC.3.NBT.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Illinois Learning Standards

Mathematics

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

STATE GOAL / DISCIPLINARY CONCEPT	**IL.K-12.MP.**	**Mathematical Practices**
LEARNING STANDARD / DISCIPLINE	K-12.MP.1.	Make sense of problems and persevere in solving them.
LEARNING STANDARD / DISCIPLINE	K-12.MP.2.	Reason abstractly and quantitatively.
LEARNING STANDARD / DISCIPLINE	K-12.MP.3.	Construct viable arguments and critique the reasoning of others.
LEARNING STANDARD / DISCIPLINE	K-12.MP.4.	Model with mathematics.
LEARNING STANDARD / DISCIPLINE	K-12.MP.5.	Use appropriate tools strategically.
STATE GOAL / DISCIPLINARY CONCEPT	**IL.4.NBT.**	**Number and Operations in Base Ten**
LEARNING STANDARD / DISCIPLINE		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**

DESCRIPTOR / CONTENT DISCIPLINE	CC.4.NBT.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm.

STATE GOAL / DISCIPLINARY CONCEPT	**IL.4.MD.**	**Measurement and Data**
LEARNING STANDARD / DISCIPLINE		**Represent and interpret data.**
DESCRIPTOR / CONTENT DISCIPLINE	CC.4.MD.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Illinois Learning Standards

Science

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

STATE GOAL / DISCIPLINARY CONCEPT	**IL.3-PS.**	**PHYSICAL SCIENCE**
LEARNING STANDARD / DISCIPLINE	**3-PS2.**	**Motion and Stability: Forces and Interactions**
DESCRIPTOR / CONTENT DISCIPLINE		**Students who demonstrate understanding can:**
STANDARD	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

STATE GOAL / DISCIPLINARY CONCEPT	**IL.3-5-ETS.**	**ENGINEERING DESIGN**
LEARNING STANDARD / DISCIPLINE	**3-5-ETS1.**	**Engineering Design**
DESCRIPTOR / CONTENT DISCIPLINE		**Students who demonstrate understanding can:**
STANDARD	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	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	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.

Illinois Learning Standards

Science

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

STATE GOAL / DISCIPLINARY CONCEPT	**IL.4-PS.**	**PHYSICAL SCIENCE**

LEARNING STANDARD / DISCIPLINE	**4-PS3.**	**Energy**
DESCRIPTOR / CONTENT DISCIPLINE		**Students who demonstrate understanding can:**
STANDARD	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STATE GOAL / DISCIPLINARY CONCEPT	**IL.4-ESS.**	**EARTH AND SPACE SCIENCE**
LEARNING STANDARD / DISCIPLINE	**4-ESS3.**	**Earth and Human Activity**
DESCRIPTOR / CONTENT DISCIPLINE		**Students who demonstrate understanding can:**
STANDARD	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

STATE GOAL / DISCIPLINARY CONCEPT	**IL.3-5-ETS.**	**ENGINEERING DESIGN**
LEARNING STANDARD / DISCIPLINE	**3-5-ETS1.**	**Engineering Design**
DESCRIPTOR / CONTENT DISCIPLINE		**Students who demonstrate understanding can:**
STANDARD	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	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	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.

Illinois Learning Standards

Technology Education

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

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Practices**
DESCRIPTOR / CONTENT DISCIPLINE	3	Recognizing and defining computational problems.

DESCRIPTOR / CONTENT DISCIPLINE	5	Creating computational artifacts.
DESCRIPTOR / CONTENT DISCIPLINE	6	Testing and refining computational artifacts.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.CS.**	**Computing Systems**
STANDARD		**Troubleshooting**
EXPECTATION	3-5.CS.03.	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.DA.**	**Data and Analysis**
STANDARD		**Interference and Models**
EXPECTATION	3-5.DA.07.	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.AP.**	**Algorithms and Programming**
STANDARD		**Algorithms**
EXPECTATION	3-5.AP.08.	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**

DESCRIPTOR / CONTENT DISCIPLINE	**3-5.AP.**	**Algorithms and Programming**
STANDARD		**Modularity**
EXPECTATION	3-5.AP.11.	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.ET.**	**Emerging and Future Technologies**
STANDARD	3-5.ET.E.	Create new or original work by applying emerging technologies.

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

STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**
LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**
LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**
LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Illinois Learning Standards
Technology Education
Grade **4** - Adopted: **2022**

STATE GOAL / DISCIPLINARY CONCEPT		Illinois Computer Science Standards
LEARNING STANDARD / DISCIPLINE		**Computer Science Practices**
DESCRIPTOR / CONTENT DISCIPLINE	3	Recognizing and defining computational problems.
DESCRIPTOR / CONTENT DISCIPLINE	5	Creating computational artifacts.
DESCRIPTOR / CONTENT DISCIPLINE	6	Testing and refining computational artifacts.

STATE GOAL / DISCIPLINARY CONCEPT		Illinois Computer Science Standards
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.CS.**	**Computing Systems**
STANDARD		**Troubleshooting**
EXPECTATION	3-5.CS.03.	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies.

STATE GOAL / DISCIPLINARY CONCEPT		Illinois Computer Science Standards
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.DA.**	**Data and Analysis**
STANDARD		**Interference and Models**

EXPECTATION	3-5.DA.07.	Use data to highlight or propose cause-and-effect relationships, predict outcomes, or communicate an idea.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.AP.**	**Algorithms and Programming**
STANDARD		**Algorithms**
EXPECTATION	3-5.AP.08.	Compare and refine multiple algorithms for the same task and determine which is the most appropriate.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.AP.**	**Algorithms and Programming**
STANDARD		**Modularity**
EXPECTATION	3-5.AP.11.	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.

STATE GOAL / DISCIPLINARY CONCEPT		**Illinois Computer Science Standards**
LEARNING STANDARD / DISCIPLINE		**Computer Science Standards**
DESCRIPTOR / CONTENT DISCIPLINE	**3-5.ET.**	**Emerging and Future Technologies**
STANDARD	3-5.ET.E.	Create new or original work by applying emerging technologies.

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

STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**
LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.3.**	**Knowledge Constructors: Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.3.d.	Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**

LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.4.**	**Innovative Designers: Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.4.a.	Know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts or solving authentic problems.
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
STATE GOAL / DISCIPLINARY CONCEPT		**ISTE Standards for Students**
LEARNING STANDARD / DISCIPLINE	**IL.ISTE-S.5.**	**Computational Thinkers: Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.**
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.b.	Collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.
DESCRIPTOR / CONTENT DISCIPLINE	ISTE-S.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

Indiana Academic Standards

Mathematics

Grade **3** - Adopted: **2023**

STANDARD / STRAND		**Mathematics Process Standards**
PROFICIENCY STATEMENT / SUBSTRAND	PS.1:	Make sense of problems and persevere in solving them.
PROFICIENCY STATEMENT / SUBSTRAND	PS.2:	Reason abstractly and quantitatively.
PROFICIENCY STATEMENT / SUBSTRAND	PS.3:	Construct viable arguments and critique the reasoning of others.
PROFICIENCY STATEMENT / SUBSTRAND	PS.4:	Model with mathematics.
PROFICIENCY STATEMENT / SUBSTRAND	PS.5:	Use appropriate tools strategically.

STANDARD / STRAND		**Grade 3 Mathematics**
PROFICIENCY STATEMENT / SUBSTRAND		**Computation and Algebraic Thinking – Learning Outcome: Students use modeling and conceptual strategies to multiply and divide numbers within 100 in real-world situations. Students apply concepts and strategies of addition and subtraction to solve real-world problems and investigate number patterns through the application of concepts of multiplication and more complex concepts of addition within 100.**
INDICATOR / STANDARD	3.CA.1.	Fluently add and subtract multi-digit whole numbers using strategies and algorithms based on place value, properties of operations, and relationships between addition and subtraction.

Indiana Academic Standards

Mathematics

Grade **4** - Adopted: **2023**

STANDARD / STRAND		**Mathematics Process Standards**
PROFICIENCY STATEMENT / SUBSTRAND	PS.1:	Make sense of problems and persevere in solving them.
PROFICIENCY STATEMENT / SUBSTRAND	PS.2:	Reason abstractly and quantitatively.
PROFICIENCY STATEMENT / SUBSTRAND	PS.3:	Construct viable arguments and critique the reasoning of others.
PROFICIENCY STATEMENT / SUBSTRAND	PS.4:	Model with mathematics.
PROFICIENCY STATEMENT / SUBSTRAND	PS.5:	Use appropriate tools strategically.
STANDARD / STRAND		**Grade 4 Mathematics**
PROFICIENCY STATEMENT / SUBSTRAND		**Number Sense – Learning Outcome: Students represent and round multi-digit numbers. Students model, compare, and generate equivalent fractions, mixed numbers, and decimal numbers to the tenths and hundredths.**
INDICATOR / STANDARD	4.NS.5.	Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form, and expanded form to represent decimal numbers to hundredths. Mentally calculate fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75). (E)
STANDARD / STRAND		**Grade 4 Mathematics**
PROFICIENCY STATEMENT / SUBSTRAND		**Data Analysis – Learning Outcome: Students collect and ask questions of the data.**

INDICATOR / STANDARD	4.DA.1.	Formulate questions that can be addressed with data. Collect, organize, and graph data from observations, surveys, and experiments using line plots with whole number intervals, single- and scaled bar graphs, and frequency tables. Solve real-world problems by analyzing and interpreting the data using grade-level computation and comparison strategies. (E)
INDICATOR / STANDARD	4.DA.2.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.

Indiana Academic Standards

Science

Grade **3** - Adopted: **2023**

STANDARD / STRAND		**Science and Engineering Practices**
PROFICIENCY STATEMENT / SUBSTRAND	SEP.2.	Developing and using models
PROFICIENCY STATEMENT / SUBSTRAND	SEP.6.	Constructing explanations (for science) and designing solutions (for engineering)
PROFICIENCY STATEMENT / SUBSTRAND	SEP.8.	Obtaining, evaluating, and communicating information

STANDARD / STRAND		**Grade 3**
PROFICIENCY STATEMENT / SUBSTRAND	**3-PS2-2.**	**Motion and Stability: Forces and Interactions**
INDICATOR / STANDARD	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

STANDARD / STRAND		**Grade 3**
PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-1.**	**Engineering Design**
INDICATOR / STANDARD	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 / STRAND		**Grade 3**
PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-2.**	**Engineering Design**
INDICATOR / STANDARD	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 / STRAND		**Grade 3**

PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-3.**	**Engineering Design**
INDICATOR / STANDARD	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.

Indiana Academic Standards

Science

Grade **4** - Adopted: **2023**

STANDARD / STRAND		**Science and Engineering Practices**
PROFICIENCY STATEMENT / SUBSTRAND	SEP.2.	Developing and using models
PROFICIENCY STATEMENT / SUBSTRAND	SEP.6.	Constructing explanations (for science) and designing solutions (for engineering)
PROFICIENCY STATEMENT / SUBSTRAND	SEP.8.	Obtaining, evaluating, and communicating information

STANDARD / STRAND		**Grade 4**
PROFICIENCY STATEMENT / SUBSTRAND	**4-PS3-4.**	**Energy**
INDICATOR / STANDARD	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STANDARD / STRAND		**Grade 4**
PROFICIENCY STATEMENT / SUBSTRAND	**4-ESS3-1.**	**Earth and Human Activity**
INDICATOR / STANDARD	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

STANDARD / STRAND		**Grade 4**
PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-1.**	**Engineering Design**
INDICATOR / STANDARD	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 / STRAND		**Grade 4**
PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-2.**	**Engineering Design**

INDICATOR / STANDARD	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 / STRAND		**Grade 4**
PROFICIENCY STATEMENT / SUBSTRAND	**3-5-ETS1-3.**	**Engineering Design**

INDICATOR / STANDARD	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.

Indiana Academic Standards

Technology Education

Grade **3** - Adopted: **2023**

STANDARD / STRAND		**Computer Science**
PROFICIENCY STATEMENT / SUBSTRAND		**Data & Information**
INDICATOR / STANDARD		**Learning Outcome: Students select aspects and portions of data to be transformed, clustered, and categorized to provide views and insights about the data.**

EXPECTATION / INDICATOR	3-5.DI.1.	Decompose problems and subproblems into parts as a means to solving complex problems. (E)

STANDARD / STRAND		**Computer Science**
PROFICIENCY STATEMENT / SUBSTRAND		**Computing Devices & Systems**
INDICATOR / STANDARD		**Learning Outcome: Students identify similarities between computing systems to troubleshoot common problems and choose appropriate combinations of hardware and software to accomplish desired tasks.**

EXPECTATION / INDICATOR	3-5.CD.2.	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (E)

STANDARD / STRAND		**Computer Science**
PROFICIENCY STATEMENT / SUBSTRAND		**Programs & Algorithms**
INDICATOR / STANDARD		**Learning Outcome: Students collaboratively engage in computer program development with consideration of documenting design choices and giving appropriate attributions.**

EXPECTATION / INDICATOR	3-5.PA.1.	Collaborate with peers to implement problem-solving steps to create a variety of programming solutions. (E)

Indiana Academic Standards

Technology Education

Grade **4** - Adopted: **2023**

STANDARD / STRAND		**Computer Science**

PROFICIENCY STATEMENT / SUBSTRAND		**Data & Information**
INDICATOR / STANDARD		**Learning Outcome: Students select aspects and portions of data to be transformed, clustered, and categorized to provide views and insights about the data.**
EXPECTATION / INDICATOR	3-5.DI.1.	Decompose problems and subproblems into parts as a means to solving complex problems. (E)

STANDARD / STRAND		**Computer Science**
PROFICIENCY STATEMENT / SUBSTRAND		**Computing Devices & Systems**
INDICATOR / STANDARD		**Learning Outcome: Students identify similarities between computing systems to troubleshoot common problems and choose appropriate combinations of hardware and software to accomplish desired tasks.**
EXPECTATION / INDICATOR	3-5.CD.2.	Determine potential solutions to solve simple hardware and software problems using common troubleshooting strategies. (E)

STANDARD / STRAND		**Computer Science**
PROFICIENCY STATEMENT / SUBSTRAND		**Programs & Algorithms**
INDICATOR / STANDARD		**Learning Outcome: Students collaboratively engage in computer program development with consideration of documenting design choices and giving appropriate attributions.**
EXPECTATION / INDICATOR	3-5.PA.1.	Collaborate with peers to implement problem-solving steps to create a variety of programming solutions. (E)

Iowa Student Standards

Mathematics

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

STRAND / COURSE		**Mathematical Practices**
ESSENTIAL CONCEPT AND/OR SKILL	1	Make sense of problems and persevere in solving them.
ESSENTIAL CONCEPT AND/OR SKILL	2	Reason abstractly and quantitatively.
ESSENTIAL CONCEPT AND/OR SKILL	3	Construct viable arguments and critique the reasoning of others.
ESSENTIAL CONCEPT AND/OR SKILL	4	Model with mathematics.

ESSENTIAL CONCEPT AND/OR SKILL	5	Use appropriate tools strategically.

STRAND / COURSE	**3.NBT.**	**Number and Operations in Base Ten 3.NBT**
ESSENTIAL CONCEPT AND/OR SKILL	**3.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic. (3.NBT.A)**
DETAILED DESCRIPTOR	3.NBT.A.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. (3.NBT.A.2) (DOK 1,2)

Iowa Student Standards

Mathematics

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

STRAND / COURSE		**Mathematical Practices**
ESSENTIAL CONCEPT AND/OR SKILL	1	Make sense of problems and persevere in solving them.
ESSENTIAL CONCEPT AND/OR SKILL	2	Reason abstractly and quantitatively.
ESSENTIAL CONCEPT AND/OR SKILL	3	Construct viable arguments and critique the reasoning of others.
ESSENTIAL CONCEPT AND/OR SKILL	4	Model with mathematics.
ESSENTIAL CONCEPT AND/OR SKILL	5	Use appropriate tools strategically.

STRAND / COURSE	**4.NBT.**	**Number and Operations in Base Ten 4.NBT**
ESSENTIAL CONCEPT AND/OR SKILL	**4.NBT.B.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic. (4.NBT.B)**
DETAILED DESCRIPTOR	4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm. (4.NBT.B.4) (DOK 1)

STRAND / COURSE	**4.MD.**	**Measurement and Data 4.MD**
ESSENTIAL CONCEPT AND/OR SKILL	**4.MD.B.**	**Represent and interpret data. (4.MD.B)**

DETAILED DESCRIPTOR	4.MD.B.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. (4.MD.B.4) (DOK 1,2)

Iowa Student Standards

Science

Grade **3** - Adopted: **2015**

STRAND / COURSE	**IA.3-PS2.**	**Motion and Stability: Forces and Interactions**
ESSENTIAL CONCEPT AND/OR SKILL		**Students who demonstrate understanding can:**
DETAILED DESCRIPTOR	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STRAND / COURSE	**IA.3-5-ETS1.**	**Engineering Design**
ESSENTIAL CONCEPT AND/OR SKILL		**Students who demonstrate understanding can:**
DETAILED DESCRIPTOR	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.
DETAILED DESCRIPTOR	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.
DETAILED DESCRIPTOR	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.

Iowa Student Standards

Science

Grade **4** - Adopted: **2015**

STRAND / COURSE	**IA.4-PS3.**	**Energy**
ESSENTIAL CONCEPT AND/OR SKILL		**Students who demonstrate understanding can:**
DETAILED DESCRIPTOR	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
STRAND / COURSE	**IA.4-ESS3.**	**Earth and Human Activity**
ESSENTIAL CONCEPT AND/OR SKILL		**Students who demonstrate understanding can:**
DETAILED DESCRIPTOR	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
STRAND / COURSE	**IA.3-5-ETS1.**	**Engineering Design**

ESSENTIAL CONCEPT AND/OR SKILL		Students who demonstrate understanding can:
DETAILED DESCRIPTOR	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.
DETAILED DESCRIPTOR	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.
DETAILED DESCRIPTOR	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.

Iowa Student Standards
Technology Education
Grade **3** - Adopted: **2018**

STRAND / COURSE		CSTA K-12 Computer Science Standards
ESSENTIAL CONCEPT AND/OR SKILL	CSTA.1B.	Level 1B (Ages 8-11)
DETAILED DESCRIPTOR	1B-AP.	Algorithms & Programming
GRADE LEVEL EXPECTATION		Program Development
EXAMPLE	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)
EXAMPLE	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)
EXAMPLE	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)

STRAND / COURSE		CSTA K-12 Computer Science Standards
ESSENTIAL CONCEPT AND/OR SKILL	CSTA.1B.	Level 1B (Ages 8-11)
DETAILED DESCRIPTOR	1B-IC.	Impacts of Computing
GRADE LEVEL EXPECTATION		Social Interactions
EXAMPLE	1B-IC-20.	Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

Iowa Student Standards
Technology Education
Grade **4** - Adopted: **2018**

STRAND / COURSE		CSTA K-12 Computer Science Standards
ESSENTIAL CONCEPT AND/OR SKILL	CSTA.1B.	Level 1B (Ages 8-11)

DETAILED DESCRIPTOR	**1B-AP.**	**Algorithms & Programming**
GRADE LEVEL EXPECTATION		**Program Development**
EXAMPLE	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)
EXAMPLE	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)
EXAMPLE	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. (P7.2)
STRAND / COURSE		**CSTA K-12 Computer Science Standards**
ESSENTIAL CONCEPT AND/OR SKILL	**CSTA.1 B.**	**Level 1B (Ages 8-11)**
DETAILED DESCRIPTOR	**1B-IC.**	**Impacts of Computing**
GRADE LEVEL EXPECTATION		**Social Interactions**
EXAMPLE	1B-IC-20.	Seek diverse perspectives for the purpose of improving computational artifacts. (P1.1)

Kansas Academic Standards

Mathematics

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

STANDARD	**MP.**	**Standards for Mathematical Practice**
BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2.	Reason abstractly and quantitatively.
BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4.	Model with mathematics.
BENCHMARK	MP.5.	Use appropriate tools strategically.
BENCHMARK	MP.7.	Look for and make use of structure.
STANDARD	**3.NBT.**	**Number and Operations in Base Ten**
BENCHMARK		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
INDICATOR / PROFICIENCY LEVEL	3.NBT.2.	Fluently (efficiently, accurately, & flexibly) add and subtract within 1000 using strategies (e.g. composing/decomposing by like base-10 units, using friendly or benchmark numbers, using related equations, compensation, number line, etc.) and algorithms (including, but not limited to: traditional, partial-sums, etc.) based on place value, properties of operations, and/or the relationship between addition and subtraction.

Kansas Academic Standards

Mathematics

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

STANDARD	MP.	Standards for Mathematical Practice
BENCHMARK	MP.1.	Make sense of problems and persevere in solving them.
BENCHMARK	MP.2.	Reason abstractly and quantitatively.
BENCHMARK	MP.3.	Construct viable arguments and critique the reasoning of others.
BENCHMARK	MP.4.	Model with mathematics.
BENCHMARK	MP.5.	Use appropriate tools strategically.
BENCHMARK	MP.7.	Look for and make use of structure.
STANDARD	**4.NBT.**	**Number and Operations in Base Ten**
BENCHMARK		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
INDICATOR / PROFICIENCY LEVEL	4.NBT.4.	Fluently (efficiently, accurately, and flexibly) add and subtract multi-digit whole numbers using an efficient algorithm (including, but not limited to: traditional, partial-sums, etc.), based on place value understanding and the properties of operations.
STANDARD	**4.MD.**	**Measurement and Data**
BENCHMARK		**Represent and interpret data.**
INDICATOR / PROFICIENCY LEVEL	4.MD.4.	Make a data display (line plot, bar graph, pictograph) to show a set of measurements in fractions of a unit (1/2, 1/4, 1/8, 1/16). Solve problems involving addition and subtraction of fractions by using information presented in the data display. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Kansas Academic Standards

Science

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

STANDARD	KS.3-PS.	PHYSICAL SCIENCE
BENCHMARK	**3-PS2.**	**Motion and Stability: Forces and Interactions**
INDICATOR / PROFICIENCY LEVEL		**Students who demonstrate understanding can:**
INDICATOR	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STANDARD	**KS.3-5-ETS.**	**ENGINEERING DESIGN**
BENCHMARK	**3-5-ETS1.**	**Engineering Design**
INDICATOR / PROFICIENCY LEVEL		**Students who demonstrate understanding can:**

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

Kansas Academic Standards

Science

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

STANDARD	**KS.4-PS.**	**PHYSICAL SCIENCE**
BENCHMARK	**4-PS3.**	**Energy**
INDICATOR / PROFICIENCY LEVEL		**Students who demonstrate understanding can:**
INDICATOR	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STANDARD	**KS.4-ESS.**	**EARTH AND SPACE SCIENCE**
BENCHMARK	**4-ESS3.**	**Earth and Human Activity**
INDICATOR / PROFICIENCY LEVEL		**Students who demonstrate understanding can:**
INDICATOR	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

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

Kansas Academic Standards

Technology Education

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

STANDARD		**Computer Science Standards – Grade 3**
BENCHMARK		**Algorithms and Programming**

INDICATOR / PROFICIENCY LEVEL		**Program Development**
INDICATOR	3.AP.PD.01.	Create a plan using an iterative process to plan the development of a program while solving simple problems (e.g., storyboard, flowchart, pseudo-code, story map).

Kansas Academic Standards
Technology Education
Grade **4** - Adopted: **2019**

STANDARD		**Computer Science Standards – Grade 4**
BENCHMARK		**Algorithms and Programming**
INDICATOR / PROFICIENCY LEVEL		**Program Development**
INDICATOR	4.AP.PD.01.	Create a plan using an iterative process to plan the development of a program that includes user preferences while solving simple problems.

Kentucky Academic Standards
Mathematics
Grade **3** - Adopted: **2019**

STRAND		**Standards for Mathematical Practices**
CATEGORY / GOAL	MP.1.	Make sense of problems and persevere in solving them.
CATEGORY / GOAL	MP.2.	Reason abstractly and quantitatively.
CATEGORY / GOAL	MP.3.	Construct viable arguments and critique the reasoning of others.
CATEGORY / GOAL	MP.4.	Model with mathematics.
CATEGORY / GOAL	MP.5.	Use appropriate tools strategically.
CATEGORY / GOAL	MP.7.	Look for and make use of structure.
STRAND		**Numbers and Operations in Base Ten**
CATEGORY / GOAL		**Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic. Note: A range of algorithms may be used.**
STANDARD / ORGANIZER	KY.3.NBT.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations and/or the relationship between addition and subtraction. (MP.2, MP.3)

Kentucky Academic Standards
Mathematics
Grade **4** - Adopted: **2019**

STRAND		**Standards for Mathematical Practices**

CATEGORY / GOAL	MP.1.	Make sense of problems and persevere in solving them.
CATEGORY / GOAL	MP.2.	Reason abstractly and quantitatively.
CATEGORY / GOAL	MP.3.	Construct viable arguments and critique the reasoning of others.
CATEGORY / GOAL	MP.4.	Model with mathematics.
CATEGORY / GOAL	MP.5.	Use appropriate tools strategically.
CATEGORY / GOAL	MP.7.	Look for and make use of structure.
STRAND		**Numbers and Operations in Base Ten**
CATEGORY / GOAL		**Cluster: Use place value understanding and properties of operations to perform multi-digit arithmetic.**
STANDARD / ORGANIZER	KY.4.NBT.4.	Fluently add and subtract multi-digit whole numbers using an algorithm. (MP.2, MP.8)
STRAND		**Numbers and Operations—Fractions**
CATEGORY / GOAL		**Cluster: Understand decimal notation for fractions and compare decimal fractions.**
STANDARD / ORGANIZER	KY.4.NF.6.	Use decimal notation for fractions with denominators 10 or 100. (MP.4, MP.7)
STRAND		**Measurement and Data**
CATEGORY / GOAL		**Cluster: Understand and apply the statistics process.**
STANDARD / ORGANIZER	**KY.4.MD.4.**	**Use dot plots to analyze data to a statistical question. (MP.1, MP.6)**
EXPECTATION	KY.4.MD.4.c.	Solve problems involving addition and subtraction of fractions by using information presented in dot plots.

Kentucky Academic Standards

Science

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

STRAND		**Third Grade**
CATEGORY / GOAL	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STRAND		**3-5 Engineering Design**

CATEGORY / GOAL	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.
CATEGORY / GOAL	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.
CATEGORY / GOAL	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.

Kentucky Academic Standards

Science

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

STRAND		Fourth Grade
CATEGORY / GOAL	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
CATEGORY / GOAL	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.
STRAND		**3-5 Engineering Design**
CATEGORY / GOAL	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.
CATEGORY / GOAL	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.
CATEGORY / GOAL	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.

Kentucky Academic Standards

Technology Education

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

STRAND		Kentucky Academic Standards (KAS) for Computer Science
CATEGORY / GOAL		**Algorithms and Programming**
STANDARD / ORGANIZER	**E-AP-04.**	**Decompose precise steps needed to solve a problem. Decomposition is the act of breaking down tasks into smaller tasks. Smaller tasks or sub parts (steps that can be broken down into smaller steps) may be broken down even further. The process of decomposition assists in areas of program development by enabling different people to work on different parts at the same time. Students should demonstrate the process of decomposition by enabling different people to work on different parts of program development at the same time.**
EXPECTATION		**Modularity**
INDICATOR	E-AP-04.3.	Generate and correctly order the steps needed to solve a complex problem.

Grade **3** - Adopted: **2015**

STRAND		Technology – Primary

CATEGORY / GOAL		**Big Idea: Information, Communication and Productivity – Students demonstrate a sound understanding of the nature and operations of technology systems. Students use technology to learn, to communicate, to increase productivity and become competent users of technology. Students manage and create effective oral, written and multimedia communication in a variety of forms and contexts.**
STANDARD / ORGANIZER		**Academic Expectations**
EXPECTATION	P.BI1.AE.6.1.	Students connect knowledge and experiences from different subject areas.

STRAND		**Technology – Primary**
CATEGORY / GOAL		**Big Idea: Safety and Ethical/Social Issues – Students understand safe and ethical/social issues related to technology. Students practice and engage in safe, responsible and ethical use of technology. Students develop positive attitudes toward technology use that supports lifelong learning, collaboration, personal pursuits and productivity.**
STANDARD / ORGANIZER		**Primary Skills and Concepts – Safety**
EXPECTATION	P.BI2.SC1.2.	Use safe behavior when using technology.

STRAND		**Technology – Primary**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Academic Expectations**
EXPECTATION	P.BI3.AE.5.5.	Students use problem-solving processes to develop solutions to relatively complex problems.
EXPECTATION	P.BI3.AE.6.1.	Students connect knowledge and experiences from different subject areas.

STRAND		**Technology – Primary**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Primary Skills and Concepts – Inquiry/Problem-solving**
EXPECTATION	P.BI3.SC2.1.	Gather technology information/data and use for problem solving in all content areas.
EXPECTATION	P.BI3.SC2.2.	Describe at least one strategy for problem solving while using technology (e.g., inquiry/problem-solving software, troubleshooting technology issues).

Kentucky Academic Standards

Technology Education

Grade **4** - Adopted: **2015**

STRAND		**Technology – Intermediate**
CATEGORY / GOAL		**Big Idea: Information, Communication and Productivity – Students demonstrate a sound understanding of the nature and operations of technology systems. Students use technology to learn, to communicate, increase productivity and become competent users of technology. Students manage and create effective oral, written and multimedia communication in a variety of forms and contexts.**

STANDARD / ORGANIZER		**Academic Expectations**
EXPECTATION	I.BI1.AE.6.1.	Students connect knowledge and experiences from different subject areas.
STRAND		**Technology – Intermediate**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Academic Expectations**
EXPECTATION	I.BI3.AE.5.5.	Students use problem-solving processes to develop solutions to relatively complex problems.
EXPECTATION	I.BI3.AE.6.1.	Students connect knowledge and experiences from different subject areas.
STRAND		**Technology – Intermediate**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Intermediate Enduring Knowledge – Understandings**
EXPECTATION	I.BI3.EK.1.	Technology assists in gathering, organizing and evaluating information from a variety of sources to answer essential questions.
EXPECTATION	I.BI3.EK.2.	Technology supports critical thinking skills used in inquiry/problem solving to make informed decisions.
STRAND		**Technology – Intermediate**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Intermediate Skills and Concepts – Inquiry/Problem-solving**
EXPECTATION	I.BI3.SC2.2.	Use technology to solve problems using critical thinking and problem-solving strategies.
EXPECTATION	I.BI3.SC2.3.	Solve content-specific problems using a combination of technologies.
STRAND		**Technology – Intermediate**
CATEGORY / GOAL		**Big Idea: Research, Inquiry/Problem-Solving and Innovation – Students understand the role of technology in research and experimentation. Students engage technology in developing solutions for solving problems in the real world. Students will use technology for original creation and innovation.**
STANDARD / ORGANIZER		**Intermediate Skills and Concepts – Innovation**
EXPECTATION	I.BI3.SC3.1.	Use technology to organize and develop creative solutions, ideas or product.

Louisiana Academic Standards

Mathematics

Grade **3** - Adopted: **2016/Updated 2017**

STRAND		Standards for Mathematical Practice
TITLE	MP.1.	Make sense of problems and persevere in solving them.
TITLE	MP.2.	Reason abstractly and quantitatively.
TITLE	MP.3.	Construct viable arguments and critique the reasoning of others.
TITLE	MP.4.	Model with mathematics.
TITLE	MP.5.	Use appropriate tools strategically.
STRAND	**3.NBT.**	**Number and Operations in Base Ten**
TITLE	**3.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
PERFORMANCE EXPECTATION	3.NBT.A.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Louisiana Academic Standards

Mathematics

Grade **4** - Adopted: **2016/Updated 2017**

STRAND		Standards for Mathematical Practice
TITLE	MP.1.	Make sense of problems and persevere in solving them.
TITLE	MP.2.	Reason abstractly and quantitatively.
TITLE	MP.3.	Construct viable arguments and critique the reasoning of others.
TITLE	MP.4.	Model with mathematics.
TITLE	MP.5.	Use appropriate tools strategically.
STRAND	**4.NBT.**	**Number and Operations in Base Ten**
TITLE	**4.NBT.B.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
PERFORMANCE EXPECTATION	4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers with sums less than or equal to 1,000,000, using the standard algorithm.
STRAND	**4.MD.**	**Measurement and Data**
TITLE	**4.MD.B.**	**Represent and interpret data.**

PERFORMANCE EXPECTATION	4.MD.B.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Louisiana Academic Standards

Science

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

STRAND	**LA.SC.3.**	**Science – Grade 3**
TITLE	**3-PS2.**	**MOTION AND STABILITY: FORCES AND INTERACTIONS**
PERFORMANCE EXPECTATION	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Louisiana Academic Standards

Science

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

STRAND	**LA.SC.4.**	**Science – Grade 4**
TITLE	**4-PS3.**	**ENERGY**
PERFORMANCE EXPECTATION	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STRAND	**LA.SC.4.**	**Science – Grade 4**
TITLE	**4-ESS3.**	**EARTH AND HUMAN ACTIVITY**
PERFORMANCE EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from renewable and non-renewable resources and how their uses affect the environment.

Louisiana Academic Standards

Technology Education

Grade **3** - Adopted: **2008**

STRAND	**LA.ET.**	**Educational Technology**
TITLE		**PreK-12 Educational Technology Content Standards**
PERFORMANCE EXPECTATION	ET.4.	Critical Thinking, Problem Solving, and Decision Making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

STRAND	**LA.ET.**	**Educational Technology**
TITLE		**Performance Indicators for Grades 3-5**
PERFORMANCE EXPECTATION	ET.E.	Identify and investigate a world issue and generate a possible solution using digital tools and resources. (3, 4)

Louisiana Academic Standards

Technology Education

Grade **4** - Adopted: **2008**

STRAND	LA.ET.	Educational Technology
TITLE		PreK-12 Educational Technology Content Standards
PERFORMANCE EXPECTATION	ET.4.	Critical Thinking, Problem Solving, and Decision Making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

STRAND	LA.ET.	Educational Technology
TITLE		Performance Indicators for Grades 3-5
PERFORMANCE EXPECTATION	ET.E.	Identify and investigate a world issue and generate a possible solution using digital tools and resources. (3, 4)

Maine Learning Results

Mathematics

Grade **3** - Adopted: **2020/Implemented 2020**

STRAND / DOMAIN		Standards for Mathematical Practice
CATEGORY / PERFORMANCE INDICATOR	MP1.	Make sense of problems and persevere in solving them: Students will plan strategies to use and persevere in solving math problems.
CATEGORY / PERFORMANCE INDICATOR	MP2.	Reason abstractly and quantitatively: Students will think about numbers in many ways and make sense of numerical relationships as they solve problems.
CATEGORY / PERFORMANCE INDICATOR	MP3.	Construct viable arguments and critique the reasoning of others: Students will explain their thinking and make sense of the thinking of others.
CATEGORY / PERFORMANCE INDICATOR	MP4.	Model with mathematics: Students will use representations to show their thinking in a variety of ways.
CATEGORY / PERFORMANCE INDICATOR	MP5.	Use appropriate tools strategically: Students will use math tools such as tables, diagrams, and technology to explore and deepen their understanding of concepts.

STRAND / DOMAIN		Quantitative Reasoning – Numbers and Operations in Base Ten
CATEGORY / PERFORMANCE INDICATOR	QR.C.7	Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers and decimals to hundredths.
STANDARD	3.NBT.A.2:	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Maine Learning Results

Mathematics

Grade **4** - Adopted: **2020/Implemented 2020**

STRAND / DOMAIN		Standards for Mathematical Practice

CATEGORY / PERFORMANCE INDICATOR	MP1.	Make sense of problems and persevere in solving them: Students will plan strategies to use and persevere in solving math problems.
CATEGORY / PERFORMANCE INDICATOR	MP2.	Reason abstractly and quantitatively: Students will think about numbers in many ways and make sense of numerical relationships as they solve problems.
CATEGORY / PERFORMANCE INDICATOR	MP3.	Construct viable arguments and critique the reasoning of others: Students will explain their thinking and make sense of the thinking of others.
CATEGORY / PERFORMANCE INDICATOR	MP4.	Model with mathematics: Students will use representations to show their thinking in a variety of ways.
CATEGORY / PERFORMANCE INDICATOR	MP5.	Use appropriate tools strategically: Students will use math tools such as tables, diagrams, and technology to explore and deepen their understanding of concepts.
STRAND / DOMAIN		**Quantitative Reasoning – Numbers and Operations in Base Ten**
CATEGORY / PERFORMANCE INDICATOR	**QR.C.7**	**Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers and decimals to hundredths.**
STANDARD	4.NBT.B.4:	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
STRAND / DOMAIN		**Statistical Reasoning – Measurement & Data**
CATEGORY / PERFORMANCE INDICATOR	**SR.C.6**	**Represent and interpret data.**
STANDARD	4.MD.B.4:	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Maine Learning Results

Science

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

STRAND / DOMAIN	**NGSS.3-PS.**	**PHYSICAL SCIENCE**
CATEGORY / PERFORMANCE INDICATOR	**3-PS2.**	**Motion and Stability: Forces and Interactions**
STANDARD		**Students who demonstrate understanding can:**
EXPECTATION	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STRAND / DOMAIN	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**

CATEGORY / PERFORMANCE INDICATOR	**3-5-ETS1.**	**Engineering Design**
STANDARD		**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.

Maine Learning Results

Science

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

STRAND / DOMAIN	**NGSS.4-PS.**	**PHYSICAL SCIENCE**
CATEGORY / PERFORMANCE INDICATOR	**4-PS3.**	**Energy**
STANDARD		**Students who demonstrate understanding can:**
EXPECTATION	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STRAND / DOMAIN	**NGSS.4-ESS.**	**EARTH AND SPACE SCIENCE**
CATEGORY / PERFORMANCE INDICATOR	**4-ESS3.**	**Earth and Human Activity**
STANDARD		**Students who demonstrate understanding can:**
EXPECTATION	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

STRAND / DOMAIN	**NGSS.3-5-ETS.**	**ENGINEERING DESIGN**
CATEGORY / PERFORMANCE INDICATOR	**3-5-ETS1.**	**Engineering Design**
STANDARD		**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.

Maryland College and Career-Ready Standards

Mathematics

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

STRAND / TOPIC / STANDARD		**Grade 3 Math**
TOPIC / INDICATOR	**3.NBT.**	**Number and Operations in Base Ten**
INDICATOR / PROFICIENCY LEVEL	**3.NBT.A.**	**Use place value understanding and properties of operation to perform multi-digit arithmetic**
OBJECTIVE	3.NBT.A.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Maryland College and Career-Ready Standards

Mathematics

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

STRAND / TOPIC / STANDARD		**Grade 4 Math**
TOPIC / INDICATOR	**4.NBT.**	**Number Base Ten**
INDICATOR / PROFICIENCY LEVEL	**4.NBT.B.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
OBJECTIVE	4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm.

STRAND / TOPIC / STANDARD		**Grade 4 Math**
TOPIC / INDICATOR	**4.MD.**	**Measurement and Data**
INDICATOR / PROFICIENCY LEVEL	**4.MD.B.**	**Represent and interpret data.**
OBJECTIVE	4.MD.B.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2,1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Maryland College and Career-Ready Standards

Science

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

STRAND / TOPIC / STANDARD	**NGSS.3-PS.**	**PHYSICAL SCIENCE**
TOPIC / INDICATOR	**3-PS2.**	**Motion and Stability: Forces and Interactions**
INDICATOR / PROFICIENCY LEVEL		**Students who demonstrate understanding can:**
OBJECTIVE	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

STRAND / TOPIC / STANDARD	NGSS.3-5-ETS.	ENGINEERING DESIGN
TOPIC / INDICATOR	3-5-ETS1.	Engineering Design
INDICATOR / PROFICIENCY LEVEL		Students who demonstrate understanding can:
OBJECTIVE	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.
OBJECTIVE	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.
OBJECTIVE	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.

Maryland College and Career-Ready Standards

Science

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

STRAND / TOPIC / STANDARD	NGSS.4-PS.	PHYSICAL SCIENCE
TOPIC / INDICATOR	4-PS3.	Energy
INDICATOR / PROFICIENCY LEVEL		Students who demonstrate understanding can:
OBJECTIVE	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

STRAND / TOPIC / STANDARD	NGSS.4-ESS.	EARTH AND SPACE SCIENCE
TOPIC / INDICATOR	4-ESS3.	Earth and Human Activity
INDICATOR / PROFICIENCY LEVEL		Students who demonstrate understanding can:
OBJECTIVE	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

STRAND / TOPIC / STANDARD	NGSS.3-5-ETS.	ENGINEERING DESIGN
TOPIC / INDICATOR	3-5-ETS1.	Engineering Design
INDICATOR / PROFICIENCY LEVEL		Students who demonstrate understanding can:
OBJECTIVE	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.

OBJECTIVE	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.
OBJECTIVE	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.

Massachusetts Curriculum Frameworks

Mathematics

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

FOCUS / COURSE	MA.MP.	Mathematical Practice
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.
FOCUS / COURSE	**MA.3.NBT.**	**Number and Operations in Base Ten**
STRAND	**3.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
STANDARD / CONCEPT / SKILL	3.NBT.A.2.	Fluently add and subtract within 1,000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Massachusetts Curriculum Frameworks

Mathematics

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

FOCUS / COURSE	MA.MP.	Mathematical Practice
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.
FOCUS / COURSE	**MA.4.NBT.**	**Number and Operations in Base Ten**
STRAND	**4.NBT.B.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic on whole numbers less than or equal to 1,000,000.**

STANDARD / CONCEPT / SKILL	4.NBT.B.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm.

FOCUS / COURSE	**MA.4.MD.**	**Measurement and Data**
STRAND	**4.MD.B.**	**Represent and interpret data.**
STANDARD / CONCEPT / SKILL	4.MD.B.4.	Make a line plot (dot plot) representation to display a data set of measurements in fractions of a unit (1⁄2, 1⁄4, 1⁄8). Solve problems involving addition and subtraction of fractions by using information presented in line plots (dot plots). For example, from a line plot (dot plot) find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Massachusetts Curriculum Frameworks

Science

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

FOCUS / COURSE	**MA.3-ETS.**	**Grade 3: Technology/Engineering**
STRAND	**ETS1.**	**Engineering Design**
STANDARD / CONCEPT / SKILL	3.3-5-ETS1-1.	Define a simple design problem that reflects a need or a want. Include criteria for success and constraints on materials, time, or cost that a potential solution must meet.
STANDARD / CONCEPT / SKILL	3.3-5-ETS1-2.	Generate several possible solutions to a given design problem. Compare each solution based on how well each is likely to meet the criteria and constraints of the design problem.
STANDARD / CONCEPT / SKILL	3.3-5-ETS1-4(MA).	Gather information using various informational resources on possible solutions to a design problem. Present different representations of a design solution.

Massachusetts Curriculum Frameworks

Science

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

FOCUS / COURSE	**MA.4-ESS.**	**Grade 4: Earth and Space Sciences**
STRAND	**ESS3.**	**Earth and Human Activity**
STANDARD / CONCEPT / SKILL	4-ESS3-1.	Obtain information to describe that energy and fuels humans use are derived from natural resources and that some energy and fuel sources are renewable and some are not.

FOCUS / COURSE	**MA.4-PS.**	**Physical Science**
STRAND	**PS3.**	**Energy**
STANDARD / CONCEPT / SKILL	4-PS3-4.	Apply scientific principles of energy and motion to test and refine a device that converts kinetic energy to electrical energy or uses stored energy to cause motion or produce light or sound.

FOCUS / COURSE	**MA.4-ETS.**	**Grade 4: Technology/Engineering**

STRAND	**ETS1.**	**Engineering Design**
STANDARD / CONCEPT / SKILL	4.3-5-ETS1-3.	Plan and carry out tests of one or more design features of a given model or prototype in which variables are controlled and failure points are considered to identify which features need to be improved. Apply the results of tests to redesign a model or prototype.
STANDARD / CONCEPT / SKILL	4.3-5-ETS1-5(MA).	Evaluate relevant design features that must be considered in building a model or prototype of a solution to a given design problem.

Massachusetts Curriculum Frameworks

Technology Education

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

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.a.**	**Abstraction**
STANDARD / CONCEPT / SKILL	3-5.CT.a.3.	Make a list of sub-problems to consider, while addressing a larger problem.

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.b.**	**Algorithms**
STANDARD / CONCEPT / SKILL	3-5.CT.b.1.	Define an algorithm as a sequence of instructions that can be processed by a computer.
STANDARD / CONCEPT / SKILL	3-5.CT.b.4.	Individually and collaboratively create an algorithm to solve a problem (e.g., move a character/robot/person through a maze).

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.d.**	**Programming and Development**
STANDARD / CONCEPT / SKILL	3-5.CT.d.1.	Individually and collaboratively create, test, and modify a program in a graphical environment (e.g., block-based visual programming language).

Massachusetts Curriculum Frameworks

Technology Education

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

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.a.**	**Abstraction**
STANDARD / CONCEPT / SKILL	3-5.CT.a.3.	Make a list of sub-problems to consider, while addressing a larger problem.

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.b.**	**Algorithms**
STANDARD / CONCEPT / SKILL	3-5.CT.b.1.	Define an algorithm as a sequence of instructions that can be processed by a computer.
STANDARD / CONCEPT / SKILL	3-5.CT.b.4.	Individually and collaboratively create an algorithm to solve a problem (e.g., move a character/robot/person through a maze).

FOCUS / COURSE	**MA.3-5.CT.**	**Grades 3 – 5: Computational Thinking (CT)**
STRAND	**3-5.CT.d.**	**Programming and Development**
STANDARD / CONCEPT / SKILL	3-5.CT.d.1.	Individually and collaboratively create, test, and modify a program in a graphical environment (e.g., block-based visual programming language).

Michigan Academic Standards

Mathematics

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

STRAND / STANDARD CATEGORY	**MI.CC.MP.3.**	**Mathematical Practices**
STANDARD	MP.3.1.	Make sense of problems and persevere in solving them.
STANDARD	MP.3.2.	Reason abstractly and quantitatively.
STANDARD	MP.3.3.	Construct viable arguments and critique the reasoning of others.
STANDARD	MP.3.4.	Model with mathematics.
STANDARD	MP.3.5.	Use appropriate tools strategically.

STRAND / STANDARD CATEGORY	**MI.CC.NBT.3.**	**Number and Operations in Base Ten**
STANDARD		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
GRADE LEVEL EXPECTATION	NBT.3.2.	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.

Michigan Academic Standards

Mathematics

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

STRAND / STANDARD CATEGORY	**MI.CC.MP.4.**	**Mathematical Practices**

STANDARD	MP.4.1.	Make sense of problems and persevere in solving them.
STANDARD	MP.4.2.	Reason abstractly and quantitatively.
STANDARD	MP.4.3.	Construct viable arguments and critique the reasoning of others.
STANDARD	MP.4.4.	Model with mathematics.
STANDARD	MP.4.5.	Use appropriate tools strategically.
STRAND / STANDARD CATEGORY	**MI.CC.NBT.4.**	**Number and Operations in Base Ten**
STANDARD		**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
GRADE LEVEL EXPECTATION	NBT.4.4.	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
STRAND / STANDARD CATEGORY	**MI.CC.MD.4.**	**Measurement and Data**
STANDARD		**Represent and interpret data.**
GRADE LEVEL EXPECTATION	MD.4.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Michigan Academic Standards

Science

Grade **3** - Adopted: **2015**

STRAND / STANDARD CATEGORY	**MI.SC.1.**	**Forces and Interactions**
STANDARD	3-PS2-2.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STRAND / STANDARD CATEGORY	**MI.SC.5.**	**Engineering Design**
STANDARD	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	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	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.

Michigan Academic Standards

Science

Grade **4** - Adopted: **2015**

STRAND / STANDARD CATEGORY	MI.SC.1.	Energy
STANDARD	4-PS3-4.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.
STANDARD	4-ESS3-1.	Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.

STRAND / STANDARD CATEGORY	MI.SC.5.	Engineering Design
STANDARD	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	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	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.

Michigan Academic Standards

Technology Education

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

STRAND / STANDARD CATEGORY	MI.MITECS.	Michigan Integrated Technology Competencies for Students
STANDARD	**MITECS.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.**
GRADE LEVEL EXPECTATION	MITECS.3.d.	Build knowledge by actively exploring realworld issues and problems, developing ideas and theories, and pursuing answers and solutions.

STRAND / STANDARD CATEGORY	MI.MITECS.	Michigan Integrated Technology Competencies for Students
STANDARD	**MITECS.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.**
GRADE LEVEL EXPECTATION	MITECS.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
GRADE LEVEL EXPECTATION	MITECS.4.c.	Develop, test, and refine prototypes as part of a cyclical design process.
GRADE LEVEL EXPECTATION	MITECS.4.d.	Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

STRAND / STANDARD CATEGORY	MI.MITECS.	Michigan Integrated Technology Competencies for Students
STANDARD	**MITECS.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.**

GRADE LEVEL EXPECTATION	MITECS.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
GRADE LEVEL EXPECTATION	MITECS.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

STRAND / STANDARD CATEGORY		Michigan Computer Science Standards
STANDARD		**LEVEL 1B: UPPER ELEMENTARY (GRADES 3-5)**
GRADE LEVEL EXPECTATION		**ALGORITHMS AND PROGRAMMING**
EXPECTATION	1B-AP-11.	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. Subconcept: Modularity; Practice 3.2
EXPECTATION	1B-AP-13.	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. Subconcept: Program Development; Practice 1.1, 5.1
EXPECTATION	1B-AP-16.	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. Subconcept: Program Development; Practice 2.2
EXPECTATION	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. Subconcept: Program Development; Practice 7.2

Michigan Academic Standards

Technology Education

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

STRAND / STANDARD CATEGORY	MI.MITECS.	Michigan Integrated Technology Competencies for Students
STANDARD	**MITECS.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.**
GRADE LEVEL EXPECTATION	MITECS.3.d.	Build knowledge by actively exploring realworld issues and problems, developing ideas and theories, and pursuing answers and solutions.

STRAND / STANDARD CATEGORY	MI.MITECS.	Michigan Integrated Technology Competencies for Students
STANDARD	**MITECS.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.**
GRADE LEVEL EXPECTATION	MITECS.4.b.	Select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
GRADE LEVEL EXPECTATION	MITECS.4.c.	Develop, test, and refine prototypes as part of a cyclical design process.
GRADE LEVEL EXPECTATION	MITECS.4.d.	Exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

STRAND / STANDARD CATEGORY	**MI.MITECS.**	**Michigan Integrated Technology Competencies for Students**
STANDARD	**MITECS.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.**
GRADE LEVEL EXPECTATION	MITECS.5.a.	Formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
GRADE LEVEL EXPECTATION	MITECS.5.d.	Understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

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

STRAND / STANDARD CATEGORY		**Michigan Computer Science Standards**
STANDARD		**LEVEL 1B: UPPER ELEMENTARY (GRADES 3-5)**
GRADE LEVEL EXPECTATION		**ALGORITHMS AND PROGRAMMING**
EXPECTATION	1B-AP-11.	Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process. Subconcept: Modularity; Practice 3.2
EXPECTATION	1B-AP-13.	Use an iterative process to plan the development of a program by including others' perspectives and considering user preferences. Subconcept: Program Development; Practice 1.1, 5.1
EXPECTATION	1B-AP-16.	Take on varying roles, with teacher guidance, when collaborating with peers during the design, implementation, and review stages of program development. Subconcept: Program Development; Practice 2.2
EXPECTATION	1B-AP-17.	Describe choices made during program development using code comments, presentations, and demonstrations. Subconcept: Program Development; Practice 7.2

Minnesota Academic Standards

Mathematics

Grade **3** - Adopted: **2008**

CONTENT STANDARD / DOMAIN	**MN.3.1.**	**Number & Operation**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**3.1.2.**	**Add and subtract multi-digit whole numbers; represent multiplication and division in various ways; solve real world and mathematical problems using arithmetic.**
INDICATORS OF PROGRESS / STRAND	3.1.2.1.	Add and subtract multi-digit numbers, using efficient and generalizable procedures based on knowledge of place value, including standard algorithms.
CONTENT STANDARD / DOMAIN	**MN.3.4.**	**Data Analysis**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**3.4.1.**	**Collect, organize, display, and interpret data. Use labels and a variety of scales and units in displays.**

INDICATORS OF PROGRESS / STRAND	3.4.1.1.	Collect, display and interpret data using frequency tables, bar graphs, picture graphs and number line plots having a variety of scales. Use appropriate titles, labels and units.

Minnesota Academic Standards

Mathematics

Grade **4** - Adopted: **2008**

CONTENT STANDARD / DOMAIN	**MN.4.1.**	**Number & Operation**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**4.1.2.**	**Represent and compare fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities.**
INDICATORS OF PROGRESS / STRAND	4.1.2.6.	Read and write tenths and hundredths in decimal and fraction notations using words and symbols; know the fraction and decimal equivalents for halves and fourths.

Minnesota Academic Standards

Science

Grade **3** - Adopted: **2009**

CONTENT STANDARD / DOMAIN	**MN.3.1.**	**The Nature of Science and Engineering**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**3.1.3.**	**Interactions Among Science, Technology, Engineering, Mathematics, and Society**
INDICATORS OF PROGRESS / STRAND	**3.1.3.4.**	**The student will understand that tools and mathematics help scientists and engineers see more, measure more accurately, and do things that they could not otherwise accomplish.**
INDICATORS OF PROGRESS	3.1.3.4.1.	Use tools, including rulers, thermometers, magnifiers and simple balances, to improve observations and keep a record of the observations made.

Minnesota Academic Standards

Science

Grade **4** - Adopted: **2009**

CONTENT STANDARD / DOMAIN	**MN.4.1.**	**The Nature of Science and Engineering**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**4.1.2.**	**Practice of Engineering**
INDICATORS OF PROGRESS / STRAND	**4.1.2.1.**	**The student will understand that engineers design, create and develop structures, processes and systems that are intended to improve society and may make humans more productive.**
INDICATORS OF PROGRESS	4.1.2.1.1.	Describe the positive and negative impacts that the designed world has on the natural world as more and more engineered products and services are created and used.
CONTENT STANDARD / DOMAIN	**MN.4.1.**	**The Nature of Science and Engineering**

PERFORMANCE INDICATOR / DOMAIN COMPONENT	**4.1.2.**	**Practice of Engineering**
INDICATORS OF PROGRESS / STRAND	**4.1.2.2.**	**The student will understand that engineering design is the process of identifying problems, developing multiple solutions, selecting the best possible solution, and building the product.**
INDICATORS OF PROGRESS	4.1.2.2.1.	Identify and investigate a design solution and describe how it was used to solve an everyday problem.
INDICATORS OF PROGRESS	4.1.2.2.2.	Generate ideas and possible constraints for solving a problem through engineering design.
INDICATORS OF PROGRESS	4.1.2.2.3.	Test and evaluate solutions, including advantages and disadvantages of the engineering solution, and communicate the results effectively.

Minnesota Academic Standards

Technology Education

Grade **3** - Adopted: **2009**

CONTENT STANDARD / DOMAIN	**MN.ITL.3-5.**	**Information and Technology Literacy Standards (Refresh 2009)**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**3-5.3.**	**Technology Use and Concepts: explore multiple technologies, evaluate their suitability for the desired educational or personal task, and apply the tools needed.**
INDICATORS OF PROGRESS / STRAND	**3-5.3.I.**	**Use of Technology**
INDICATORS OF PROGRESS	**3-5.3.I.D.**	**Strategically solve information and technology issues.**
INDICATOR	3-5.3.I.D.1.	Seek assistance to trouble shoot technical problems.

Minnesota Academic Standards

Technology Education

Grade **4** - Adopted: **2009**

CONTENT STANDARD / DOMAIN	**MN.ITL.3-5.**	**Information and Technology Literacy Standards (Refresh 2009)**
PERFORMANCE INDICATOR / DOMAIN COMPONENT	**3-5.3.**	**Technology Use and Concepts: explore multiple technologies, evaluate their suitability for the desired educational or personal task, and apply the tools needed.**
INDICATORS OF PROGRESS / STRAND	**3-5.3.I.**	**Use of Technology**
INDICATORS OF PROGRESS	**3-5.3.I.D.**	**Strategically solve information and technology issues.**
INDICATOR	3-5.3.I.D.1.	Seek assistance to trouble shoot technical problems.

Mississippi College & Career Readiness Standards

Mathematics

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

THEME	MS.MP.	Standards for Mathematical Practice
SUBJECT	MP.1.	Make sense of problems and persevere in solving them.
SUBJECT	MP.2.	Reason abstractly and quantitatively.
SUBJECT	MP.3.	Construct viable arguments and critique the reasoning of others.
SUBJECT	MP.4.	Model with mathematics.
SUBJECT	MP.5.	Use appropriate tools strategically.
THEME	**MS.3.NBT.**	**Number and Operations in Base Ten (NBT)**
SUBJECT		**Use place value understanding and properties of operations to perform multi-digit arithmetic**
STANDARD	3.NBT.2.	Fluently add and subtract (including subtracting across zeros) within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. Include problems with whole dollar amounts.

Mississippi College & Career Readiness Standards

Mathematics

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

THEME	MS.MP.	Standards for Mathematical Practice
SUBJECT	MP.1.	Make sense of problems and persevere in solving them.
SUBJECT	MP.2.	Reason abstractly and quantitatively.
SUBJECT	MP.3.	Construct viable arguments and critique the reasoning of others.
SUBJECT	MP.4.	Model with mathematics.
SUBJECT	MP.5.	Use appropriate tools strategically.
THEME	**MS.4.NBT.**	**Number and Operations in Base Ten (NBT)**
SUBJECT		**Use place value understanding and properties of operations to perform multi-digit arithmetic**
STANDARD	4.NBT.4.	Fluently add and subtract (including subtracting across zeros) multi-digit whole numbers using the standard algorithm.
THEME	**MS.4.MD.**	**Measurement and Data (MD)**
SUBJECT		**Represent and interpret data**
STANDARD	4.MD.4.	Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.

Mississippi College & Career Readiness Standards

Science

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

THEME	**MS.E.3.**	**GRADE THREE: Earth and Space Science**
SUBJECT		**Earth's Resources**
STANDARD	**E.3.10.**	**Students will demonstrate an understanding that all materials, energy, and fuels that humans use are derived from natural sources.**
OBJECTIVE	E.3.10.1.	Identify some of Earth's resources that are used in everyday life such as water, wind, soil, forests, oil, natural gas, and minerals and classify as renewable or nonrenewable.
OBJECTIVE	E.3.10.2.	Obtain and communicate information to exemplify how humans attain, use, and protect renewable and nonrenewable Earth resources.

Mississippi College & Career Readiness Standards

Science

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

THEME	**MS.P.4.**	**GRADE FOUR: Physical Science**
SUBJECT		**Motions, Forces, and Energy**
STANDARD	**P.4.6A.**	**Students will demonstrate an understanding of the common sources and uses of heat and electric energy and the materials used to transfer heat and electricity.**
OBJECTIVE	P.4.6A.3.	Develop models demonstrating how heat and electrical energy can be transformed into other forms of energy (e.g., motion, sound, heat, or light).
OBJECTIVE	P.4.6A.6.	Design a device that converts any form of energy from one form to another form (e.g., construct a musical instrument that will convert vibrations to sound by controlling varying pitches, a solar oven that will convert energy from the sun to heat energy, or a simple circuit that can be used to complete a task). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device.

Missouri Learning Standards

Mathematics

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

STRAND: BIG IDEA / STANDARD	**MO.3.NBT.**	**Number Sense and Operations in Base Ten**
CONCEPT: GLE / BENCHMARK	**3.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
GLE / COMPONENT	3.NBT.A.3.	Demonstrate fluency with addition and subtraction within 1000.

STRAND: BIG IDEA / STANDARD	**MO.3.DS.**	**Data and Statistics**
CONCEPT: GLE / BENCHMARK	**3.DS.A.**	**Represent and analyze data.**
GLE / COMPONENT	3.DS.A.4.	Use data shown in a line plot to answer questions.

Missouri Learning Standards

Mathematics

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

STRAND: BIG IDEA / STANDARD	**MO.4.NBT.**	**Number Sense and Operations in Base Ten**
CONCEPT: GLE / BENCHMARK	**4.NBT.A.**	**Use place value understanding and properties of operations to perform multi-digit arithmetic with numbers up to one million.**
GLE / COMPONENT	4.NBT.A.5.	Demonstrate fluency with addition and subtraction of whole numbers.

STRAND: BIG IDEA / STANDARD	**MO.4.NF.**	**Number Sense and Operations in Fractions**
CONCEPT: GLE / BENCHMARK	**4.NF.C.**	**Understand decimal notation for fractions, and compare decimal fractions. (Denominators of 10 or 100)**
GLE / COMPONENT	4.NF.C.10.	Understand that fractions and decimals are equivalent representations of the same quantity.

STRAND: BIG IDEA / STANDARD	**MO.4.DS.**	**Data and Statistics**
CONCEPT: GLE / BENCHMARK	**4.DS.A.**	**Represent and analyze data.**
GLE / COMPONENT	4.DS.A.3.	Analyze the data in a frequency table, line plot, bar graph or picture graph.

Missouri Learning Standards

Science

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

STRAND: BIG IDEA / STANDARD	**MO.3.ETS1.**	**Engineering Design**
CONCEPT: GLE / BENCHMARK	**3.ETS1.A.**	**Defining and Delimiting Engineering Problems**
GLE / COMPONENT	3.ETS1.A.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.

STRAND: BIG IDEA / STANDARD	**MO.3.ETS1.**	**Engineering Design**
CONCEPT: GLE / BENCHMARK	**3.ETS1.B.**	**Developing Possible Solutions**
GLE / COMPONENT	3.ETS1.B.1.	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.

STRAND: BIG IDEA / STANDARD	**MO.3.ETS1.**	**Engineering Design**

CONCEPT: GLE / BENCHMARK	**3.ETS1.C.**	**Optimizing the Solution Process**
GLE / COMPONENT	3.ETS1.C.1.	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.

Missouri Learning Standards

Science

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

STRAND: BIG IDEA / STANDARD	**MO.4.PS2.**	**Motion and Stability: Forces and Interactions**
CONCEPT: GLE / BENCHMARK	**4.PS2.A.**	**Forces and Motion**
GLE / COMPONENT	4.PS2.A.1.	Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.
STRAND: BIG IDEA / STANDARD	**MO.4.PS3.**	**Energy**
CONCEPT: GLE / BENCHMARK	**4.PS3.B.**	**Conservation of Energy and Energy Transfer**
GLE / COMPONENT	4.PS3.B.1.	Provide evidence to construct an explanation of an energy transformation(e.g. temperature change, light, sound, motion, and magnetic effects)
GLE / COMPONENT	4.PS3.B.2.	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. [Clarification Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device.]
STRAND: BIG IDEA / STANDARD	**MO.4.PS3.**	**Energy**
CONCEPT: GLE / BENCHMARK	**4.PS3.C.**	**Relationship Between Energy and Forces**
GLE / COMPONENT	4.PS3.C.1.	Use models to explain that simple machines change the amount of effort force and/or direction of force. [Clarification Statement: memorization of a simple machine is not the focus, concept builds on the application of force and motion .]
STRAND: BIG IDEA / STANDARD	**MO.4.ETS1.**	**Engineering Design**
CONCEPT: GLE / BENCHMARK	**4.ETS1.A.**	**Defining and Delimiting Engineering Problems**
GLE / COMPONENT	4.ETS1.A.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.
STRAND: BIG IDEA / STANDARD	**MO.4.ETS1.**	**Engineering Design**

CONCEPT: GLE / BENCHMARK	**4.ETS1.B.**	**Developing Possible Solutions**
GLE / COMPONENT	4.ETS1.B.1.	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.
STRAND: BIG IDEA / STANDARD	**MO.4.ETS1.**	**Engineering Design**
CONCEPT: GLE / BENCHMARK	**4.ETS1.C.**	**Optimizing the Solution Process**
GLE / COMPONENT	4.ETS1.C.1.	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.

Missouri Learning Standards

Technology Education

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

STRAND: BIG IDEA / STANDARD		**Computer Science Performance Standards**
CONCEPT: GLE / BENCHMARK		**Algorithms & Programming**
GLE / COMPONENT		**Algorithms**
INDICATOR / PROFICIENCY	3.AP.A.01.	Compare multiple algorithms (sets of step-by-step instructions) for accomplishing the same task verbally and kinesthetically, with robot devices or a programming language.

STRAND: BIG IDEA / STANDARD		**Computer Science Performance Standards**
CONCEPT: GLE / BENCHMARK		**Algorithms & Programming**
GLE / COMPONENT		**Variables**
INDICATOR / PROFICIENCY	3.A.V.01.	Create programs that use variables to store and modify grade level appropriate data.

STRAND: BIG IDEA / STANDARD		**Computer Science Performance Standards**
CONCEPT: GLE / BENCHMARK		**Algorithms & Programming**
GLE / COMPONENT		**Modularity**
INDICATOR / PROFICIENCY	3.AP.M.01.	Decompose (break down) the steps needed to solve a problem into precise sequence of instructions.

Missouri Learning Standards

Technology Education

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

STRAND: BIG IDEA / STANDARD		Computer Science Performance Standards
CONCEPT: GLE / BENCHMARK		Algorithms & Programming
GLE / COMPONENT		Algorithms
INDICATOR / PROFICIENCY	4.AP.A.01.	Compare and simplify multiple algorithms (sets of step-by-step instructions) for accomplishing the same task verbally and kinesthetically, with robot devices or a programming language.

STRAND: BIG IDEA / STANDARD		Computer Science Performance Standards
CONCEPT: GLE / BENCHMARK		Algorithms & Programming
GLE / COMPONENT		Modularity
INDICATOR / PROFICIENCY	4.AP.M.02.	With grade appropriate complexity, modify, remix or incorporate portions of an existing program into one's own work, to develop something new or add more advanced features.